East Region

Buchan Woods

Land Management Plan

Plan Reference No: LMP 29

Plan Approval Date: 02/02/21

Plan Expiry Date: 01/02/31

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

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

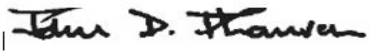
FSC
www.fsc.org
FSC® C123223
The mark of responsible forestry

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

We manage Scotland'
the United Kingdom W
Standard – the stando
the international Fores
the Programme for the
Certification. We are in

Our land managemen
information, enable us
plan responsibly for th
comments on these p

Buchan Woods Land Management Plan 2021 - 2031

Signed: 

Regional Manager
East Region

Date: 26/1/2021

Signed: 

Conservator
Grampian Conservancy

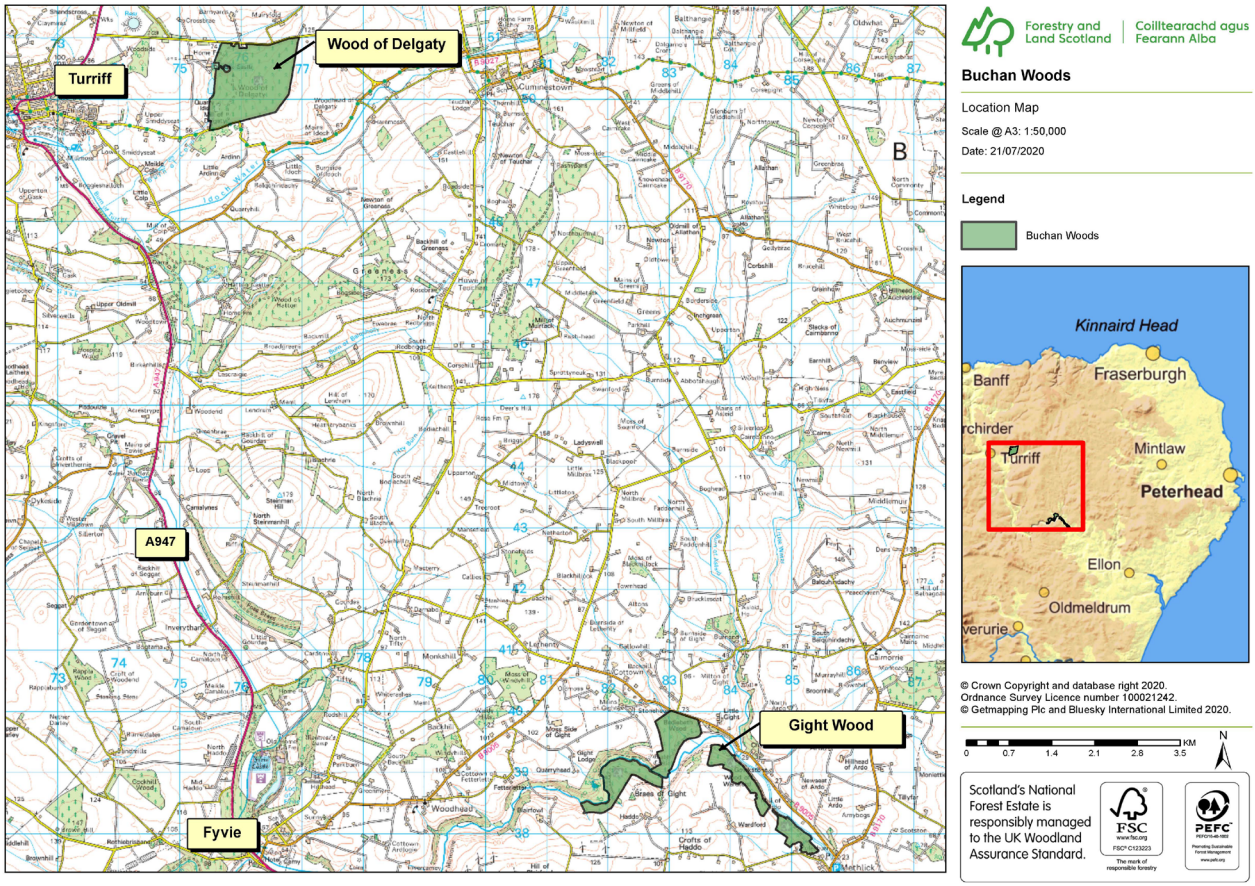
Date of Approval: 2/2/2021

Date Approval Ends: 1/2/2031

Buchan Woods Land Management Plan 2021 - 2031

Contents

1.0 Summary of Proposals



Buchan Woods Land Management Plan area

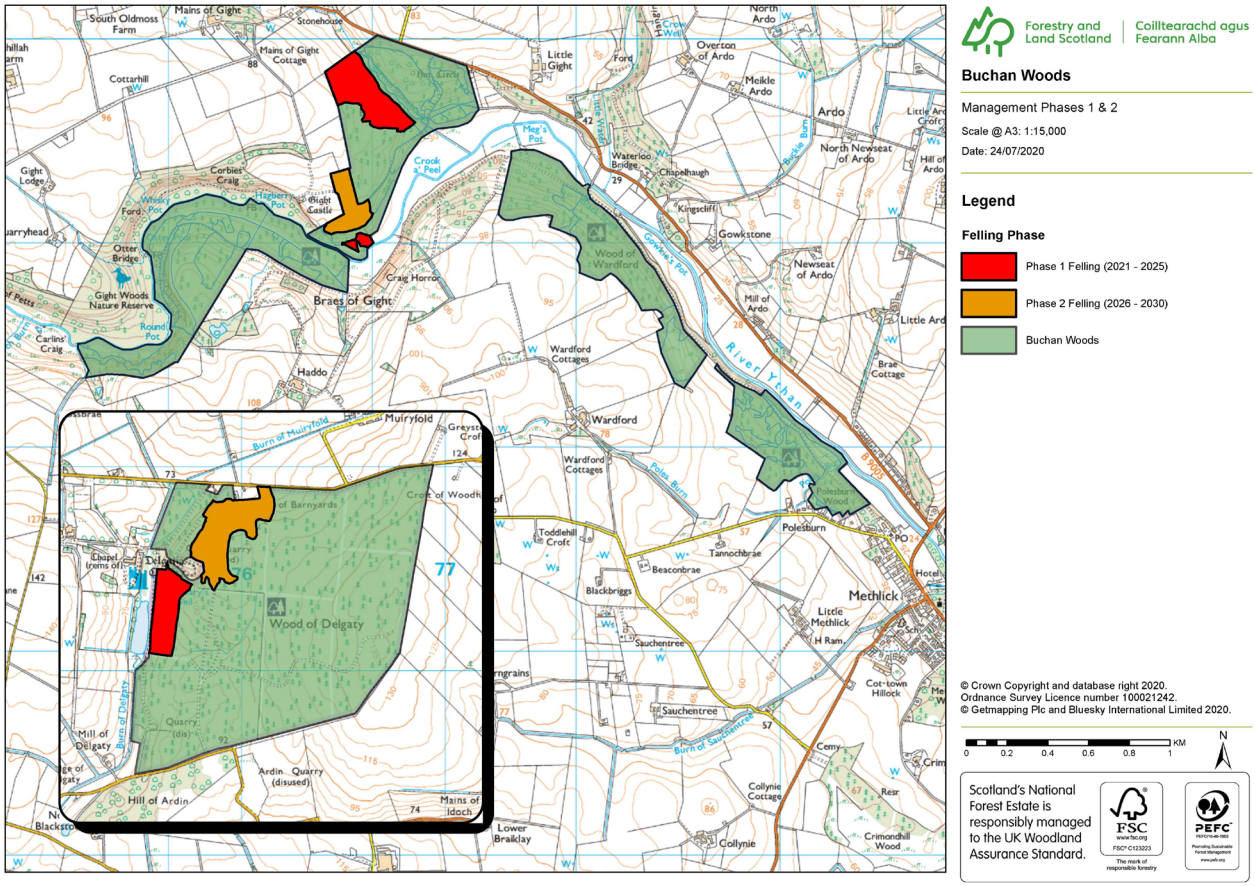
This plan is a review of Forestry and Land Scotland's (FLS) management of Buchan Woods. The plan area includes two separate areas of woodland within central Aberdeenshire: Wood of Delgaty, near Turriff, and Gight Woods, near Methlick.

Both blocks have slightly different objectives, detailed in section 5, based on their current species and primary uses. Wood of Delgaty is a productive block with sustainable timber production as the primary objective whereas Gight Woods will be primarily managed for environmental and biodiversity benefits in the future.

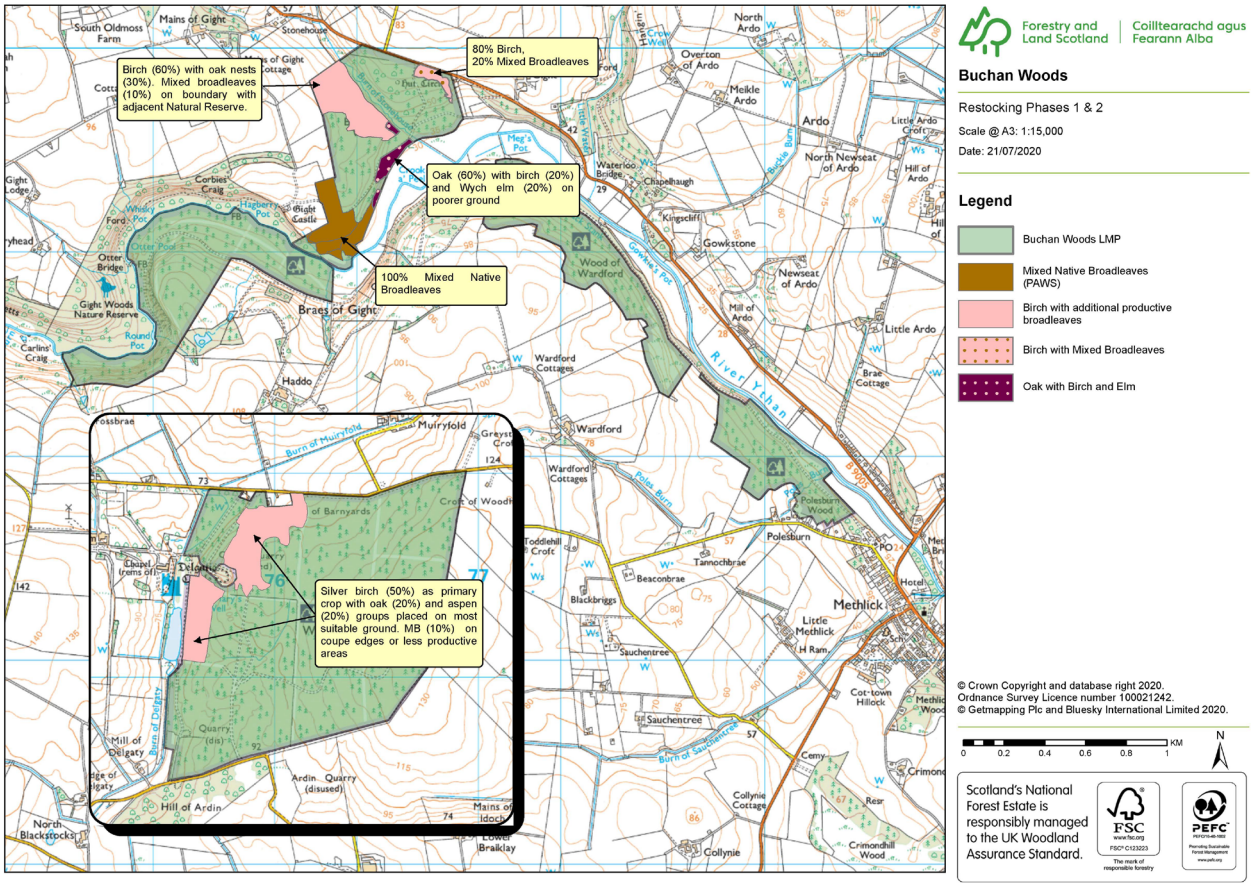
The purpose of the plan is to outline felling and thinning proposals over 20 years with the first 10 in detail along with restocking proposals for the whole plan area.

Planned Operations	2021-2031 plan period
Clearfell	26.1ha
Thinning	280.3ha
Restock	30.5ha
Road construction	0m
Road upgrade	0m

Planned operations in 10 year plan period



Felling operations in first 10 years of plan



Restocking operations in first 10 years of plan

The plan will be reviewed after five years to ensure the objectives set out in the LMP are still appropriate for the management of the forest in the current conditions. All operations, both planned and completed, will also be reviewed to ensure they are still necessary to achieve the stated objectives.

In addition to this overarching strategic level plan all operations will be preceded with a more detailed operational planning process. This will be guided by the work plan document that provides an opportunity for all sections of FLS (visitor services, environment, civil engineers, etc.) to provide detailed information that pertains to the planned operation. The forest works manager is then able to plan the operation with the fullest and latest information available to enable them to making changes or undertaking mitigation measures to minimise any negative impacts and improve the forest environment.

2.0 Scottish Forestry Regulatory Requirements

This section provides a summary of the elements of the LMP which are regulated by Scottish Forestry, focussing on relevant operations and activities being carried out in the first ten years of the plan.

2.1 Summary of planned operations

Table 1: Planned operations over this LMP period

Planned Operations	2021-2031 plan period
Clearfell	26.1ha
Thinning	280.3ha
Restock	30.5ha
Road construction	0m
Road upgrade	0m

2.2 Proposed felling in years 2021- 2031

Table 2: Proposed Phase 1 and Phase 2 felling over this plan period (gross coupe size)

Proposed felling year	Fell area (ha)	% forest area
2021-2025	13.2	4.6
2026-2031	12.9	4.5

Table 3: Clearfell details by coupe (ha)

Coupe	DF	JL/HL	SP	SS	NS	Cedar	Total
29680	2.8	2.5					5.3
29719		6.4	1.4	0.8	0.2	0.3	9.1
29752		7.4					7.4
29130		3.7					3.7
29519					0.6		0.6
Total	**2.8**	**20**	**1.4**	**0.8**	**0.8**	**0.3**	**26.1**

Table 4: Change in age class over plan period (%)

Age of trees	Growth stage	Percentage of class at given year	
		2020	2030
0 – 10	Establishment	10	11
11 - 20	Thicket	18	10
21 – 40	Pole stage	17	36
41 – 60	Maturing high forest	11	0
61+	Old high forest	35	36
Open	n/a	9	7

2.3 Proposed thinning in years 2021-2031

Table 5: Proposed thinning in Phases 1 and 2

Coupe	Thinning Year	Area	Volume (m^3)
29100 (whole coupe)	2021	57.6	3066
29100 (whole coupe)	2028	47.7	2481
29100 (current access)	2021	29.6	1564
29100 (current access)	2028	19.7	1017
29200	2021	82.4	3898
29200	2028	92.6	4206

2.4 Proposed restocking in years 2021-2031

Proposed restocking species in first ten years, and species change over the ten year period.

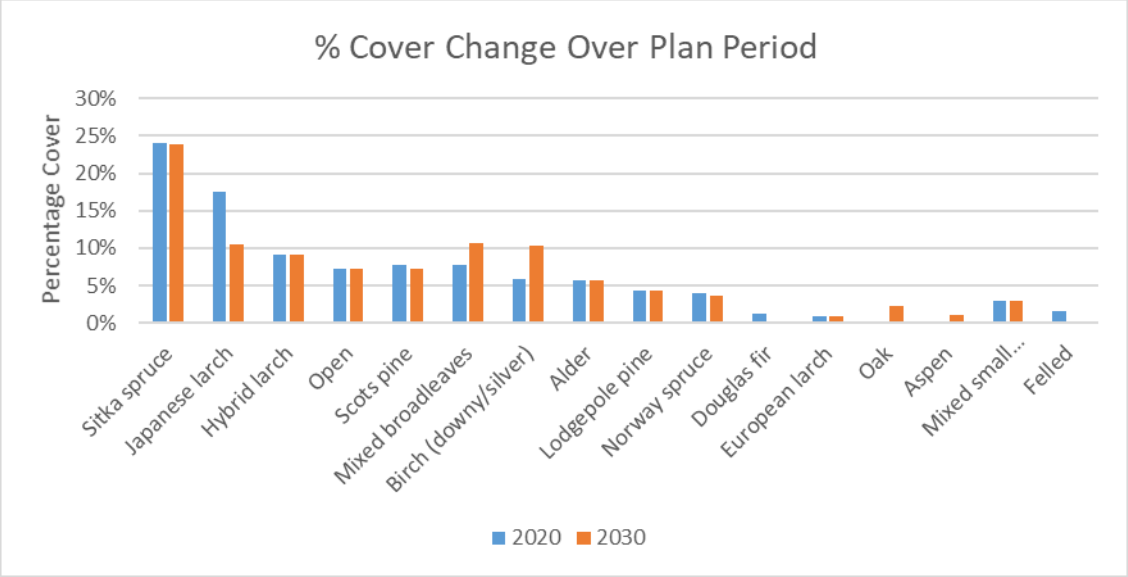
Map: Future Habitats & Species First 10 Years

Table 6: Restock details by coupe (ha)

Coupe	BI	OK	ASP	WEM	MB	Total
29680	2.7	1.1	1.0		0.5	**5.3**
29719	4.6	1.8	1.8		0.9	**9.1**
29752	4.4	2.2			0.7	**7.3**
29130					3.7	**3.7**
29519					0.6	**0.6**
29459					1.8	**1.8**
29712	0.3	1		0.3		**1.6**
29061	0.9				0.2	**1.1**
Total	**12.9**	**6.1**	**2.8**	**0.3**	**8.4**	**30.5**

Table 7: Species change over plan period

Species	Area (ha) 2020	% Cover 2020	Area (ha) 2030	% Cover 2030
Sitka spruce	69.2	24.1%	68.4	23.8%
Japanese larch	50.1	17.5%	30.1	10.5%
Hybrid larch	26	9.1%	26	9.1%
Open	21.1	7.3%	21.1	7.3%
Scots pine	22.5	7.8%	21.1	7.3%
Mixed broadleaves	22	7.6%	30.4	10.6%
Birch (downy/silver)	16.8	5.8%	29.6	10.4%
Alder	16.5	5.7%	16.5	5.7%
Lodgepole pine	12.5	4.4%	12.5	4.4%
Norway spruce	11.1	3.9%	10.4	3.6%
Douglas fir	3.5	1.2%	0.6	0.2%
European larch	2.6	0.9%	2.6	0.9%
Oak	0.2	0.1%	6.6	2.3%
Aspen	0	0.0%	2.8	1%
Mixed small components	8.6	3.0%	8.4	2.9%
Felled	4.4	1.6%	0	0%



2.5 Access and roading 2021-2031

There are no proposals for new roads in the plan period. There are also no proposed road upgrades. The only work on the existing road network will be ongoing maintenance to ensure all parts of the LMP area are accessible for planned operations.

Although there is currently no access to the block at the west end of Gight Woods, this is due to issues crossing neighbouring land rather than a problem with the road network. Should the dispute be resolved, access for timber extraction should be possible with only basic maintenance required on the existing roads, outwith prior notification requirements.

2.6 Recreation Facilities

Current car-parks and waymarked paths will be maintained but no new facilities will be added

2.7 Departure from UKFS Guidelines

The LMP seeks to follow the UKFS in all requirements.

2.8 Standards and guidance on which this LMP is based

This land management plan has been produced in accordance with a range of government and industry standards and guidance as well as recent research outputs. A list of these standards and guidance can be found here: https://forestryandland.gov.scot/what-we-do/planning/links

In addition Forest Guidance Notes regarding forest operations and specific species will be adhered to. These can be found here: https://forestry.gov.scot/publications/forests-and-theenvironment/biodiversity/wildlife-forest-operations

FLS and East region have a full set of national and local policies and plans plus working groups to deal with all major contingencies that may affect the forest during the period of the plan.

2.9 Tolerance Table

Please see Appendix III

3.0 EIA Screening Determination for forestry projects

3.1 Proposed deforestation

No deforestation is proposed within the LMP unless required to achieve UKFS guidelines or for the overriding benefit to the area. This would include riparian protection or the enhancement of habitats or biodiversity. The area of permanent open space increases modestly over this LMP period, predominantly around watercourse buffer zones as per requirements of the UK forest standards.

3.2 Proposed forest road works

There are no roadworks in the period requiring an EIA determination.

If access is granted to the west end of Gight Woods, there is a chance that road upgrades may be needed. If this occurs, then prior notification will be sought at the time.

3.3 Proposed forest quarries

There are no new quarries or quarry extensions in the plan period requiring an EIA determination

3.4 Proposed afforestation

There is no proposed afforestation within the plan period. All planting will take place on ground with previous forest cover.

4.0 Introduction

4.1 The existing land holding

Buchan woods consists of two separate forest blocks, which lie in the Buchan plain, central Aberdeenshire. The woodlands are Gight Wood and Delgaty; together the blocks cover a total area of 287.1ha.

Delgaty is 154ha and lies about 2km east of Turriff at NJ760500. It was originally planted between 1952 and 1964 and consist of predominantly conifer plantation which Japanese larch, Sitka spruce, Scots pine and Douglas fir the main components.

The last major conifer restocking operations were carried out in 1995 and 2005 with just over 60ha planted with Sitka spruce as the main component. In recent years, an area of conifers on the western boundary of the forest was clearfelled and is being converted to native broadleaf woodland.

Gight Wood is 133.1ha and made up of four woodland blocks: Polesburn Wood, Wood of Wardford, Badiebath Wood and Braes of Gight. The wood is located around 3km west of the village of Methlick and south of the B9005, Ellon to Fyvie road, at NJ833399. Each block has slightly different character, with some being dominated by mature conifer stands planted in the late 50’s and early 60’s, while other blocks have a much larger broadleaf component due to PAWS restoration projects and species conversion taking place in the last 20 years.

More details on the existing physical characteristics and background to the site can be found in Appendix II.

This plan is a revised submission of an earlier plan, approved in 2011.

4.2 Setting and context

As Delgaty is located nearby the locally significant settlement of Turriff, it is widely used for recreational activities, mostly dog walking and exercise. The block is situated on a gentle slope, surrounded largely by agricultural land, with the highest elevation at 130m.

Category A listed Delgatie Castle and its associated designed landscape and fishery lie adjacent to the block on the western boundary. There is a small

area of forested land to the south west of the block but in general, Delgaty is relatively isolated from other woodland in the surrounding area.

Gight Wood is entirely located below 100m and is situated on either side of the partially farmed floodplain created by the River Ythan, a salmonid spawning ground and flooding threat to settlements further downstream.

Agricultural land is the primary land use in the immediate surrounds but the wood also has boundaries with a SWT managed ancient woodland SSSI and some residential properties in Methlick. The category A listed Gight castle and its associated Dovecot is also located on farmland adjacent to Badiebath wood, part of the Gight wood block.

The Braes of Gight block in the west end side of Gight Wood can only be accessed by travelling through a neighbouring landowner's land and due to an ongoing dispute with this landowner, no access has been granted in roughly 15 years. This has resulted in a lack of active management in this area in recent years.

4.3 LMP Presentation

The land holding as whole will be considered in this LMP but there will be references to the two separate blocks throughout.

5.0 Plan Objectives

5.1 Issues

The main issues to consider in this LMP are:

- There are high numbers of visitors to some areas which may have an impact on the scope of operations.
- Mature conifer stands adjacent to Delgatie Castle do not integrate well with the neighbouring designed landscape.
- There are several areas designated as PAWS which currently have mature, non-native species present or regenerating.
- An area of Gight lies on the flood plain for the River Ythan, requiring appropriate management.
- Current species do not compliment those of adjacent Scottish Wildlife Trust managed SSSI at Gight.
- There is currently no vehicular access to a large part of the Gight block.
- There is history of Chalara and Phytophthora infection within Gight.

5.2 Key Challenges

- How to produce quality timber from blocks high in recreation and environmental value.
- How to conduct necessary forest operations without having a detrimental effect on visitor experience.
- How to convert mature conifer stands to broadleaf woodland adjacent to Delgatie Castle and Fishery.
- How to restore PAWS areas to relevant species effectively.
- How to manage potential impacts on River Ythan catchment.

5.3 National Spatial Overview

The Forestry and Land Scotland National Spatial Overview includes Buchan Woods within Zone 3: Dornoch, Black Isle, North East, Lowland Angus, North Fife.

The aims and objectives identified that this area can best contribute to include:

- **Ecosystem services and additional public benefits**: secure carbon sequestration through CCF; high recreation use of NFE contributes to increased health and well-being; support for small sawmills; sustainable timber production
- **Other national commitments:** Woodlands In and Around Towns; habitat management in well-established red squirrel strongholds; investment in

silvicultural practices; management of tree disease; education, outreach and community engagement
- **Contribution to financial sustainability**: high quality timber crops; high potential for saw logs; primarily pine; specialist timber markets

5.4 Management Objectives

As the LMP area consists of two blocks which have significantly different objectives, the objectives for each block are listed separately below.

5.4.1 Delgaty

Objective 1: Ensure that the forest continues to contribute to Region's timber production targets. There are opportunities to produce a significant amount of timber through a combination of clearfell and thinning prescriptions.

Objective 2: Increase landscape and habitat integration with surrounding area. Areas adjacent to Delgatie Castle would benefit from conversion to native broadleaf species to increase habitat connectivity and better integrate with neighbouring landscape character.

Objective 3: Maintain current levels of recreational use. The local population already use the woodlands for recreation, this should be sustained by conducting forest operations sensitively and maintaining current facilities.

5.4.2 Gight Wood

Objective 1: Continue conversion of woodland to native broadleaf species. The primary objective for this block is to continue to increase the environmental and biodiversity value by removing non-native conifers and replacing them with native broadleaves.

Objective 2: Increase area of PAWS restoration and manage existing restoration operations more effectively. There is the potential to fell more stands of mature larch which are within PAWS areas. The restocking of other areas which took place in previous plan period should also be reviewed to gauge effectiveness and take remedial action if necessary.

Objective 3: Ensure that the forest continues to contribute to Region's timber production targets. There are opportunities to produce a significant amount of timber through a combination of clearfell and thinning prescriptions.

Secondary Objectives for entire LMP area

- Increase diversity of species and age structure in Delgaty.
- Monitor and remove any Phytophthora or Chalara infection identified.
- Maintain Red Squirrel habitat.
- Protect and improve the water environment.

6.0 Analysis and concept

6.1 Analysis

The following table details the objectives, opportunities and constraints that have determined the design concept for the Buchan Woods LMP

Table 8: Analysis and concept

Objective	Opportunities	Constraints	Concept
Ensure the forest continues to contribute to the region's timber production targets	Several stands are suitable for clear-fell and restock management regimes.	Felling operations are likely to have an impact on recreational use of the forest.	Continue clear-fell operations but ensure close communications with local community and other stakeholders.
	Unthinned spruce stands in both blocks within plan are at thinnable age and height.	Most unthinned stands in environmentally sensitive areas with archaeology present within the coupes.	Increase timber volume achieved from thinnings by increasing buffer between spruce and natural reserve and opening area around archaeology.
	Most stands in South West of Gight block have exceeded MAI and are suitable for a range of felling operations.	Currently no vehicle access to these coupes due to dispute with neighbour.	If vehicle access is restored, clear-fell unstable areas and thin others. If vehicle access not restored, retain coupes as good Red squirrel habitat.
Maintain current levels of recreational use	Locally high number of daily visitors to woodland, primarily walking dogs and exercising.	Increase in recreational facilities provided is unlikely due to lack of resources.	Continue to maintain current car parking, information boards and waymarked paths, encouraging visitors to continue using woodland.
Increase landscape and habitat integration with surrounding areas	Delgatie and Gight Castles and the associated mature broadleaf woodland are adjacent to forest blocks	Restructuring and species change operations are likely to have a short term visual impact on views from attractions.	Change species from conifer to broadleaf at boundaries to attractions while keeping public and key stakeholders informed of reasons for doing so.

	Opportunity to increase habitat connectivity with adjacent Gight woods SSSI	Difficulties in establishing broadleaves due to deer pressure	Areas adjacent to SSSI to be converted to native broadleaves using suitable mitigation to protect from deer damage
Increase area of PAWS restoration and manage existing operations more effectively	Opportunity to convert all remaining PAWS areas to native broadleaves within plan period. Improve management of existing PAWS restoration areas.	Restoration is reliant on felling operations taking place and deer control measures being available Supplementary planting and non-native regen removal needed which requires resources	Fell and convert all remaining conifers in PAWS restoration areas and restock with suitable species Increase density of native species within existing fenced restoration areas by removing non-native regeneration and planting local origin species
Protect and improve the water environment	Some burns passing through block have a poor water quality rating, opportunity to improve the quality. Opportunity to fell some non-native conifers in riparian zones.	All straightened sections of burns fall outside of FLS managed ground so no opportunity to carry out re-naturalising ground works. Some areas suitable for clear-fell lie in high risk flood zones	Continue to manage riparian zones by planting suitable, native species adjacent to water courses. Remove brash and small woody debris from areas within high risk flood zones after felling and fell June-Sept to reduce siltation risk All forest operations will be carried out in line with the UK Forestry Standard Water Guidelines as a minimum Fellings are phased and the volumes per phase are within guidance limits

6.2 Concept

Please see Map 4: Analysis and Concept

7.0 Long Term Land Management Plan Proposals

7.1 Management prescriptions

7.1.1 Clear Felling

Please see Map 5: Management for details of which areas are due to be clearfelled within the plan period

Areas within the LMP which have objectives more focussed on commercial benefits will be managed under a clearfell management type, using conventional harvester and forwarder working. Five coupes are scheduled for clearfell within the plan period (see section 2.2) which constitute around 9% of the plan area.

Clearfelling provides more flexibility for restructuring and adding diversity and the coupes which are due to be clearfelled during the plan period will all be replanted with broadleaf species after the existing conifers are felled.

7.1.2 Thinning

Please see Map 6: Thinning Approval for details of which areas will be thinned within the plan period and see table 5 (section 2.3) for the expected volumes.

Wherever possible the region will continue to maximise the area managed through thinning. FLS policy assumes that all productive conifer crops will be thinned. The only exceptions are where:

- Thinning is likely to significantly increase the risk of windblow
- A single thinning operation is likely to require an unacceptably large initial investment in relation to the potential benefits due to access or market considerations;
- Thinning is unlikely to improve poorly stocked or poor quality crops.

There are several areas of young conifer plantation within the plan area which would benefit from thinning as soon as possible, so carrying out thinning activities throughout the area in phase 1 is a priority.

The growth rates within the blocks are good, so they have also been placed on a seven year rotation, allowing two thinnings on suitable coupes within the plan period.

All thinning decisions will be guided by Operational Guidance Booklet No 9: "Managing Thinning".

7.1.3 Continuous Cover Forestry (CCF)/ LISS

LISS is defined as a silvicultural system whereby the forest canopy is maintained at one or more levels without clearfelling. Clearfelling is defined as the cutting-down of all trees on an area of more than 2.0ha.

The attraction of LISS lies in the fact that this approach is suited to an era of multi-purpose forestry where environmental, recreational, aesthetic and other objectives are as important as timber production. In particular LISS is seen as a means of reducing the impact of clearfelling and the associated changes that this produces in forest landscapes and habitats. It also helps to create a diverse forest structure which will increase its biodiversity potential. LISS also helps reduce the potential issue of soil erosion and subsequent watercourse siltation.

Within the plan area, the coupes selected for LISS management are in areas where LISS management has been shown to work already or where LISS most suits the objectives for the coupe.

In Delgaty, the main LISS areas include a large coupe of mostly Scots pine, Japanese larch and birch, which will be uniformly thinned to favour Scots pine and birch with underplanting of the target species where necessary. As well as an area of naturally regenerated broadleaves, the other main LISS coupe in Delgaty is a productive conifer coupe consisting of Sitka spruce, Hybrid larch and Lodgepole pine. This area will be uniformly thinned to final crop and restocked by accepting Sitka regeneration and underplanting with Douglas fir to achieve a 50/50 mix of these species, increasing resilience and biodiversity in the block while retaining productivity.

In Gight woods, the areas planned to be managed with a LISS system are those which have already been converted to broadleaf woodland. The long term plan for this block is for it to be managed using LISS systems to provide environmental benefits while providing a hardwood crop via thinnings.

For areas where restocking by natural regeneration is the objective, deer numbers will need to be controlled and a figure of 5 deer per 100ha is seen as the appropriate level.

All areas identified for restocking by natural regeneration will been recorded and programmed for inspection on a five yearly basis. At each inspection an assessment will be made to establish if the natural regeneration is, or is likely, to achieve the objectives for the site. If it is decided that the objectives are not being met then replanting with an appropriate species will be undertaken. If natural regeneration is occurring but not yet at the required density then the option to review the site in a further five years may be taken. If after two such inspections, that is ten years following felling, it is felt appropriate to wait a further period for natural regeneration then a discussion and agreement will be reached with the Conservancy woodland officer.

Enrichment planting will be used to ensure the target stocking density is reached if there is insufficient natural regeneration.

7.1.3 Natural Reserves

Areas have been designated as a Natural Reserve (NR) where biodiversity is the primary objective and we are committing the area of land in question to minimum intervention management in perpetuity. The function of NRs is to provide a continuity of habitat to allow sedentary species to establish and thrive. NRs provide reservoirs of permanent habitat from which more mobile species can expand into adjacent managed forests.

NRs can be derived from semi-natural native woodland, planted native woodland and non-native plantations.

Within NRs, natural processes will normally predominate. Intervention should only take place to protect the NR or adjoining areas of forest. See "Natural Reserves – Guidance for their selection and management on the NFE in Scotland" for further information.

7.1.4 Long Term Retention

There are three areas designated as LTR in the plan area, one is a thin strip of mature broadleaves running adjacent to the River Ythan near Methlick. Although there is no plan to manage this area for timber production the LTR designation will allow us to undertake thinning operations as a way of creating a woodland structure that can eventually become a natural reserve where no interventions beyond tree safety work will be required.

The second area of LTR is located in the south-east of Delgaty, and consists of an area of mature, well-structured larch woodland. This block is being kept past its usual rotation length to add value to the block in terms of

biodiversity and age structure. Retaining larch in relatively isolated areas like Delgaty is also a way to compensate for the loss of larch stands in areas more prone to Phytophtora infection.

The third, larger, area of LTR is the Braes of Gight coupe to the west of the Gight Woods collection of blocks. Although this area would benefit from some management, with some areas ready for clearfelling, there is currently an issue with gaining access across neighbouring land. Should access be confirmed to this area, it is likely that it will split into a combination of clearfelling, LISS and LTR areas with the changes being submitted as an amendment.

7.2 Restocking proposals, future habitats and species

Please see section 2.4 for tables detailing the restock plans for the plan period and Map 9: Restocking phases 1&2, showing the planned restock areas.

The restocking of felled areas is guided by the primary objectives for the plan area, which are to produce a sustainable crop of quality timber and to provide environmental benefits. In order to achieve this, conifers will be planted at a minimum of 2500 trees per hectare and broadleaves at a minimum of 1600 trees per hectare.

The species choice for restocking has been guided by the ESC results for this climatic area and soil types (see section 3.1.1). This has shown that the climate and site conditions make a range of species suitable for restocking. This range will be utilised where possible, provided they will meet the objectives of the plan.

The aim of the restocking will be to increase the species diversity within the plan area. This will provide environmental benefits, increase resilience to pests and diseases, and ensure there is a sustainable crop of timber in the future.

FLS is following a chemical reduction strategy. This involves the limiting of chemical application only to occasions when they are essential. To allow this strategy to be followed the Hylobius management support system will be applied and the minimum fallow period used prior to restocking. This reduced fallow period will also reduce the potential need for herbicide applications to restocked areas.

Restocking and/or planting in PAWS will use native broadleaves of local origin unless these cannot be sourced within the required time-frame. Out with these areas native broadleaves of local origin will be preferred if available. If not available then trees from an alternative origin will be used provided this origin makes them suitable to grow and thrive in the prevailing site conditions. Where Sitka spruce is to be used for restocking we will endeavour to use improved SS transplants, provided the nursey is able to supply them in sufficient quantities. If appropriate site present themselves, i.e. good soils and low risk of Hylobius attack, then VPSS will be used, again if available. Over and above this only certified material will be used for species covered by the Forest Reproductive Material Regulations.

7.3 Open land

The intention is that any land identified as "Open" in the plan area will managed to keep tree cover to <10%.

Where the land is described as "Open/Successional", ie. the floodplain at Gight Wood, regeneration of native riparian species will be accepted. Given the lack of regeneration which has occurred since this area was felled and the ground conditions, it is very unlikely that regeneration will cover 10% of the area within the foreseeable future.

At the end of the plan period, the managed open space will only total 7.3% of the plan area but when combined with PAWS restoration areas and native broadleaf retentions (33.4ha total), which are managed for the conservation and enhancement of biodiversity as the primary objective, the total is 18.9%; well within the 15% required by the UKFS.

7.4 Visitor Zones, Public Access and Core Paths

The main visitor zones within the LMP area are at the car parks within each block. There is no plan to change the way these are managed within the plan period; all necessary maintenance will continue as normal.

There is one core path which passes through the LMP area in the south east of Gight wood; this path will be impacted by thinning operations during the plan period. The relevant local authorities will be notified by the harvesting teams prior to any works commencing and any mitigation measures are put in place.

Public access will be encouraged throughout the LMP area as per the The Land Reform (Scotland) Act 2003.

7.5 Operational Access

The existing internal road network allows access to all Phase 1 and 2 coupes and should not require upgrading. However, we will continue to undertake a programme of maintenance and post operation repairs.
FLS is an active member of the Timber Transport Group. We will liaise with this group and the local highway authorities to ensure that during felling and timber transport operations other road users are not put at risk. This will include the use of the appropriate traffic control measures during felling operations adjacent to public roads and the erection of any necessary warning signage.

Map 10: Operational Access & Predicted Volume shows the main access points and the volume of timber that will be leaving the forest in each felling phase for the duration of the plan.

7.6 Deer Management

Wild deer of the National Forest Estate are managed in accordance with the Scottish Government's strategy "Scotland's Wild Deer: A National Approach" and under the auspices of the Code of Practice on Deer Management.

The strategy and Code of Practice makes recognition of the fact that wild deer are an asset, an integral part of Scotland's biodiversity and provide healthy food and recreational opportunities. The challenge of managing wild deer originates in a need to balance the environmental, economic and deer welfare objectives of the Scottish nation with the objectives of private landowners for forestry, agriculture, sporting and other forms of use.

The principal legislation governing the management of deer in Scotland and hence on the NFE is the Deer (Scotland) Act 1996.

It is therefore FLS deer policy to:

- Prevent adverse deer impacts on commercial tree crops and the wider habitat. In doing so to carry out deer culling in an exemplary and humane way
- Work closely with relevant organisations and neighbours to make sure that there are integrated deer management plans which seek to recognise the interests of all parties.
- Take opportunities to optimise income from venison from sporting activities where this does not conflict with our primary objective of maintaining deer impacts at an acceptable level, in line with the Quality Meat Scotland accreditation in the form of The Scottish Quality Wild Venison (SQWV) Assurance Scheme.

- Take all practicable steps to slow down the expansion of deer species into areas where they are not currently present.

All deer management will be carried out in accordance with OGB 5 – Deer Management. The aim is to manage deer density safely and humanely at a level which is consistent with acceptable impacts on forests and other habitats. This is likely to be at a density level of 5 deer per 100 hectares.

Deer cull plans are prepared for each Deer Management Unit and are the responsibility of the Wildlife Ranger Manager. Currently deer control in Gight Woods is undertaken by contractors who also manage the deer numbers the neighbouring ancient woodland SSSI; this is due to continue under current policy. Delgaty is planned to be managed in the same fashion during this plan period.

Deer fencing has been used in Gight wood in the past to help allow the successful establishment of broadleaves, the decision on future fencing requirements will be taken by the FM forester and WRM in conjunction. Fencing should not be required to establish any conifer components.

7.7 Management of Invasive Species

Gight Wood has Giant Hogweed present along the bank of the River Ythan, this is monitored and removed by FLS staff every year.

There has also been an instance of Japanese Knotweed in part of the Gight Wood block in the past, this was removed successfully at the time but the area is still being monitored for reoccurrence.

In Delgaty there are sporadic occurrences of Salmonberry and Rhododendron which may require some future management.

7.8 Riparian Management

Any existing riparian zones within the LMP area will be retained or improved.

7.9 Deadwood Management

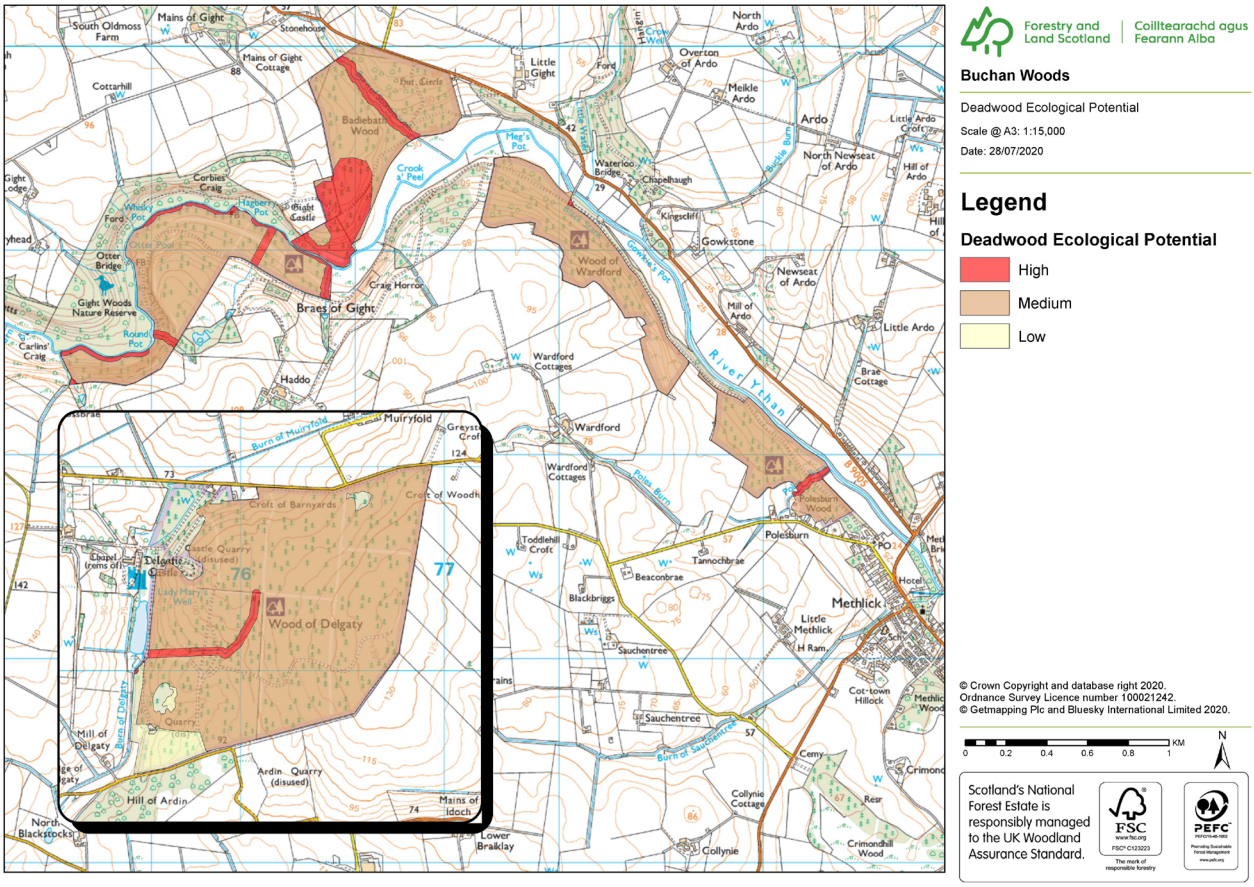
Deadwood will be managed in accordance with the FCS Practice Guide: Managing Deadwood in forests and woodlands (Humphrey & Bailet, 2012) and supplemented by the FLS Guidance note: Deadwood Management – Summary Guidance for FLS Staff (Kortland, 2016).

Key principles applied:

- Retain and create as much deadwood as possible and create new deadwood on a continuing basis
- Retain and create as many kinds of deadwood as possible
- Favour native tree species when creating and retaining deadwood
- Favour the retention and creation of large-diameter deadwood
- Retain and create high stumps and snags (standing deadwood) within woodland and permanent open areas (but not on clear fells that will be restocked)
- Design the distribution of deadwood to maximise connectivity at the woodland management unit and coupe scale

The following map shows the ecological deadwood potential of Buchan Woods, based on the following criteria:

Deadwood Ecological Potential (DEP) class	**FES woodland management categories included in this DEP class**
High	Natural reserves, ancient semi-natural woodlands, native pinewoods, riparian buffers along watercourses, PAWS with high ecological potential, wood pasture
Medium	Minimum intervention areas of broadleaved woodlands, PAWS, LEPOs, long-term retentions, LISS coupes
Low	All other stands (i.e stands where timber production is the priority)



DEP Class Deadwood Management Prescriptions

(DEP) class	Deadwood Management Prescription
High	1. Retain all existing veteran trees and deadwood apart from that which is a health and safety risk 2. Retain all wind blow apart from that which is a health and safety risk 3. Deadwood distributed throughout the coupe 4. Seek opportunities to create particularly valuable deadwood e.g. import some large-diameter logs from nearby coupes when they are thinned or clear felled.
Medium	1. Retain all existing veteran trees and deadwood apart from that which is a health and safety risk 2. Only harvest windblow of significant value or which poses a health and safety risk 3. Seek opportunities to create particularly valuable new deadwood e,g when felling big trees, retain some large diameter logs at the edge of the coupe 4. Where windblow is harvested, retain some blown trees in a group

	as 'future deadwood'
Low	*During thinning* 1. Retain all existing deadwood apart from that which is a health and safety risk 2. Take obvious opportunities to create particularly valuable new deadwood e.g. when felling big trees, retain one or two large diameter logs at the edge of the coupe 3. Where wind blow is harvested, take opportunities to retain a few blown trees in a group as 'future deadwood' in a location that will not restrict future operations e.g. in the corner of a coupe. *During clearfelling* 1. Retain all deadwood and living trees in areas that are uneconomic or too difficult to harvest (e.g. wet, steep or rocky areas) 2. Where an obvious opportunity arises, create new deadwood in a location that will not restrict future operations e.g. a pile of logs and brash in the corner or along the edge of a coupe. *Additional notes for Low DEP class areas* 1. Deadwood should only be retained in areas that will not restrict future operations 2. Standing deadwood (snags) should not be retained on clearfells, except in areas that will not restrict future operations and that do not pose a health and safety risk e.g. in the corner of a coupe 3. Large diameter (>20cm) deadwood logs and snags are particularly scare of the NFE. Take opportunities to retain this kind of deadwood. When harvesting large diameter trees, seek opportunities to retain some standing deadwood, if it is safe to do so, and consider retaining a few large diameter logs on site in a location that will not restrict future operations. 4. Large diameter deadwood from native broadleaves is particularly scarce. When harvesting large diameter native broadleaves, retain standing deadwood, if it is safe to do so, and retain some large diameter logs on site in a location that will not restrict future operations.

8.0 Critical Success Factors

- Thinning and clearfell operations to be carried out on schedule to ensure timber production targets are met and to avoid adjacency issues.
- Protect and improve water environment during all forestry works.
- Effective deer control over restock sites is imperative to ensure successful establishment.
- Forestry works carried out with protecting recreational use as a priority.
- PAWS areas are restored with the correct species and maintenance work is carried out when needed.

Appendix I: Land Management Plan Consultation Record

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Aberdeenshire Council	11/02/20	12/02/20	Requested roads department are informed of felling operations	Operational access and predicted volumes created. (Map 10)
Scottish Forestry	11/02/20	No response		
SEPA	11/02/20	10/03/20	Requested felling works to be carried out June to Sept to protect spawning areas from siltation Requested opportunity should be taken to re-naturalise straightened watercourses within plan area Requested that woody debris is removed from areas within flood risk zones after felling operations	All addressed in Analysis and Concept table. Section 6.1
SNH	11/02/20	10/03/20	No concerns	
RSPB	11/02/20	06/03/20	Highlighted that schedule one birds are known to use area	Schedule one birds are recorded in FLS systems and operations will be carried out as per current legislation
SSEN	11/02/20	No response		
Historic Environment Scotland	11/02/20	06/03/20	No specific comments but mentioned scheduled monuments on adjacent land should be protected	Addressed in Appendix 2, 3.6.2

Non-Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
The River Ythan Trust	11/02/20	No response		
Delgatie Castle & Fishery	11/02/20	No response		
Haddo Estate	11/02/20	11/02/20	No concerns	
Saving Scotlands Red Squirrels	11/02/20	No response		
Scottish Wildlife Trust	11/02/20	16/02/20	Queries regarding plans for roading, maintenance of informal paths, types of forest management planned and deer management	Issues addressed in sections 2.5, 2.6, 7.2 and 7.5
Native Woodland Ecologist	11/02/20	11/02/20	Provided advice on PAWS restoration	Addressed in 7.2
Confor	11/02/20	No response		
Turriff and District Community Council	11/02/20	No response		
Methlick Community Council	11/02/20	No response		
Forest Research	11/02/20	11/02/20	No concerns	
General public	Signs placed 21/1/20	Various	Enquiries about additional path networks Enquiries about felling in Polesburn Wood Enquiry about impact on felling operations on access for hacking	Advised that no additional formal paths are planned Advised only felling planned duiring this LMP period is thinning Advised that short term access restrictions would be in place during felling operations adjacent to forest roads

Appendix II: Supporting Information

II/1.0 The existing forest and land

II/1.1 History of the land holding

Both Gight Wood and Delgaty appear as woodland areas as early as the first edition OS maps (1843-1882), this is reflected in the fact that the vast majority of the LMP area is designated as 'Long Established (of plantation origin)' with areas designated 'Ancient (of semi-natural origin)'.

In Delgaty, most of the commercial planting took place between 1953 and 1957, the main species planted included Japanese larch, Sitka spruce, Scots pine and Douglas fir. A significant proportion of the block is now on its 2nd rotation with the process of converting the western areas to broadleaves begun in the previous plan period.

Most of the commercial planting in Gight Wood occurred between 1959 and 1963, with larch, spruce and pine species the most common. Much of the area has now begun the process of conversion to broadleaf woodland for environmental benefits although there remain some small areas of 2nd rotation conifer in the form of Sitka spruce coupes.

II/2.0 Analysis of previous plan

II/2.1 Aims of previous plan and achievements

Objectives from the previous plans were as follows:

Objectives	Assessment of objectives met during plan period
Primary objectives	
Production of a sustainable timber crop	Timber has been produced within the plan period via thinnings and clearfells. Areas have been restocked or are programmed to be restocked.
Climate change mitigation	Area managed and with potential to be amanaged under CCF systems has increased. Value of the floodplain at Gight has been taken into account. Broadleaf regeneration has been identified and retained, potential for biomass crop in future.
Increase biodiversity	Single species crops have been removed and restocked with broadleaf mixtures

	across the plan area, including PAWS restoration.
Increase amenity value	Recreation provisions have been maintained to a good standard. The species and age range of the crop has increased over the plan period

II/2.2 How previous plan relates to today's objectives

The objectives of the previous plan were broadly similar to those in the current LMP. The new set of objectives seek to build on and refine the objectives identified in the previous plan.

II/3.0 Background information

II/3.1 Physical site factors

3.1.1 Geology, Soils and landform

According to the British Geological Survey Geological Map of the UK, Gight Wood is underlain with bedrock for the Southern Highland Group, part of the Dalradian supergroup. These give rise to an overlying soil with moderate nitrogen availability.

Dalgety is underlain by Middle Old Red Sandstone of the Devonian period, this gives rise to soils with low nitrogen availability.

The majority of Gight Wood is situated on 243 – Foundland association soils. This tends to produce humus iron podzols with some brown earth, with gleys and peaty podzols found in hollows. The rooting depth in these areas should be around 100cm. A small area of Gight Wood is situated on alluvial soils which are usually poorly drained but very fertile.

Delgaty is on 428 Cuminestone association. This comprises brown earths and humus iron podzols with some noncalcareous gleys. The rooting depth should be a minimum of 80cm on the podzols and 100cm on the brown earths.

The elevation of the LMP runs from a low point of around 30m in Gight Wood to 130m at the highest point in Delgaty. An map of the topography of the area can be found below. Gight wood is found on the sides of a valley formed by the River Ythan and Delgaty is on a gentle slope running from east to west.

3.1.2 Water

There are several watercourses present within the plan area. Delgaty drains into Idoch water, (SEPA condition: Bad) which is part of the River Deveron catchment. Gight Wood drains into the River Ythan both directly and via the Burn of Stonehouse (SEPA condition: Moderate).

A secondary objective included in this LMP is "Protect and improve the water environment." This will be achieved firstly by following UKFS Forest and Water Guidelines and the UK woodland assurance standard.

In addition to these measures, operational areas classified as having a 'High' likelihood of flooding on SEPA's flood maps with have any woody debris removed after felling and techniques will be employed to reduce ground disturbance.

Any felling operations on the River Ythan floodplain will be restricted to the months between May and October to reduce the possibility of silt entering the watercourse and these areas will be restocked with water tolerant species suitable for a riparian habitat.

Re-naturalisation of water courses within the plan area will also be investigated and implemented if feasible.

3.1.3 Climate

The climate data for this area has been obtained from the Ecological Site Classification System and is displayed below.

	Accumulated Temperature	Exposure (DAMS)	Moisture Deficit
Gight Wood	1216 - Warm	9 - Sheltered	141 - Moist
Delgaty	1133 - Cool	14 – Mod. Exposed	123 - Moist

Accumulated Temperature is the accumulated total of the day degrees above the growth threshold temperature of 5°, which provides a convenient measure of summer warmth.

DAMS is the Detailed Aspect Method of Scoring. This represents the amount of physically damaging wind that forest stands experience in the year.

Moisture Deficit reflects the balance between potential evaporation and rainfall and therefore emphasises the dryness of the growing season.

II/3.2 The existing forest

3.2.1 Age structure, species and yield class

The species breakdown for the LMP area can be found below.

Species	Area (ha)	Percentage
Sitka spruce	69.2	24.1%
Japanese larch	50.1	17.5%
Hybrid larch	26	9.1%
Open	21.1	7.3%
Scots pine	22.5	7.8%
Mixed broadleaves	22	7.6%
Birch (downy/silver)	16.8	5.8%
Alder	16.5	5.7%
Lodgepole pine	12.5	4.4%
Norway spruce	11.1	3.9%
Douglas fir	3.5	1.2%
European larch	2.6	0.9%
Mixed small components	8.8	3.1%
Felled	4.4	1.6%

The age structure ranges from first rotation conifer plantation planted in the 1950's and 60s with some areas relatively recently restocked within the past 15 years.

3.2.2 Access

There are no problems with the existing road network in terms of uplifting any timber from operations within the plan period. However, a lot of consideration will have to be taken to neighbours when using roads with shared access rights such as around Delgatie Castle and fishery.

On-going issues with gaining access to Braes of Gight section of Gight Wood; if this is resolved, existing road network may need minor works to allow timber haulage.

3.2.3 LISS potential

LISS is defined as "Use of silvivultural system whereby the forest canopy is maintained at one or more levels without clearfell of areas over 2.0 ha". Both blocks within the LMP are at low altitudes, have a good rooting depth and relatively dry.

The majority of both blocks are suitable for LISS systems with the exception of the highest points of Delgaty which has a DAMS score of 15, marking it as moderately exposed. It is expected that the main management systems in the LMP area will have a continuous cover component in the future.

3.2.4 Thinning potential

All areas within the LMP have the potential to be thinned. The exact prescription will vary between species and the objectives for each coupe.

II/3.3 Land Use

3.3.1 Neighbouring landuse

The vast majority of the neighbouring land in both blocks is used for agriculture. The only exceptions are a small area of designed landscape at Delgatie Castle and an ancient woodland SSSI in the North West of Gight Wood.

II/3.4 Biodiversity and environmental designations

3.4.1 Designations

There is a SSSI adjacent to Gight Wood which has an influence of future planning of the forest. The SSSI is managed by the Scottish Wildlife Trust and it is designated as Ancient Woodland. Species choice in areas adjacent to the SSSI have been chosed to compliment and reflect the designated area.

There are three areas designated as PAWS (Plantation on Ancient Woodland Site) within Gight Wood; two of these areas are planned to be restored to native broadleaf woodland by the end of the plan period with a lack of access blocking restoration activities in the third area.

There are no designations within or adjacent to Delgaty.

3.4.2 Habitats and species

Otter are present on the River Ythan at Gight Wood. Red Squirrels and badgers are abundant throughout the wood with numerous dreys and setts recorded. Any management considered on veteran trees will also consider bats with some roosts already recorded.

A number of raptors are also present on or adjacent to the NFE.
There is some Lowland Fen UKBAP priority habitat on the floodplain of the River Ythan but it is a relatively unimportant example; this habitat will be

retained. However, any broadleaf species suitable to a native wet woodland habitat which regenerate naturally will be retained.

3.4.3 Riparian habitat

The woodlands at Gight are in part, the riparian zone of the River Ythan and a number of watercourses drain directly to the Ythan. The river is in moderate ecological status as it flows through the woodlands and therefore improving woodland quality, water quality and ecological status are considered in the LMP.

3.4.4 Invasive species

Invasive non-native species impact the biodiversity of an area directly and are recognised as a significant risk to water environments.

Gight Wood has Giant Hogweed present along the bank of the River Ythan, this is monitored and removed by FLS staff every year.

There has also been an instance of Japanese Knotweed in part of the Gight Wood block in the past, this was removed successfully at the time but the area is still being monitored for reoccurrence.

In Delgaty there are sporadic occurrences of Salmonberry and Rhododendron which may require some future management.

3.4.5 Pests and diseases

Phytophthora ramorum has been confirmed on larch within the Gight Wood block in the past, with the infected tree removed under a Statutory Plant Health Notice (SPHN). The majority of the remaining larch in the area is due to be felled within this plan period. Although this decision was made primarily with the aim of converting the area to broadleaf woodland in mind, the fact phytophthora has been identified in the block previously was also considered.

Hymenoscyphus faxineus (Ash dieback) was identified in an area of planting within Gight Woods during the previous plan period. In response, all ash was removed from the site, and there is now a general moratorium on planting ash on the national forest estate. Any areas where ash were removed will be restocked with native broadleaf species within the plan period.

II/3.5 Landscape

3.5.1 Landscape character

Under the SNH Landscape Character Assessment, Delgaty and a proportion of Gight Wood fall into the classification of **Undulating Agricultural Heartland**, with the remainder of Gight Wood falling under **Farmed Rolling Ridges and Hills**.

The **Undulating Agricultural Heartland** character type covers an extensive area of gently undulating farmland lying at the core of north-eastern Aberdeenshire. The key characteristics of this area are described below:

- Gently undulating, rolling landform of low hills and ridges, with broad shallow valleys.
- Smoothly rounded terrain.
- Large fields.
- Occasional beech and thorn hedges, with stone dykes more common in parts.
- Generally sparse woodland cover, with broadleaf trees concentrated in shelterbelts along ridges, and around farms. Larger coniferous forests occur in some areas, and estate policies and occasional beech shelterbelts also occur.
- A well settled landscape with a number of small settlements including historic planned fermtouns, castles and designed landscapes.
- Frequent, regularly dispersed medium-sized farms, with pockets of smaller farms and crofts.

The **Farmed Rolling Ridges and Hills** character type forms a broad swathe of gentry rolling farmland which is generally more elevated and hillier than the more open plains of the Undulating Agricultural Heartlands. The key characteristics of the area are described below:

- Softly rounded hills and ridges forming rolling topography with sweeping curves.
- Narrow valleys with small watercourses.
- Simple pattern of medium and large rectilinear arable fields and pasture.
- Geometric forests on hill sides.
- Broadleaf woodland on lower valley sides and dens.
- No settlements of significant size.
- Open character, with long views from elevated roads to backdrop of hills to the south and south-west.

3.5.2 Landscape designations

Buchan Woods is not located within a nationally designated landscape area.

Part of Gight Woods is located within a Local Landscape Area (LLA), but there are no operations planned within the LLA during the plan period.

3.5.2 Visibility

Delgaty is slightly visible from the town of Turriff and from the nearby Delgatie castle. Any operations taking place in Delgaty during the plan period should have a positive effect on the landscape value of the block in the future.

Due to the small size of Gight Wood and its location, it does not have a large individual impact on the landscape scale. However, some of the North facing faces are visible from minor public roads.

II/3.6 Social factors

3.6.1 Recreation

Delgaty is an important resource for the local community, primarily used for dog walking and exercise. It is also adjacent to the tourist attractions of Delgatie Castle and Fishery.

There is also a lack of woodland in the local area so it is important to maintain forest cover and avoid too many large scale clearfells in recreation areas. This is reflected in the plan to have a few small clearfells within the main visitor areas, with the majority of this zone managed under continuous cover systems.

Gight Wood is also regularly used for recreation by the local community, the walk to Gight Castle and along the River Ythan is used regularly by dog walkers, tourists and horse riders. Any felling operations within Gight Woods will have to be managed sympathetically.

3.6.2 Community

The closest community to Delgaty is Turriff, which is a significant settlement in the local area. Methlick, which is at the south eastern end of Gight Wood, is a smaller town but still has several active community groups.

3.6.3 Heritage

Designated historic environment features are recorded in the Designated Historic Assets Register (maintained by the FCS Archaeologist). Scheduled

monuments and listed buildings are managed within a programme of individual Monument Management Plans and Condition Surveys respectively. FCS also maintains a programme of detailed, measured surveys of our most significant sites in order to enhance the national historic environment and inform conservation management.

Historic Environment Scotland and Aberdeenshire council were contacted as part of the consultation process. There are no scheduled monuments within the Buchan Woods LMP area, but there are some on adjacent land. These will be highlighted during the work plan process to ensure that forest operations do not cause any unintended damage.

There are several unscheduled heritage features within the LMP area, including dry stone dykes, rig and furrow field systems and in Gight Woods, a hut circle with associated earthworks. The LMP includes a plan to open the area around the hut circle to help make it easier to access and all other features will be identified and protected as part of the work plan process.

II/3.7 Statutory requirements and key external policies

The legal status of the land is purchased.

The forest plan is in accordance with the guidance supplied in:

- UK Forestry Standard
- UK Woodland Assurance Scheme
- Scotland’s Forest Strategy 2019-2029
- FLS Corporate Strategy

Appendix III: Tolerance Table

	Adjustment to Felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Changes to roadlines	Designed open space	Windblow Clearance
FC Approval not normally required	Fell date can be moved within 5 year period and between phase 1 and phase 2 felling periods where separation or other constraints are met	Up to 10 % of coupe area	Normally up to 2 planting seasons after felling. Where hylobius levels are high up to four planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.	Change within species group e.g. conifers, broadleaves.		Increase by up to 5% of coupe area	
Approval by exchange of letters and map		Up to 15 % of coupe area	Between 2 and 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.		Additional felling of trees not agreed in plan Departures of more than 60m in either direction from centre line of road.	Increase by up to 10%. Any reduction in open ground within coupe area.	Up to 5 ha
Approval by formal plan amendment may be required	Advanced felling (phase 3 or beyond) into current or 2nd 5 year period	More than 15% of coupe area	More than 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised.	Change from specified native species. Change between species group.	As above depending on sensitivity.	More than 10% of coupe area. Colonisation of open areas agreed as critical.	More than 5 ha