



Cowal and Trossachs Forest District

Land Management Plan

Milton



Milton Land Management Plan 2017-2027

Cowal and Trossachs Forest District

MILTON

Land Management Plan

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

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



Approval date:

Plan Reference No:

Plan Approval Date:

Plan Expiry Date:

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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:	Milton
Nearest town, village or locality:	Brig o'Turk
OS Grid reference:	NN566067
Local Authority district/unitary Authority:	LLTNP

Areas for approval

	Conifer	Broadleaf
Clear felling	60.7ha	
Selective felling		
Restocking	14.7	46.0
New planting (complete appendix 4)		

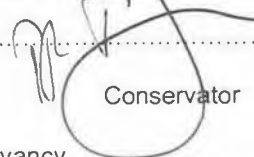
1. I apply for Land Management Plan approval for the property described above and in the enclosed Land Management Plan.
2. I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for roads, tracks and quarries as detailed in my application.
3. I confirm that the initial scoping of the plan was carried out with FC staff on 5th December 2014.
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



Forest District Manager

Signed



Conservator

District

...Cowal & Trossachs FD

Conservancy

Date 31st May 2017

Date of Approval

11/11/2017

Date approval ends

11/11/2027

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A Screening Opinion Request form is to be found in Appendix V.

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Summary of Proposals

The Milton Land Management Plan (LMP) draws on the key themes of the Scottish Forestry Strategy (SFS) (2006), Forest Enterprise Scotland's Strategic Directions and Cowal & Trossachs Forest District's Strategic Plan. The plan takes into account the general aspirations for The Great Trossachs Forest.

The objectives of the new plan, which were developed following internal and external consultation, are summarised below and emphasise the need for efficient and safe removal of the remaining non-native conifer and establishment of native woodland.

1. Establish access facilities that will allow efficient and safe extraction of timber whilst minimising impact on The Great Trossachs Path and the landscape.
2. Maintain and expand established native woodland across the whole site through natural regeneration or planting. Species can include native Scots pine on appropriate site types.
3. Manage broadleaved species productively where feasible.
4. Control non-native conifer natural regeneration at appropriate levels and allow variable density regeneration of native species. Retain some open space for habitat and deer control.
5. Examine options for management of woodlands along the public road and The Great Trossachs Path as part of visitor zone management.
6. Maintain a deer control programme appropriate to the establishment of broadleaved woodland. Establish a track network to assist management.
7. Protect water supplies, water courses and manage riparian zones, to maintain and improve water quality, increase biodiversity and mitigate against erosion and flooding. Follow forest and water guidelines during forest operations.
8. Follow all relevant guidelines during operations and take account of the presence of birds and other important wildlife/habitats.

1.0 Introduction:

1.1 Setting and context

The Milton Land Management Plan area lies between the settlements of Brig o' Turk and Kilmahog to the west of Callander in Stirlingshire. The plan area is roughly polygonal with long straight edges defined by legal boundaries rather than topographic features. The southern A821, Aberfoyle – Callander road marks the southern boundary with a small section between the road and the shore of Loch Venachar. (Figure 1.1). The block is within the Loch Lomond and The Trossachs National Park, The Queen Elizabeth Forest Park and The Great Trossachs Forest. The setting is one of hills and steep glen sides, dominated by the summit of Ben Ledi to the north. The south side of Loch Venachar is dominated by commercial spruce forest but the northern shore has a greater variety of ancient and new native woodland with sheep and cattle grazing on open ground. The area is valued for its landscape and proves a great draw for visitors.

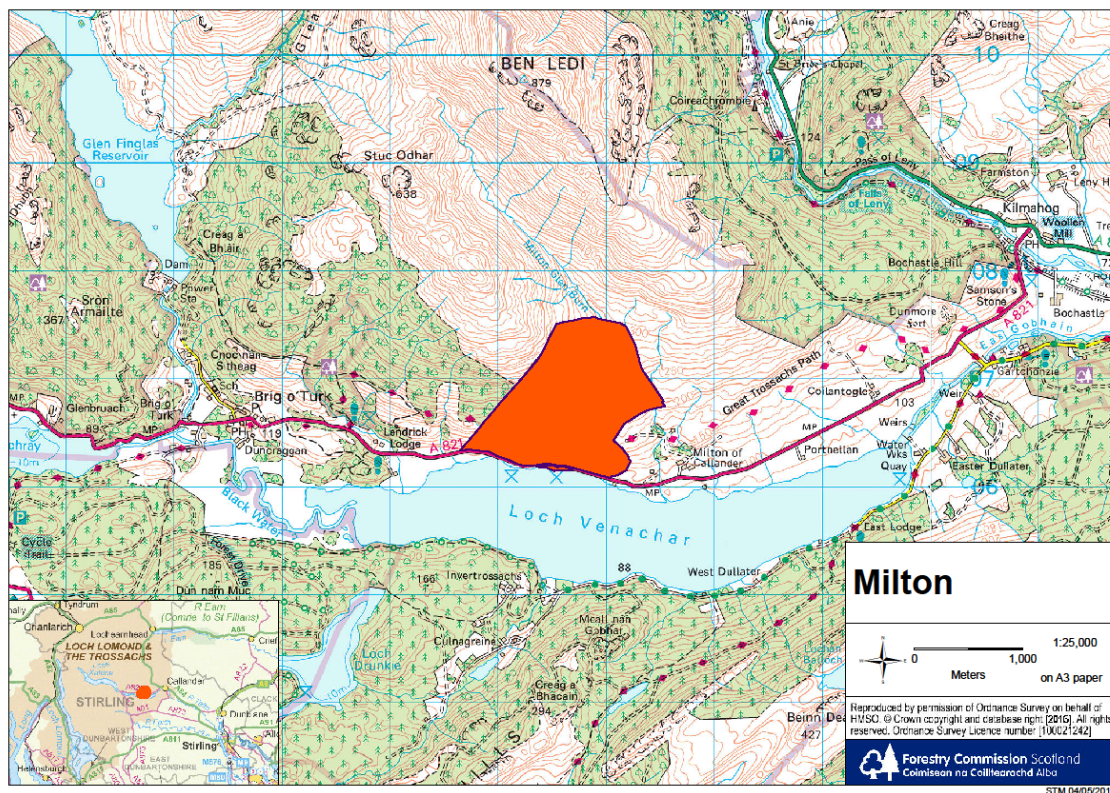


Figure 1.1 Milton: location

1.2 History of the plan

This is the second forest plan for Milton, the first having been granted extension of approval until 2017. The plan covers an area of 158ha and was purchased and planted in two stages. The first planting took place on the lower slopes in 1954 and included a range of mixed conifer species some of which was planted on sites of ancient semi-natural woodland. A further acquisition in the 1980s led to the establishment of mainly Sitka spruce and Japanese larch on previously open ground at higher elevations. Some remnants of the ancient woodland remain on lower slopes close to Loch Venachar and along the Milton Glen Burn.

2.0 Analysis of previous plan

2.1 Aims of previous plan and achievements

The objectives of the previous plan were to maintain a strong element of timber production whilst introducing greater diversity and improving the landscape impact of the woodlands. A forest habitat network, centred on the ancient woodlands and riparian zones, provided the basis of the plan. Phased felling of the non-native conifers would allow for increased age and species diversity and restoration of ancient woodland. Continued use of Sitka spruce on higher, less environmentally sensitive sites was expected to maintain the timber productive element of the plan. At lower elevations, outwith ancient woodland sites, a diversity of conifer species would provide both timber and landscape interest. The area of open ground was to be expanded and attempts made to soften the landscape impact of straight boundaries and power line wayleaves. It was expected that the future woodlands would sit comfortably in the landscape alongside neighbouring native woodland schemes and provide improved habitats for a range of bird and mammal species.

Six felling phases were envisaged, three in each of the age class areas, which would have seen all the first rotation crops removed by 2031. Resulting restocking would have seen the development of a four phase system of clearfelling of commercial conifers, balanced with long term retentions of native species and an increase in the area of open ground.

The first three coupes were felled by 2008 but the development of a Local Forestry Framework around this time led to a review of the restocking proposals. This review led to the establishment, by planting or by natural regeneration of native woodland species to better reflect the development

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of native woodlands throughout The Great Trossachs Forest and, more immediately, neighbouring land managed by Woodland Trust Scotland. Some planting was at commercial spacing so the productive potential of the woodland remains somewhat intact.

2.2 How previous plan relates to today's objectives

The broad objectives of the previous plan are relevant to the new land management plan though there is now greater emphasis on restoration and expansion of native woodland. In the short term there will still be some commercial benefit from the removal of non-native conifers planted in the 1980s but overall the productive element of the woodland will be lower than envisaged in the previous plan.

3.0 Background information

3.1 Physical site factors

3.1.1 Geology Soils and Landform

The Land Management Plan area lies immediately north of the Highland Boundary Fault and is underlain by metamorphic rocks derived from sandstones and finer grained sedimentary rocks. These rocks are hard, break down only slowly and provide a relatively poor nutrient source. There is a very limited amount of superficial deposits of glacial or fluvio-glacial origin, largely derived from the solid geology. These superficial deposits are concentrated mainly along burns but there are also thicker deposits of hummocky moraine on some less steep slopes.

Slopes rise steeply from the shore of Loch Venachar at about 80m above sea level and there are several steep rock faces. Above 250m the south east ridge of Stuc Odhar and the Milton Glen Burn combine to create an uneven landscape of steep cliffs, peaty basins and incised burns. The Milton Glen Burn is steep with several waterfalls. Maximum elevation is about 380m.

There are no detailed soil maps of the plan area but the James Hutton Institute 1:250000 survey indicates a predominance of brown earths at lower elevations with podzols and iron pan soils becoming more frequent on upper slopes. This broad distribution is confirmed by field observation though the overall pattern is more complex than can be shown at large scale. Brown earths occur on steeper slopes where there is adequate moisture retention without the soils becoming waterlogged. On steeper slopes with stonier substrates the soils are drier with a tendency to increased podzolisation. Where peaty topsoils develop iron pan soils become

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more frequent. Podzols and iron pan soils are less fertile than brown earths and the former could be prone to drought in dry conditions. There are areas of both surface water and peaty gley, often following drainage channels between steeper slopes and there is one relatively large area of peat. Surface water gleys are more fertile and will support a richer woodland than peaty gley.

3.1.2 Water

The burns in the plan area drain directly or indirectly into Loch Venachar which is part of the Teith Special Area of Conservation (SAC). Loch Venachar is dammed and is used to regulate flow in the Teith System. The burns are generally steep and deeply incised on the middle slopes. Milton Glen Burn has a rocky base and there are numerous waterfalls along its length. The latter is also a Drinking Water Catchment and there is a water offtake within the plan area; a pipeline takes water to a reservoir just to the south of the plan area. More recently a weir has been constructed from which water is fed to a generator at Milton of Callander.

3.1.3 Climate

Using the measures of warmth and wetness defined in the Ecological Site Classification (ESC, see Forestry Commission Bulletin 124) the Milton LMP area is categorized as warm and moist at lower elevations, becoming cool and wet above about 175m. Average annual rainfall range is approximately 1650mm about 60% falls during the winter months. Most of the plan area is classed as sheltered or only slightly exposed.

3.1.4 Future climate

Predicting the impact of future climate change presents one of the biggest challenges in forest planning. In the Milton area accumulated temperature is predicted to increase by about 45% by 2050, compared to baseline 1960 – 1990 data following medium to high emissions scenarios. Temperatures will continue to rise and be about 60% greater than baseline data by 2080. Relative increases will be even greater at higher elevations and all parts of the forest are predicted to be classed as warm by 2050. Annual rainfall is predicted to remain more or less the same, a decrease in summer rainfall being compensated by a similar increase in winter. Moisture deficit is predicted to decrease up to 2050 and then begin to rise again towards 2080. The impact of these changes on soil properties is uncertain. Potentially there could be an increase in growth rate in all tree species and a wider range of species may become suitable.

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. Where exposure is a limiting factor, at present, it seems likely to remain so.

3.2 Biodiversity and environmental designations

There is a broad diversity of habitat types in the Milton LMP area ranging from the remaining first rotation spruce forest to ancient semi-natural woodland. The latter includes stands of oak and ash on the steep slopes by the shore of Loch Venachar to mainly open birch woodland along the sides of the Milton Glen Burn. Elsewhere there are small stands of Scots pine retained from the earlier felling programme and more extensive areas of this species planted in 2011. Extensive natural regeneration of native broadleaved species complements oak and birch planted at the same time as the pine. There are small areas of open ground throughout the area ranging from steep grassy and herb rich slopes to heathery knolls, bare rock faces and small areas of bog.

Birds of prey and owls are known to either nest in, or hunt in, the block and the diversity of habitat attracts a number of small bird species. Black grouse are known to occur within one kilometre of the LMP area. The open ground provides suitable habitat for butterflies and other insects. The various water courses feed into Loch Venachar which is part of the River Teith SAC.

3.3 The existing forest

3.3.1 Species, age structure and yield class

Tables 3.2 and 3.3 indicate species and age class distribution for the Milton LMP area.

Two groups of species dominate the woodland area – Sitka spruce and native broadleaves. The latter includes oak, birch, ash, alder and willow in various proportions. The Sitka spruce was planted in 1981 and with the smaller areas of larch accounts for the bulk of trees in the 21 – 40 age class. Native species are mainly in two age groups – ancient semi natural woodland dating back to the mid 18th century, and recently planted oak, birch and Scots pine less than 10 years old.

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Yield class, (productivity) is measured as maximum mean annual volume increment ($\text{m}^3\text{yr}^{-1}\text{ha}^{-1}$) and is variable in the spruce. On better sites yield classes up to 20 can be achieved but on poorer, wetter ground YC 10 or below is more likely and in some places the crop has failed completely. Yield class of broadleaved species is likely to be no more than 4 – 8.

Species	Area ha	Area %
Sitka spruce	38.9	36.9
Norway spruce	1.9	1.8
Larch	16.9	16.0
Scots pine	7.1	6.7
Native broadleaves	40.4	38.3
Other conifers	0.3	0.3
	105.5	100.0

Table 3.2 Species diversity, Milton, 2017

Age Class	Area ha	Area %
0-10	36.5	34.7
11-20	5.1	4.8
21-40	55.3	52.4
41-60	0	0.0
60+	8.6	8.1
	105.5	100.0

Table 3.3 Age diversity, Milton, 2017

3.3.2 Access

There is road access into the lower half of the block off the A821, however access to the upper half is severely restricted. During previous operations a steep forwarder track was employed to access higher parts of the coupes concerned; there may be potential to utilise this once again but it is likely that some substantial work would be required to bring it up to standard. The possibility of extending the main access road has been investigated but a relatively long road would be required to avoid steep gradients. In addition there are several deep gullies to be crossed and the wayleave also interferes with the preferred route. Possible routes are shown on the roads map but both options will need further investigation.

A third option would be to utilise the track from Milton of Callander to Scottish Water's reservoir and from there the track built for the recently constructed hydro scheme. This option would involve upgrading the track for use by either forwarder or timber lorry and further investigation is needed to determine which would be most suitable. A timber stacking area would also be required at Milton of Callander and improvements made to the bell-mouth at the entrance on to the public road.

3.3.3 Potential for continuous cover forestry

Continuous cover forestry (CCF) systems work best where there are deep, well drained soils in relatively sheltered situations. In Milton the best potential for CCF is found where there are brown earth soils below about 150m elevation. Access due to topography further limits potential for productive systems but there is scope for establishing permanent native woodland for landscape, environment and amenity benefits.

3.3.4 Current and potential markets

Although timber prices fluctuate, there is continued demand for softwood timber of all dimensions. Future markets for hardwood and Scots pine 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

Milton lies immediately north of the Highland Boundary Fault within Loch Lomond and The Trossachs National Park. Milton's situation on the steep slopes of the northern shore of Loch Venachar put it in a prominent position in the landscape. The woodlands are clearly seen from the southern shore of Loch Venachar and surrounding hills such as Ben Ledi and Ben Gullipen. This is a rugged landscape of hills, lochs and glens at the gateway to the Highlands and although there are other commercial plantations nearby the remaining spruce stand in stark contrast to the open ground and developing native woodland around it.

3.4.2 Neighbouring land use

There is a variety of land use in the surrounding area. Commercial forestry dominates Strathyre to the north east and the southern slopes of Loch Venachar. Further west Achray forest is also predominantly spruce though there are extensive areas of ancient woodland around Brig o' Turk. Open hill ground provides rough grazing for sheep and cattle but there is better at lower elevations around the town of Callander. Callander itself is an important tourist centre, and the area in general is a popular destination all year round.

In 2016 a hydropower scheme was constructed, at Milton of Callander, with an abstraction point on the Milton Glen Burn within the LMP area.

3.5 Social factors

3.5.1 Recreation

The recently completed Great Trossachs Path passes through the forest block and is a popular route for locals and visitors. Although there are nearby car parks on the shore of Loch Venachar there are no other formal visitor facilities. Loch Venachar has a busy sailing club and is popular with swimmers and anglers. There are numerous trails and tracks in the surrounding area. Maintenance of the largescale landscape value of the plan area is important.

3.5.2 Community

The communities around the Milton block highly value the surrounding woodlands for access and the landscape character within which they live, travel and work.

3.5.3 Heritage

There are no known heritage features in the LMP area. Small areas categorized only as "rough grazing" were identified in a Historic Land Use Assessment.

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) and the Scottish Forestry Strategy.

4.0 Analysis and Concept

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

4.1 Analysis

- Remaining stands of non-native conifer isolated from main access points by distance and steep slopes.
- Woodland is prominent in the landscape, visible from a number of mountain tops and the south shore of Loch Venachar.
- Woodland surrounded by The Great Trossachs Forest native woodland scheme.
- Extensive areas of ancient semi-natural woodland along lower slopes and the Milton Glen Burn.
- Milton Glen Burn is a drinking water catchment area and there is a water supply point in the LMP area.
- New hydro power scheme constructed on the Milton Glen Burn.
- High deer numbers impact on native woodland regeneration and have potential to impact on water quality.
- Loch Venachar forms part of the River Teith SAC and is used to manage water flow in the Teith system.
- The Great Trossachs Path runs through the woodland and provides extensive views over Loch Venachar towards Stirling to the east and Ben Venue/Ben Lomond to the west.
- Relatively warm and sheltered site conditions below about 175 metres, cooler, wetter and more exposed above this.
- Brown earth soils on lower slopes suitable for a wide range of species with a potential for productive management.
- Elsewhere, complex topography with steep slopes, rocky outcrops and peaty basins leads to variable and rapidly changing soil conditions less suitable for productive management.
- Restricted access further limits productive potential
- High voltage power line runs through lower part of site.

4.2 Concepts of the plan

The key objective of the plan is to remove the remaining first rotation conifer crop and to establish native woodland in its place. There is potential for productive management of native woodland.

- Remove remaining non-native conifer as efficiently and cost-effectively as possible, taking regard of all relevant guidelines.
- Investigate options for and establish access facilities for efficient harvesting and extraction.
- Establish native broadleaved and coniferous woodland, in the felled area, through either natural regeneration or planting.
- Manage existing stands of native woodland productively, where feasible.
- Maintain and enhance, where possible, remnant ancient semi-natural woodland.
- Retain and manage some areas of open ground for diversity and habitat.
- Control non-native natural regeneration at appropriate levels to retain integrity of native woodland character.
- Establish a deer control programme to enable early establishment of regenerating woodlands, linking in with neighbouring management aspirations and necessary measures to maintain water quality on the Milton Glen Burn.
- Manage woodlands along public road and Great Trossachs path to provide diversity of experience for visitors.
- If necessary manage re-establishment of native trees to integrate with the Great Trossachs Forest, the wider landscape and lessen impact of powerline on landscape.
- Take account of hydro and water extraction facilities during operations and ensure these are fully protected.
- Follow Forest and Water guidelines during harvesting and minimise risk of sediment run off into Milton Glen Burn and Loch Venachar.

5.0 Land Management Plan Proposals

5.1 Management

The key management task is removal of the remaining non-native conifer from the northern part of the block. This will be done in a single operation in the first half of the plan period. Ideally all a trees will be felled and the produce removed from site. However where circumstances suggest felling to re-cycle is a preferable approach this will be done. Only where health and safety concerns preclude any felling will trees be left standing. All harvesting operations will be carried out in accordance with the UK Forestry Standard Guidelines, Forests and Water Guidelines (5th edition).

5.1.1 Thinning

Stands of broadleaved trees planted at economic spacing will be assessed to see if they are ready for thinning during the life of t eplan. Likewise a survey of natural regeneration will be used to assess the need for any respacing.

5.1.2 Potential for Continuous Cover Forestry

There is an aspiration to manage the Milton woodlands using continuous cover principles. As stands develop they will be monitored and assessed to determine the best management approach.

5.2 Future habitats and species

The long term aim is to establish native woodland, suitable for the site types found in the LMP area. Partly because of the problem of access it is unlikely that trees will be planted at productive spacing and, indeed, the preferred establishment method is through natural regeneration. It is believed there is enough suitable seed source for this to occur. Birch is likely to be the dominant species with perhaps rowan and willow in places. It may be necessary to plant Scots pine and oak to achieve the desired expansion in the area of these species.

5.3 Restructuring

Following felling the woodlands will be become relatively even aged and remain so for many years to come. There will be some diversity as it is expected that regeneration will over many years. Species diversity will also be introduced by through native natural regeneration and possibly planting of Scots pine and oak.

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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.

Phase	Area (ha)	Volume (m ³)
1	60.7	21500
2	na	na
	60.7	21500

Table 5.1 Proposed felling

	Mixed broadleaves	Scots pine	Open	Totals
Phase 1				
Phase 2	25	10	25.7	60.7
Totals	25	10	25.7	60.7

Table 5.2 Proposed establishment

Table 5.2 summarises the establishment proposals for the plan area. Ideally this will be achieved through natural regeneration which, depending on ground conditions and seed source, may take several years to achieve. The presence of natural regeneration will be assessed five years after felling. If regeneration is not at desired levels a decision will be taken on whether to allow more time for natural establishment of trees. Alternatively a more pro-active approach may be taken: for example, ground preparation to create a suitable substrate for seedling establishment, or planting. Further evaluation will take place when the plan is reviewed at ten years and future commitments to natural regeneration outlined in the plan revision.

Target densities for native woodland regeneration will vary depending on site objectives, but is expected to be in the region of 500 to 1500 stems per hectare. If supplementary planting is required this will be carried out to reach similar densities. Sites with potential for productive woodland will be planted at densities of 2700 stems per hectare (Scots pine) and up to 3500 stems per hectare (native broadleaves).

Open areas will be allowed up to 20% tree cover. Sitka spruce regeneration will be kept within acceptable tolerance limits on both open ground and in areas designated for broadleaved woodland. Small amounts of rhododendron are known to be present and appropriate measures to control this species will be put in place.

5.5 Species tables

Table 5.3 and Figure 5.1 indicate the change in relative species composition between 2017 and 2047. The reduction in non-native conifer is sudden and dramatic following clearfelling of the remaining first rotation crop. After this the relative amounts of native broadleaves and Scots pine remain stable for many years to come. There will be some variation as more natural regeneration is recruited but details are difficult to predict. There is a range of species within the native broadleaves group, predominantly birch but also including oak, ash, alder and willow. The small amount of larch and mixed conifer is considered acceptable in but natural regeneration of Sitka spruce will be monitored and kept within the limits set in the tolerance table.

Species	2017	2027	2037	2047
Sitka spruce	36.9	0.0	0.0	0.0
Norway spruce	1.8	0.0	0.0	0.0
Larch	16.0	1.1	1.1	1.1
Scots pine	6.7	18.5	18.5	18.5
Native broadleaves	38.3	80.3	80.3	80.3
Mixed conifer	<0.5	<0.5	<0.5	<0.5
	100.0	100.0	100.0	100.0

Table 5.3 Change in species diversity over time in Milton (percent planted area)

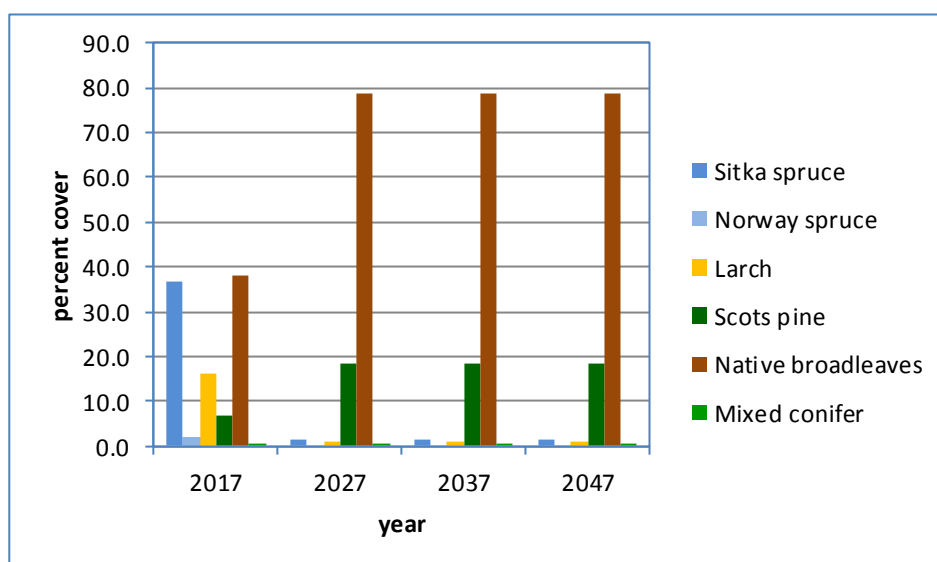


Figure 5.1 Change in species diversity over time in Milton (percent planted area)

5.6 Age structure

Table 5.4 and Figure 5.2 show the change in relative age structure between 2017 and 2047. These figures indicate that, after the clearance of the remaining first rotation conifer, the woodland will develop and retain an even aged structure for many years into the future. This may actually mimic natural systems at this scale and it is likely that there will be continued recruitment of natural regeneration over the next few decades. As the woodland ages some older trees will die introducing further diversity.

Age Class	2017	2027	2037	2047
0-10	34.7	53.2	0.0	0.0
11-20	4.8	37.2	53.3	0.0
21-40	52.4	0.0	37.1	90.4
41-60	0.0	0.0	0.0	0.0
60+	8.1	9.6	9.6	9.6
	100.0	100.0	100.0	100.0

Table 5.4 Age structure in Milton (percent of forested area)

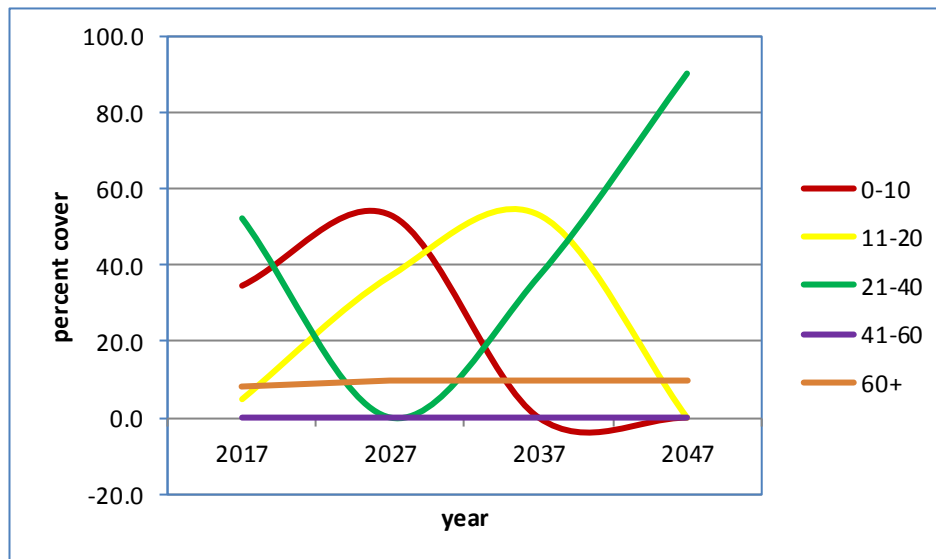


Figure 5.2 Age structure in Milton (percent forested area)

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5.7 Management of open land

	2017	2027	2037	2047
Forest	66.6	56.7	56.7	56.7
Open	33.4	43.3	43.3	43.3

Table 5.5 Relative area of open ground and forest (%).

Table 5.5 summarises the relative distribution of open ground to forest in 10 year intervals between 2017 and 2047. The figures assume fairly rapid development of natural regeneration within approximately 10 years. In the longer term there may be even more woodland cover than shown in the table. In addition natural regeneration will be accepted in designated open areas, as long as canopy cover does not exceed 20%. Some of the open space is taken up by roadlines and permanent wayleaves, these spaces will be retained.

5.8 Deer management

Successful establishment of broadleaves and softer conifers will require deer control in order to keep browsing to a minimum. The preferred approach is to manage background deer numbers through culling, bringing numbers down to a sustainable population where browsing damage is at an acceptable level. Fencing may be considered as an option on some sites, for example where shooting is precluded on health and safety grounds. An added benefit of reducing deer numbers will be the improvement of open ground habitats.

5.9 Access

Access to the single felling coupe is severely restricted because of the steepness of the slopes and the particular topography of the site. Several options have been proposed including the construction of a road capable of taking timber lorries through the block. This will be a very expensive option and not economically feasible given the objective of establishing native woodland at restocking. Construction of a forwarder track from the turning point at the end of the westernmost existing road is also a possibility but this requires further investigation to establish the optimal route and whether there are any particular requirements for its construction. A third option is to use the track from Milton of Callander to the Scottish Water reservoir to the south of the block and from there the new track constructed for the hydro development. Provisional agreement has been reached with the landowner but details regarding necessary upgrading and reinstatement have yet to be elaborated.

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About 1600m of ATV tracks may also be required, mainly for deer management purposes. 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 treated as permanent features and will be allowed to grass over. Indicative positions of the tracks are shown in the roads and tracks map. Final position will be within $\pm 100\text{m}$ of the indicated positions and the nominal area amounts to 0.32ha.

More detail and a Screening Opinion form for the ATV tracks is to be found in appendix V. A Screening Opinion for roads/forwarder tracks will be submitted once the preferred option has been finalised.

The roads and tracks map also indicates the alternative access points in and out of the woodlands with the approximate volume of timber to be extracted. The expected volume of 21500m³ translates to just over 1000 lorry loads leaving the site over a 12 month period. There are no restrictions on the A821 and, regardless of access point, all timber will be carried east to join the A84 trunk road at Kilmahog.

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Appendix I: Land Management Plan Consultation Record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Forestry Commission Scotland	17.01.17	17.01.17	No issues raised	
Loch Lomond and The Trossachs National Park	17.01.17	07.02.17	Involved in brief setting 23.03.16. Emphasised importance of maintaining access with appropriate infrastructure. Desire to see landscape scale integration of woodlands. No further issues raised at scoping.	Existing tracks will be maintained. FES will seek to integrate future habitats with neighbouring land use.
SEPA	17.01.17	02.02.17	Loch Venachar is at moderate status, for reasons that are unclear at present – will welcome opportunity to comment on draft plan. Several general issues raised. Request that any redundant structures on water courses will be removed. Presence of Invasive Non-Native Species should be noted and plan for control briefly outlined.	FES will follow relevant guidelines during operations to minimise risk to Loch Venachar. Plan will be available for consultation before final approval. Forest and Water Guidelines will be followed during operations. Any found will be removed. Brief outline for removal of INNS will be incorporated into plan.
SSE	17.01.17	08.02.17	Two important 11kV lines pass through LMP area. Small number of trees in SW of area pose risk to line and SSE request early notice if these to be included in felling programme. Would like to see reduction in potential “red zone” trees. Early notification requested if any proposed road building might impact powerline.	FES will follow relevant guidelines on consulting with SSE. FES will take account of powerline when restocking and make appropriate use of open space and broadleaved species. FES will follow consultation guidelines.

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SNH	17.01.17	24.01.17	Loch Venachar is part of River Teith SAC and LMP is likely to have a significant effect on qualifying species. FES are required to consider impact of any proposals and carry out appropriate assessment.	FES will carry out appropriate assessment prior to operations and note that SNH believe that adhering to best practice and Forest and Water Guidelines should be sufficient mitigation against adverse impacts.
Trossachs Community Council	12.07.16	14.07.16	FES attended CC meeting 13.10.16. CC dislike the idea of large scale clearfells left bare for several years. Concerns regarding impacts of operations. Concerns regarding access. Would like to be informed when a date for clearfelling has been confirmed. No further issues raised at scoping.	FES will consider planting trees if natural regeneration is slow in establishing. FES will follow relevant guidelines. Great Trossachs Path will be maintained. FES will consider other access options. FES will inform CC of felling dates prior to operations.
Mountaineering Scotland	17.01.17	24.01.17	Emphasised access rights and that these should be protected and referred to specifically in the plan Describe how access will be managed during operations. Type of restocking should be mentioned in plan.	FES will refer to access in the plan and maintain rights where these do not compromise operations and health and safety issues. Wording will be appropriate to detail required for a strategic plan. Restocking proposals will be described.
Scottish Water	17.01.17	02.02.17	Milton Glen Burn is a Drinking Water Protected Area and water quality and quantity must be protected. Requested copies on future deer management plans. Scottish Water assets are present in the plan area and these should be clearly identified and protected prior to and during operations. Requirement to comply with Sewers for Scotland and Water for Scotland 3 rd editions.	FES will note DWPA in operational workplans and follow guidelines on protecting drinking water supplies. Deer management proposals will be outlined in plan and future DMPs sent to SW. FES will follow relevant guidelines and consult with SW prior to operations. FES will comply with guidelines.
Forth Fisheries Trust	17.01.17	02.02.17	No issues raised.	
Woodland Trust	17.01.17	17.01.17	Previous meeting 16.03.15. Deer management is a major concern given age and condition of existing fencing. Deer are concentrated and funnelled down the Milton Glen Burn. Early felling would help resolve problems with deer fence. The Great Trossachs Path should be protected and access not impeded during operations.	New LMP will highlight existing issues and FES will liaise with Woodland Trust regarding deer management. Access will be maintained during operations, where this is not contrary to Health and Safety. Damage will be kept to a minimum and paths restored following operations.

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Woodland Trust			Restocking should be sympathetic to landscape and existing Woodland Trust new native woodlands. Prefer there to be no spruce retention. Black grouse occur within 1km to east and west of the Milton block.	FES propose to plant or allow natural regeneration of native woodland. FES propose to remove all Sitka spruce and keep regeneration within acceptable tolerances. Black grouse will be taken into account during operational planning.
Moray Estates	17.01.17	19.01.17	Site visit 14.02.17. Discussed potential access through Milton of Callander for operations. Discrepancies between planted area and legal boundary.	FES will review options for operational access and agree and seek formal agreements with Moray Estates if necessary. Boundary issues to be resolved by negotiation.
The Great Trossachs Forest Partnership	17.01.17	31.01.17	Prefer to see non-native conifers felled and replaced with native woodland. Access along The Great Trossachs Path should be maintained.	Proposal is to remove non-native conifer and establish mixed native woodland. Access along path will be maintained.
Venachar Lochside Café	17.01.17	19.01.17	Concerns regarding disruption to road traffic. Concerns regarding parking for operations.	Timber transport will be referred to in the plan. It is unlikely there will be requirements for facilities outwith the plan area.
Stirling Council	17.01.17	31.01.17	Refer to and follow recommendations of relevant Timber Transport Management protocols. Liaise with Local Authority Roads Service prior to and after timber sales. Seek appropriate permissions for any road infrastructure.	Protocols will be adhered to. FES will liaise with Local Authority regarding timber transport. Appropriate permissions will be sought.
Sustrans	17.01.17	no response		
CONFOR	17.01.17	no response		
RSPB	17.01.17	no response		
Balquhidder Deer Management Group	17.01.17	no response		

Appendix II. Scoping Record

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Record of scoping exercise carried out by email in January 2017

A number of stakeholders were contacted by email in January 2017 and the responses received are summarised in Appendix I.

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. Callander FDP will incorporate the various requirements of UKWAS within its proposals.

Appendix III. Land Management Plan Brief

This forest plan diverges from the previous plan in that, following removal of the remaining non-native conifer, the aim is establish native woodland in keeping with the aims of the Great Trossachs Forest.

There are opportunities to enhance existing native woodland, maintain an element of timber production and manage the woodlands to improve landscape and visitor experience.

Objectives:

Establish access facilities that will allow efficient extraction of timber whilst minimising impact on the Great Trossachs Path and the landscape.

Maintain and expand established native woodland across the whole site through natural regeneration or planting. Species can include native Scots pine on appropriate site types.

Manage broadleaved species productively where feasible.

Control non-native conifer natural regeneration at appropriate levels and allow variable density regeneration of native species. Retain some open space for habitat and deer control.

Examine options for management of woodlands along the public road and Great Trossachs Path as part of visitor zone management.

Maintain a deer control programme appropriate to the establishment of broadleaved woodland. Establish a track network to assist management.

Protect water supplies, water courses and manage riparian zones, to maintain and improve water quality, increase biodiversity and mitigate against erosion and flooding. Follow forest and water guidelines during forest operations.

Follow all relevant guidelines during operations and take account of the presence of birds and other important wildlife/habitats.

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Appendix IV: 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 V. Screening Opinion request

Milton LMP –ATV tracks

This is a request for a Screening Opinion for works covering construction of ATV tracks in Milton LMP area. We expect to carry out the work in the first five years of the plan and any work to be carried out in the second half of the plan period will be preceded by a new Screening Opinion.

Approximately 1600m of ATV tracks will be required to facilitate silvicultural and deer management operations.

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. ATV tracks will not be treated as permanent features; once operations are complete tracks will be allowed to grass over and the running surface and side batters will be left in a condition that will promote vegetation regeneration. 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 $\pm 100\text{m}$ 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 0.32ha.

A Screening Opinion form is to be found overleaf. A revised Screening Opinion will be sought if any specific sensitive issues are encountered before construction.

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- 1 Landscape When first constructed tracks are likely to be visible from surrounding hills. As they age and trees re-establish any impact will be minimised.
- 2 Watercourses All work will conform to the 5th edition of the UK Forestry Standard Guidelines "Forests and Water".
- 3 Archaeology There are no known features in the area.
- 4 Biodiversity Work carried out will be sensitive to permanent and temporary features of conservation value.
- 5 Access There are no major access issues.
- 6 Recreation Construction will not impact on the informal use of existing roads and tracks.
- 7 Material ATV tracks will use material from on site.

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Please complete this form to find out if you need consent from Forestry Commission Scotland, under the **Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017**, to carry out your proposed forestry project. Please refer to Schedule 2 Selection Criteria for Screening Forestry Projects under [Applying for an opinion](#). If you are not sure about what information to include on this form please contact your [local Conservancy office](#).

Proposed Work							
Please put a cross in 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	select	Area in hectares	% Conifer	% Broad-leaves	Proposed work	select	Area in hectares
Afforestation	<input type="checkbox"/>				Forest roads	<input checked="" type="checkbox"/>	0.32
Deforestation	<input type="checkbox"/>				Forest quarry	<input type="checkbox"/>	
Location of work							

Description of Forestry Project and Location
Provide details of the forestry project (size, design, use of natural resources such as soil, and the cumulative effect if relevant). Please attach map(s) showing the boundary of the proposed work and other known details.
See section 5.9 of LMP and relevant map

Provide details on the existing land use and the environmental sensitivity of the area that is likely to be affected by the forestry project.
These are described in section 3 the LMP.

Description of Likely Significant Effects
Provide details on any likely significant effects that the project will have on the environment (resulting from the project itself or the use of natural resources) and the extent of the information available to assist you with this assessment.

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Tracks may be visible from surrounding viewpoints.

Include details of any consultees or stakeholders that you have contacted in order to make this assessment. Please include any relevant correspondence you have received from them.

Mitigation of Likely Significant Effects

If you believe there are likely significant effects that the project will have on the environment, provide information on the opportunities you have taken to mitigate these effects.

See section 5.9 and appendix VI of the LMP

Sensitive Areas

Please indicate if any of the proposed forestry project is within a sensitive area. Choose the sensitive area from the drop down below and give the area of the proposal within it.

Sensitive Area	Area
National Park (NP)	0.32
Select...	
Select...	
Select...	
Select...	

Property Details

Property Name:	Milton		
Business Reference Number:		Main Location Code:	
Grid Reference: (e.g. NH 234 567)	NN566067	Nearest town or locality:	Brig o' Turk
Local Authority:	LLTNP		

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Owner's Details			
Title:	Mr	Forename:	John
Surname:	Hair		
Organisation:	FES	Position:	Planning Manager
Primary Contact Number:	0300 067 6600	Alternative Contact Number:	
Email:			
Address:	FES		
Aberfoyle			
Postcode:	FK8 3UX	Country:	
Is this the correspondence address?	Yes		

Agent's Details			
Title:		Forename:	
Surname:			
Organisation:		Position:	
Primary Contact Number:		Alternative Contact Number:	
Email:			
Address:			
Postcode:		Country:	
Is this the correspondence address?	Select...		

Office Use Only	
GLS Ref number:	