Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Ladyurd

Land Management Plan

2020 - 2030

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.

The mark of responsible forestry

Property Details			
Property Name:	Ladyurd		
Grid Reference (main forest entrance):	NT 1425 4364	Nearest town or locality:	Blyth Bridge
Local Authority:		Scottish Borders	

Applicant's Details			
Title:	Mr	Forename:	Thomas
Surname:	Newton		
Position:	Planning Assistant		
Contact Number:	07768418023		
Email:	thomas.newton@forestryandland.gov.scot		
Address:	Forestry and Land Scotland, Weavers Court, Forest Mill, Selkirk		
Postcode:	TD7 5NY		

Owner's Details (if different from Applicant)	
Name:	
Address:	

1. I apply for Land Management Plan approval for the property described above and in the enclosed Land Management Plan.

2. I apply for an opinion under the terms of the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 for afforestation / deforestation / roads / quarries as detailed in my application.

3. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included. Where it has not been possible to resolve specific issues associated with the plan to the satisfaction of the consultees, this is highlighted in the Consultation Record.

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

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

Signed, Regional Manager	pp. Colin Hossack, Planning Manager	Signed, Conservator	
FLS Region	South	SF Conservancy	South
Date	13/11/2020	**Date of Approval**	
		Date Approval Ends	

Contents

1.0 Objectives and Summary

1.1 Plan overview and objectives

Plan name	Ladyurd Land Management Plan 2020-20-30
Forest blocks included	Ladyurd
Size of plan area (ha)	288.02
Location	See Location map (**Map 1**)

Long Term Vision
A healthy and resilient forest, capable of generating a sustainable supply of timber products and where timely thinning operations increase timber quality and silvicultural flexibility. A forest where biodiversity benefits from sustainable forestry and in turn underpins the forest's resilience and adaptability to future climate change and growing pressures. A forest that is valued by the local community and contributes to the local landscape.
Management Objectives
1. To grow and harvest a regular and sustainable crop of quality saw logs, small round wood and other forest products for local timber markets. 2. To carry out regular and timely thinning operations, to improve timber quality and enhance stand stability. 3. To continue to restructure the forest and increase age, species and structural diversity. 4. To stop the spread of and reduce the population of Salmonberry within the forest. 5. To control and reduce herbivore damage, to provide opportunities for broadleaf and soft conifer establishment and to improve the quality of open, riparian and broadleaf habitats. 6. To continue to develop a long-term forest structure of linked permanent habitats for the benefit of biodiversity and ecological connectivity. 7. To identify opportunities for pre-emptive larch felling as per FLS Larch Strategy for *Phytophthora ramorum*
Critical Success Factors
• Successful restocking of clearfell coupes. • Establishment of broadleaves and soft conifer species. • Completion of timely thinning interventions, in particular 1st thinning's. • Prevention of any further spread of Salmonberry. • Natural broadleaf regeneration present in semi-natural woodland areas and riparian zones in plan period.

1.2 Summary of planned operations

Table 1

Summary of Operations over the Plan Period	
Clear felling	73.03 ha
Restocking	78.02 ha
Afforestation	0 ha
Deforestation	0 ha
Forest roads	0 m
Forestry quarries	0 ha

The forest is managed to the UK Woodland Assurance Standard – the standard endorsed in the UK by the *Forest Stewardship Council* and the *Programme for the Endorsement of Forest Certification*. Forestry and Land Scotland is independently audited to ensure that we are delivering sustainable forest management.

2.0 Analysis and Concept

The planning process was informed by collecting information about the woodland, which is presented in **Appendix I** and on **Map 2**. During the development of this plan we have consulted with the local community and other key stakeholders, and a Consultation Record is presented in **Appendix III**.

The plan's objectives were analysed against the constraints and opportunities identified during scoping and consultation. Preferred options were then chosen for delivering the objectives, and these proposals are summarised on the Analysis and Concept map (**Map 3**).

3.0 Management Proposals - regulatory requirements

3.1 Designations

The plan area forms part of, includes, or is covered by the following designations and significant features.

Table 2

Designations and significant features		
Feature type	Yes / No	Note
Site of Special Scientific Interest (SSSI)	No	
National Nature Reserve (NNR)	No	
Special Protection Area (SPA)	No	
Special Area of Conservation (SAC)	No	
World Heritage Site (WHS)	No	
Scheduled Monument (SM)	No	
National Scenic Area (NSA)	No	
National Park (NP)	No	
Deep peat soil (>50 cm thickness)	No	
Tree Preservation Order (TPO)	No	
Biosphere reserve	No	
Local Landscape Area	Yes	Tweedsmuir Uplands Special Landscape Area (SLA)
Ancient woodland	No	
Acid sensitive catchment		
Drinking Water Protected Area (Surface)		

The Key Features map (**Map 2**) shows the location of all designated areas and significant features. Any deep peats are indicated on the Soils map (**Map 9**).

3.2 Clear felling

Sites proposed for clear felling in the plan period are identified as Phase 1 and Phase 2 coupes on the Management map (**Map 4**).

Table 3(updated)

Clearfell Summary by Phase and Coupe Number				
Phase	Coupe Number	Fell Year	Gross Area (ha)	Volume (m3 OBS)
1	83017	21/22	45.61	21173.7
1	83021	24/25	11.69	5774.44
2	83018	27/28	15.73	8529.21
	Total		73.03	35477.35

Table 4

Clearfell by Species									
Net Area (ha) by Main Species >20% (or MC, MB)									
Coupe Number	Fell Year	DF	JL	SS	HL	CP	MC	MB	Coupe Total **Net Area (ha)**
83017	21/22	3.47	7.83	28.8	0	0	0.04	0	**40.26**
83021	24/25	0	1.36	6.74	0.33	0.1	1.71	0.69	**11.03**
83018	27/28	3.46	0	11	0	0	0	0	**14.51**
Plan Area Total		**6.93**	**9.19**	**46.54**	**0.33**	**0.1**	**1.75**	**0.69**	

Table 5

Scale of Proposed Felling Areas										
Total Woodland Area			288.02		ha					
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%
Net Area (ha)	51.29	17.8	14.51	5.03	17.45	6.05	36.15	12.55	23.01	7.98

3.3 Thinning

Potential sites for thinning in the plan period are identified on the Thinning map (**Map 5**).

This covers an area of 77.79 ha

Thinning will normally be carried out at, or below, the level of marginal thinning intensity (i.e. removing no more than 70% of the maximum MAI, or YC, per year). Higher intensities (no more than 140 % of maximum MAI, or YC, per year) may be applied where thinning has been delayed, larger tree sizes are being sought or as part of a LISS prescription. In all cases work plans will define the detailed thinning prescription before work is carried out and operations will be monitored by checking pre and post thinning basal areas for the key crop components.

3.4 Other tree felling in exceptional circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process.

However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling.

Felling permission is therefore sought for the LMP approval period to cover the following circumstances:

Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

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

The maximum volume of felling in exceptional circumstances over the plan area covered by this approval is 40 cubic metres per calendar year.

A record of the volume felled in this way will be maintained and will be considered during the five year Land Management Plan review.

[N.B. Trees may be felled without permission if they: are of less than 10 cm diameter at breast height (1.3 m); pose immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements].

3.5 Restocking

Proposed restocking is shown on the Future Habitats and Species map (**Map 6**).

Table 6

Restocking							
Phase †	Coupe Number	Gross Area (ha)	Proposed Restock Year	Species	Method *	Minimum stocking Density (s/ha)	Note
F	83006	4.99	21/22	MB	R	2500	Felled awaiting restocking. Productive broadleaf.
1	83017	45.61	24/25	SS/SP SS SS/NF NS NS/SP MB	R R R R R R	2500 2500 2500 2500 2500 1600	
1	83021	11.69	27/28	SS SS/DF NF SP MB	R R R R R	2500 2500 2500 2500 1600	
2	83018	15.73	30/31	SS SS/SP	R R	2500 2500	

Total	78.02

† recently felled awaiting restocking (F) / Phase 1 (1) / Phase 2 (2)
* replant (R) / natural regeneration (NR) / plant alternative area (ALT) / no restocking (None)

3.6 Species diversity and age structure

The following tables show how the proposed management of the forest will help to maintain or establish a diverse species composition and age-class structure, as recommended in the UK Forestry Standard.

Table 7

Plan area by Species						
Species	**Current**		**Year 10**		**Year 20**	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
Sitka Spruce	148.8	51.67%	131.1	45.52%	105	36.46%
Other Conifers	90.4	31.39%	102.2	35.49%	93.1	32.33%
Native Broadleaves	12.5	4.34%	19.4	6.74%	19.5	6.77%
Other broadleaves	0.7	0.24%	1.7	0.59%	2.7	0.94%
Open Ground/felled	35.6	12.36%	35.1	12.19%	70.4	24.44%
Total		**100**		**100**		**100**

Chart 1

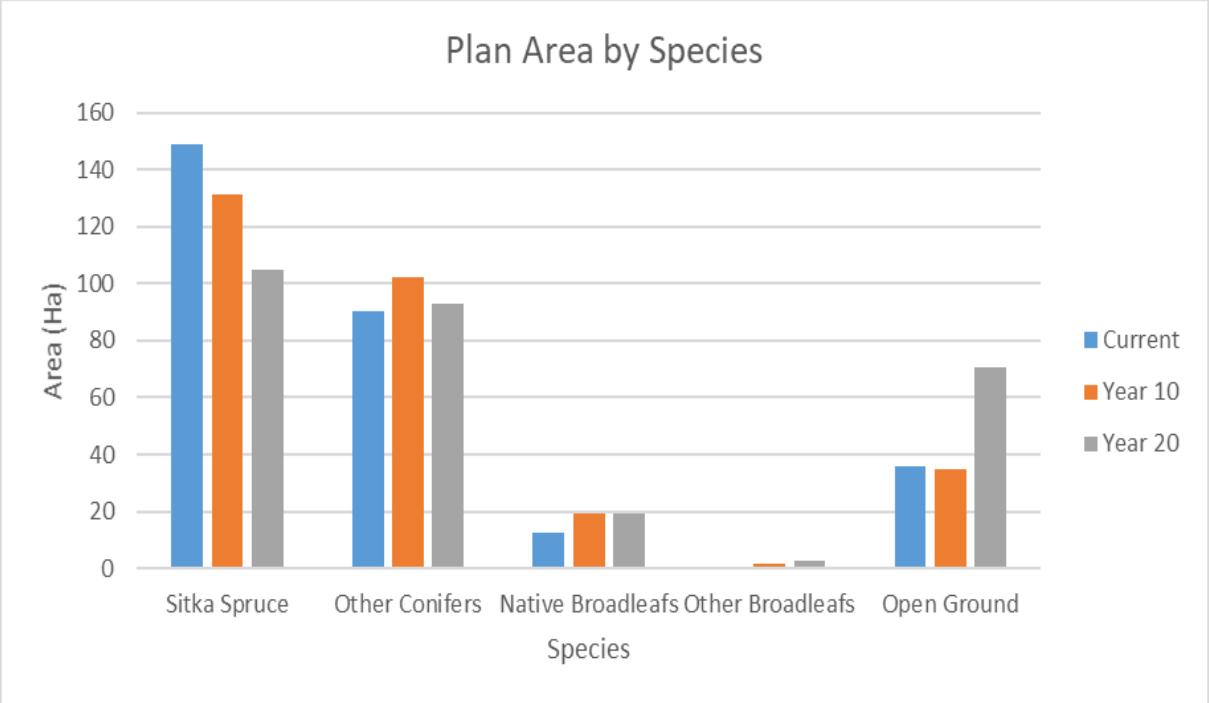
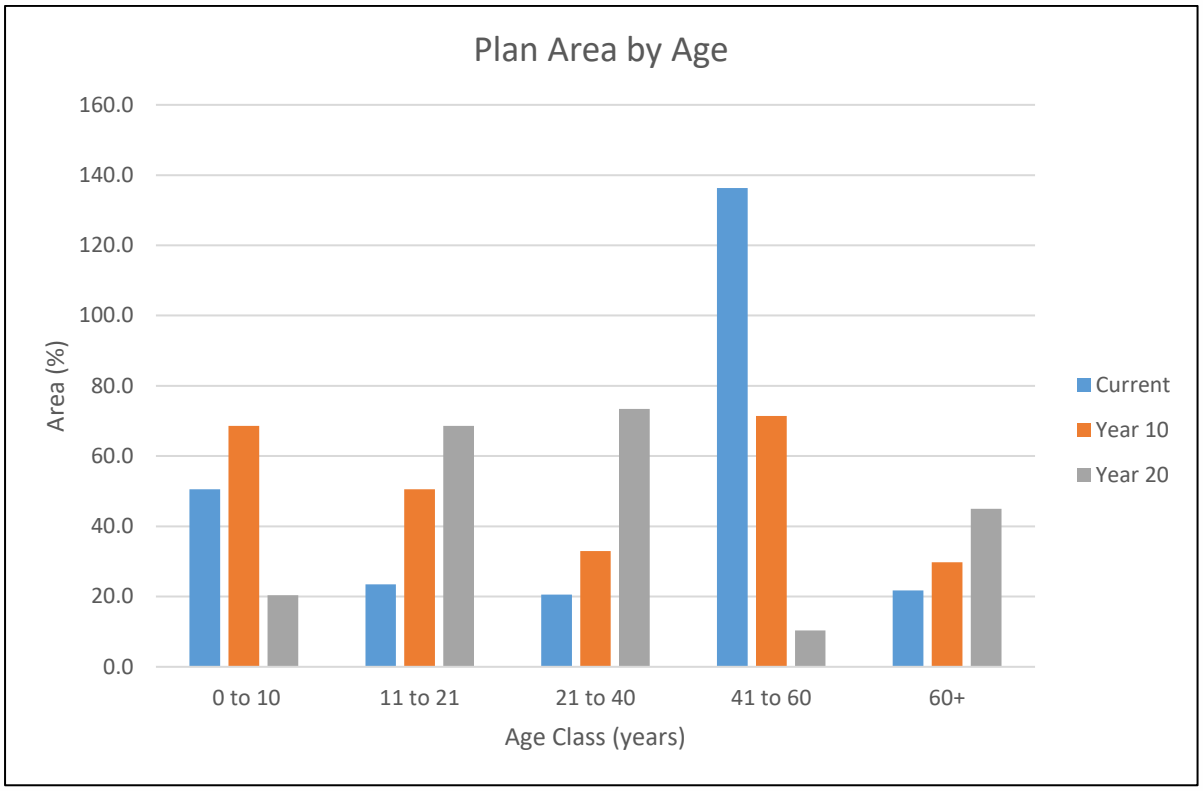


Table 8

Plan area by Age						
Age class (years)	**Current**		**Year 10**		**Year 20**	
	Area (ha)	%	Area (ha)	%	Area (ha)	%
0 – 10	50.5	17.55	68.6	23.82	20.4	7.08
11 – 20	23.5	8.16	50.5	17.55	68.6	23.82
21 – 40	20.5	7.13	32.9	11.43	73.4	25.49
41 – 60	136.4	47.34	71.4	24.80	10.3	3.59
60+	21.8	7.55	29.8	10.34	45.0	15.63
Total		**100**		**100**		**100**

Chart 2



3.7 Road Operations and Quarries

Planned new roads, road realignments, road upgrades, new quarrying, and timber haulage routes are shown on the Road Operations and Timber Haulage map (**Map 7**).

Table 10

Forest Road Upgrades, Realignments, New Roads and New Quarrying				
Phase	Name / Number	Length (m)	Year	Operation

3.8 Environmental Impact Assessment (EIA)

Any operations requiring an EIA determination are shown in the table below. If required, the screening opinion request form is presented in **Appendix II**.

Table 11

EIA projects in the plan area		
Type of project	Yes / No	Note
Afforestation	No	
Deforestation	No	
Forest roads	No	
Forestry quarries	No	No proposals to expand the existing quarry at present. Any proposed future expansion will be submitted for amendment and EIA scoping.

3.9 Tolerance table

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

4.0 Management Proposals – guidance and context

Silviculture
Clear felling
Coupes for clearfelling during the plan period (refer to **Map 4**): **83017 Brown Dod** This coupe is an amalgamation of three coupes outlined in the previous plan, the aim of which is to pre-emptively fell the Larch found within this area in one operation. The crop is composed of first rotation P1978 Sitka spruce, Japanese larch and Douglas fir as well as two smaller areas of Sitka spruce/Douglas fir and Douglas fir/ Japanese larch mix. Some areas of Sitka spruce below the road have previously been thinned and contain a small amount of windblow. **83018 Flint Hill** First rotation P1978 Sitka spruce and Douglas fir and P1984 Sika spruce/Douglas fir on a mosaic of brown earths and podzolic ironpan and ranker soil types. The coupe has good access and areas of Sitka spruce have previously been thinned. A small amount of windblow is beginning to develop over areas of shallower ranker soils towards the coupes summit. **83021 Harehope How** A diverse first rotation crop (P1978 – 79) which contains Forest Research Experiment Sites: Glentress 48 and 49. The coupe is approximately 61% Sitka spruce with the remaining crop compromised of Noble fir, Grand fir, Japanese larch, Hybrid larch and Nothofagus. Coupes already felled; to be restocked: **83006 Ladyurd Entrance** The previous crop was a mixture of mature Douglas Fir and Norway spruce on surface water gleys. The crop also included a percentage of Sycamore, most of which has been retained. The coupe is to be restocked with productive mixed broadleaf's, including Sycamore.
Thinning
Refer to map **Map 5.**

The thinning potential is good at Ladyurd, given DAM scores, soils and access. Thinning operations will be designed to increase timber quality and improve stand stability, whilst providing a sustainable supply of a range of timber products.

Thinning interventions will be planned for all productive stands from around year 15-20, or 10-12 m height. This will include a number of second rotations conifer and broadleaf crops, which will require either single or multiple interventions, depending on their age and yield class. Older conifer and broadleaf stands will be selectively thinned once during the course of the plan period.

The exact approach to thinning will be influenced by each stand's species composition, structure and management objectives. Thinning regimes will be applied accordingly, and monitored through pre and post thinning basal area surveys.

LISS

Refer to **Map 4.**

LISS management has been selected for all the existing areas of broadleaf woodland. These areas will be managed either through group and individual tree selection systems and complimented by thinning interventions where appropriate. The objective is to manage these areas for the benefit of biodiversity, increasing structural and species diversity by providing opportunities for natural regeneration, whilst generating a sustainable supply of woodfuel for local markets.

Long term retentions / Natural reserves

Long term retentions

A range of stand structures have been identified as areas of Long Term Retention in order to maintain and enhance habitat and structural diversity within the forest and to aid restructuring by creating a wide range of age classes.

The total area designated as LTR is 23.01 Ha and includes habitat used by Goshawk, pine marten and red squirrel.

83008

This coupe known as Woolshears Hill is the most extensive area of "Old" conifer (60+yr) in Ladyurd. The coupe provides important habitat for priority species including red squirrel, pine marten and goshawk. The stands of SS/HL, SS/DF & HL have all been well thinned over the years, supported by a good rack and forwarder track system, and show good overall

stability. The intention is to thin the coupe again during the plan period with the aim of reducing the overall larch volume whilst maintaining stand stability.

83009

This is a coupe comprised of two distinct areas, mapped together due to their size and adjacency . The first is a small area (0.42Ha) that contains a number of mature/veteran Beech, Oak and Ash trees. These together with the mature/veteran trees found in coupe 83003 represent the oldest trees in the forest most likely dating back pre 1850. Today they provide a range of important associated micro-habitats and are a significant feature in supporting and enhancing the forests biodiversity. The area also contains a small number of mature Birch and open-crowned spruce trees, providing further age and structural diversity.

The adjacent area is a small (0.4Ha) stand of p1959 Hydrid Larch with an advanced natural conifer regen understory. This area together with the adjacent stand described above help to improve the internal landscape value of the forest, providing a diverse structure and species mix along the forest road.

83015

This coupe is comprised predominately of p1962 windblown Norway Spruce. As a result the stand contains a good proportion of both standing and fallen deadwood. The conditions and habitat within this coupe complements the adjacent riparian and open habitats, helping to create a network of diverse habitat types, structures and associated ecotones.

Natural Reserve (NR)

83023 is a p1979, unthinned stand of pure Scots Pine. Despite the lack of any previous thinning interventions the stand shows good stability, with no signs of windblow. The relatively open canopy provided by the pine and high proportion of woodland edge has a allowed a good field layer to develop within. The stand is isolated being at the furthest point of from the forest entrance and contains no INNS or other conifer regen. Planned adjacent planting within the privately owned Scottish Woodlands holding will increase ecological connectivity to the NR, whilst the stand itself has the potential to develop old growth characteristics, and provide an important mature conifer habitat to wildlife whilst surrounding coupes are felled, restocked and mature.

Tree species choice

Refer to **Map 6.**

Growing conditions vary across the forest from excellent to moderate allowing for a range of species to be considered for planting.

In line with the LMP's objectives and with reference to ESC a diverse mix of tree species have been selected for planting, allowing for the production of a range of timber products whilst providing landscape appeal and environmental benefits. Sitka spruce will play an important part in achieving the LMP's aim of timber production and will continue to be favoured as the major species during restocking.

Within the previous plan Larch was an important species for achieving a degree of conifer species diversification. Due to the threat of *Phytophthora ramorum*, Larch is no longer a suitable option. Conifer diversity has been maintained through the use of Noble Fir, Grand fir, Norway Spruce and Scots Pine. Where suitable Birch has been included in mixture with Scots Pine to provide additional biodiversity benefit.

In areas of productive broadleaf planting Sycamore has been included as the main productive component in mixture with a range of native broadleaves. All other areas of mixed broadleaf planting, primarily that within riparian zones, will use native broadleaf species that complement NVC woodland types for the site.

Where there is felling adjacent to watercourses restocking will follow the Forests and Water Guidelines by holding back conifers from watercourse edges by 10 metres.

The Restocking Strategy for Scotland's National Forest Estate explains that we will minimise chemical usage in restocking (insecticides and herbicides) by considering options at the site scale, and using tactics such as delayed planting to achieve this.

Natural regeneration

The potential to recruit natural regeneration will be assessed prior to all clearfelling operations and factored in to restock proposals.

New planting

Not Applicable.

Protection

Browsing pressure as a result of high populations of Sika and roe deer is significant and poses a serious challenge in establishing broadleaves and soft conifers. Continued deer control will be essential in the establishment of crops and in meeting the plans critical success factor. Whilst the areas selected for restocking with soft conifers and broadleaves will be based primarily on site conditions, deer control will be assisted in the forest design, where possible, by establishing areas of 'soft' conifers and broadleaves on easily defendable and consolidated sites. Broadleaf trees, including those planted productively, will be given additional protection and planted in tubes.

The presence and high number of Sika deer means that all tree species within the forest will be susceptible to a prolonged period of potential damage. Bark stripping and tree bowling are common behavioural characteristics of Sika deer and are carried out on all age classes of tree. The resulting damage can cause a deterioration in timber quality and/or mortality of the affected trees. Deer culling aimed at maintaining an acceptable level of damage will be essential and will be supported at the work planning stage for each harvesting, thinning and restocking operation, where opportunities will be taken to improve access and infrastructure for deer management.

In areas of semi-natural woodland and riparian corridors, levels of natural broadleaf regeneration will be monitored by regional wildlife teams. Where it is found that browsing pressure is impacting negatively on the woodland and its biodiversity, action will be taken in line with FLS's Deer Management Strategy.

Road operations

Ladyurd has a simple and well maintained road network which provides access to all of the forests management coupes. No new roads or significant harvesting facilities will be required within this plan period.

Map 7 shows the existing forest road network, planned new roads, main egress points, and agreed Timber Transport Routes.

Biodiversity

Designated sites

There are no designated sites for nature conservation within Ladyurd.

Native woodland

This plan seeks to enhance existing areas of semi-natural woodland for biodiversity through the use of LISS to increase species and structural diversity. The focus of native woodland expansion will be aimed at increasing native broadleaf woodland within the riparian zone. Planting within the riparian zone will use native broadleaf species that complement NVC woodland types for the site.

PAWS

There are no PAWS within Ladyurd Forest.

Protected and priority habitats and species

Efforts to conserve and enhance biodiversity within the forest will focus on continuing to increase the age, species and structural diversity of coniferous stands across the forest, whilst increasing habitat and ecological connectivity. This will primarily be achieved through the ongoing process of forest restructuring (i.e. phased felling and restocking) and

in turn will be supported through the long term retention of stands and open ground. This will not only further increase the range of age classes across the forest but also conserve habitat used by priority species and help to develop a network of habitats beneficial to wildlife across the forest.

A key feature of the process of restructuring will be the enhancement of riparian habitats through the planting of native broadleaf woodland and creation of successional open habitat. Overtime these areas will increase the area of connected native woodland and open ground and provide an important element in the forest's long term structure of linked permanent habitats.

Red Squirrels

Efforts to conserve and enhance red squirrel populations within the forest will focus on maintaining a reliable food supply, retaining areas of key habitat and minimising impacts of and opportunities for grey squirrels. The area of Norway spruce, an important food source for red squirrels, will be increased over the next 20 yrs and where suitable stands of conifers will be thinned, promoting coning and seed production. Woolshears wood has been identified as a key habitat for resident red squirrels and will be retained as an area of Long Term Retention. This "old" conifer stand is also an important habitat feature for local pine marten populations which may help reduce and/or displace grey squirrel populations.

Veteran trees

Despite the relatively young age of Ladyurd forest, the site is fortunate to contain a number of mature/veteran trees as a result of its former land use. These trees are a significant feature of the forests biodiversity, providing a range of associated micro-habitats. In order to help conserve and enhance the biodiversity of the forest these trees will be managed in such a way as to protect and retain them for as long as possible. To ensure continuality of this feature, opportunities to retain suitable trees to act as future replacements will be sought as part of the work planning phase of all future thinning and felling operations and will be managed accordingly.

Priority Habitats

Areas of semi-native woodland will be managed under low impact silvicultural systems for the benefit of biodiversity. By actively managing these areas under LISS, opportunities for woodland flora and naturally regenerating tree and shrub species will be increased. Overtime this will improve the structural and species diversity of the stands, enhancing biodiversity.

Open ground

Open ground contributes to over 10% of the plan area over the next twenty years. A proportion of this has been identified as successional open, where natural regeneration will be tolerated. This is primarily located on hill tops, upper margins and along riparian zones, where deer control will be very challenging. Monitoring of these areas will allow significant changes to be identified, and Scottish Forestry will be notified if these require amendments to the plan. For areas designated as permanent open space, natural colonisation and regeneration will be managed in line with the management objectives of the areas.

Fallow clearfell sites will contribute to transitional open space throughout the forest.

Dead wood

Ladyurd is a relatively young forest and as such levels of deadwood are still developing since its establishment on formerly bare land.

Opportunities for retaining and creating deadwood, both standing and fallen will be identified during the work planning phase of all felling and thinning operations, favouring areas with the highest deadwood ecological potential. Valuable deadwood and deadwood areas will be marked on contract maps. Areas of NR and LTR will offer some of the best opportunities for the development of standing and fallen deadwood. Where it is safe to do so, standing mature dead trees will be retained as these offer excellent potential for wildlife.

Invasive species

Grey Squirrel

Ladyurd Forest lies approximately 1.7km outside, of the Upper Tweed Valley SSRS Priority Area for Red squirrel Conservation (PARC). Despite having a Red Squirrel population consultation with the local SSRS Officer has concluded that Ladyurd does not meet SRSS main project remit. As a result SRSS are unable to provide any project support to trap and monitor squirrels at Ladyurd. Opportunities to conserve and enhance resident Pine marten populations will instead be sought in an attempt to promote a biological control on the Grey Squirrel populations.

Salmonberry

The non-native invasive plant species Salmonberry *Rubus spectabilis* has become well established in Ladyurd and is continuing to spread throughout the forest.

Through the delivery of this plan FLS will control Salmonberry populations in order to prevent any further spread of the species and carry out control measures to reduce and contract its current range and population.

Chemical application using Glysophate has been chosen as the preferred method of control as it has been shown to be an effective method in the killing of Salmonberry plants and their rhizomal network, and minimises disturbance to dormant seed banks. Were plants are over 1.5m in height, they will be cut first in order to felicitate safe chemical application in the following growing season. Where cutting is carried out measures will be taken to ensure that all reproductive vegetation is removed to prevent potential vegetative propagation.

Initial efforts to control Salmonberry populations will focus on those plants and populations found along forest boundaries, riparian corridors and in areas of semi-natural woodland. This is so neighbouring properties are protected and detrimental impacts on areas of high ecological value are removed. Once the population and plants within these keys areas have been removed control efforts will switch to focussing on contracting and controlling the population within the wider forest environment via an annual program of spraying and cutting.

Forest operations, such as felling and thinning, within infected coupes will promote the spread and growth of Salmonberry populations. To prevent forest operations facilitating further spreading out with infected areas appropriate biosecurity measures will be included as part of the work planning phase of all felling and thinning operations within Ladyurd.

Sika deer

For information relating to the control of Sika Deer see the section on Protection above.

Historic Environment

Designated sites

There are no known designated sites within Ladyurd.

Other features

The 5 unscheduled features found within Ladyurd will be protected during forestry operations and an appropriate buffer maintained around features during restocking. Any natural regeneration will be managed as is necessary to maintain feature integrity.

Landscape

The forest is visible from short sections of the A72 between Peebles and Biggar, but does not otherwise dominate the landscape. A small number of properties look out onto the forest and these were contacted as part of the forests scoping process, however no feedback was received.

Tweedsmuir Uplands Special Landscape Area (SLA)

Ladyurd Forest has a northern aspect with visibility of the block being from northern hills out with the SLA. It is felt that changes to Ladyurd will therefore have a minimal impact on SLA, with the exception being the southern edge of the block and coupes on the western slope of Ladyurd Hill which are visible from the summits around Broughton Heights. Through process of restructuring any solid tree lines currently visible from this area will be removed.

People

Neighbours and local community

There appears to a relatively low level of community interest in the management of the Ladyurd, however the forest is an important site for the local community who value it as a site for informal recreation.

Public access

During public consultation, improvements to public access was the main area of interest shown by the local community.

Currently public access within the forest is limited to the forest road and a number old forwarder tracks, most of which are located close to the car park area. Within the forests southern half access along the Right of Way running through coupe 83017 has become restricted over the year due to tree growth. Public consolation identified an interest in re-establishing this ROW to facilitate access in this areas and allow for a loop trail to be possible.

Following harvesting operations a permanent open ride along the ROW will created, free of any harvesting residue or ground cultivation, providing access to the road and forest boundary. The position of the ride will seek to align with an access gate proposed by Scottish Woodlands as part of Ladyurd Woodland Creation scheme.

Visitors are welcome to explore FLS land, and will only be asked to avoid routes while certain work is going on that will create serious or less obvious hazards for a period (e.g. tree felling). Scotland's outdoors provides great opportunities for open-air recreation and education, with great benefits for people's enjoyment, and their health and well-being. The Land Reform (Scotland) Act 2003 ensures everyone has statutory access rights to most of Scotland's outdoors, if these rights are exercised responsibly, with respect for people's privacy, safety and livelihoods, and for Scotland's environment. Equally, land managers have to manage their land and water responsibly in relation to access rights and FLS will only restrict public access where it is absolutely necessary, and will keep disruption to a minimum.

Soils
Ground preparation
Appropriate ground preparation will be an important part in successfully establishing restock coupes. The choice of ground cultivation will consider short term benefits for establishment, as well as longer term effects on tree stability, future forest operations and the environment. There will be a preference for the least intensive technique.
Deep peats
There is no deep peat recorded within Ladyurd forest.
Water
Drinking water
There are no recorded water supply points within the forest.
Watercourse condition
SEPA's most recent survey of water quality in 2014 identified the Tarth Water, into which Hopes Burn and Ladyurd Burn drain into, to be in moderate condition overall as a result of water quality and physical condition. The River Tweed SAC, in which the Tarth Water is included, has an overall condition of Favorable Maintained, however for each of the Qualifying Interests of this Designated Feature water quality and/or forestry operations has been identified as a negative pressure. However, Ladyurd Forest contributes a very small proportion to the Tarth Water catchment and even smaller to the Lyne and Tweed River catchments. Due to the original afforestation of Ladyurd and lack of restructuring within the forests southern half many of the riparian zones found within this area are still heavily forested with conifer trees and buffer zones have yet to be established. Post clear-felling, buffer zones will be established in line with Forest and Water Guidelines, and will be characterised by the development of permanent broadleaf woodland and successional open ground along the riparian corridor. These areas will act as natural buffers for watercourses aiding sediment removal and erosion control, helping maintain and improve water quality into the Tarth Water.
Flooding
There are no specific flood prevention considerations within the plan area at this time (see Description of Woodlands). The scale and timing of felling in the forest, along with an increasingly diverse age structure is likely to have a beneficial impact on downstream flood risk and may contribute to a small amount too future flood alleviation.

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Appendix I: Description of Woodlands

Topography and Landscape	Elevation within the forest ranges between 200m at the forest block entrance onto the A72 to approximately 530m close to the summit of Brown Dod. Ladyurd Forest is located within two SNH Landscape Character Types (LCT): 92 Plateau Outlier & 113 Upland Valley with Pastoral Floor. The Plateau Outlier is as an area characterised by hills and ridges covered by a mosaic of coarse grassland, heather and forestry, clearly separated from adjoining types by major river valleys. The landform is characterised by smooth ridges and dome shaped hills. A very small portion of Ladyurd, at the entrance onto A72, is within the Upland Valley with Pastoral Floor LCT. However this has minimal effect on the LCT. Ladyurd Forest sits wholly within the Tweedsmuir Uplands Special Landscape Area (SLA). The SLA area of the Tweedsmuir Uplands predominantly focuses on the hills and reservoirs around Broad Peak, Harts Hill, St Mary's Loch and Talla reservoir. Ladyurd is situated on the northern edge of this designation with Broughton Heights being included in this northern spur of the SLA.

Geology and Soils	The underlying geology of this area is composed solely of Ordovician sedimentaries and glacial drifts cover all areas. Ladyurd's soils are representative of this landscape type with typical brown earth soils dominating hills and valley sides and peaty humus iron podzols and ranker soils on steeper, higher hill ground. Lower down within depressions and valleys, surface water and peaty gleys become the dominate soil type. Soil moisture regimes across the forest range from very moist (3) to slightly dry (6), whilst the soil nutrient regime ranges from very poor VP3 (1) to medium (3). Soil types found within the forest are shown in **Map 9.**
Climate	Average accumulated temperature (day degrees above 5°C): 1000 – 1138. Average moisture deficit (evaporation to precipitation): 44 – 109 mm Average rainfall ranges from : 980 – 1310 mm
Hydrology	**Map 2** shows all watercourses found within Ladyurd forest. Ladyurd sits within the River Tweed catchment, part of the Solway Tweed River Basin District. There are two main watercourses, Hopes Burn and Ladyurd Burn that flow through the forest, as well as a number of smaller watercourses that drain into them. Both watercourses drain into the Tarth Water approximately 1 km to the east, a tributary of the Lyne Water, and part of the River Tweed Special Area of Conservation. **River Tweed Special Area of Conservation** **Condition:** Favourable Maintained **Negative pressures:** Agricultural operations, climate change, *forestry operations,* invasive species, overgrazing and water management. Ladyurd forest represents 1.6% of the Lyne Water catchment and 0.058 of the River Tweed Catchment area. <u>Flooding</u> The Tweed Local Plan District Local Flood Risk Management Plan identifies a Potentially Vulnerable Area (PVA) starting at Peebles and extending down the Tweed valley. One of the main watercourses of the PVA is the River Tweed and its tributaries of which the Lyne Water and subsequently the Tarth Water are one of. As part of the management

	plan a Flood Protection study has been undertaken to assess amongst other things whether natural flood management could reduce flood risk. Ladyurd sits within the drainage area of the study but equates to less than 0.4% of the study area. The study is due to finish in December 2020. Ladyurd does not sit within any drinking water catchment areas and there are no recorded water supply points within the forest.
Windthrow	**Map 10** illustrates DAMS measurements across the forest. The greatest exposure within Ladyurd is at the summits of Brown Dod and Ladyurd Hill where DAM scores reach 19. The lowest DAM score is 11 close to the forest entrance, however a DAM score of 12 is more representative within the lower lying sheltered areas of the forest.
Adjacent land use	On its western boundary the forest is flanked by the privately managed Castlecraig Forest. The remaining neighbouring land is primarily agricultural grazing land, with heather moorlands to the south and improved grazing to the north and east.
Public access and local communities	Ladyurd Forest is popular locally for informal recreation and has a small, informal car parking area. The forest can also be accessed by local residents via two foot paths leading into the forest. Ladyurd is particularly well used by both recreational and commercial dog walkers, as well as horse riders. There are no formal path facilities but a number of old forwarder tracks provide moderately easy walking into the forest. The forest road provides easy walking, with views east across the valley. A historic public Right Of Way (SROW code BT0058) intersects the forest providing access to and from the John Buchan Way and down into valley via Ladyurd Farm. A small number of informal mountain bike trails have been developed in Woolshears Wood, though use appears to be light or possibly now non-existent. Levels of anti-social behaviour are low and mainly includes occasional fly tipping at the forest entrance or car park area.

Historic environment	Within Ladyurd there are five unscheduled features but no known designated scheduled features. Historic environment records for the forest are shown on **Map 2.**
Biodiversity	Efforts to conserve and enhance biodiversity in the past have focused on increasing the age, species and structural diversity of coniferous stands across the forest through planned restructuring (primarily phased clearfell and restock). This has been supported through the long term retention of stands and open ground in order to develop a network of habitats beneficial for wildlife. This has proved successful and today Ladyurd contains a range of habitat types and native species. Notable species found within the forest include Goshawk, badgers, pine martin, red squirrel and woodcock. There are no ancient woodland sites in Ladyurd but a small area of remnant policy type woodland remains in the forests NE corner and is represented by a small number of specimen silver firs. The NWSS identifies several native woodland sites in Ladyurd, identified as upland birchwood and upland mixed ashwood. Deer damage is recorded within all of these areas as high and is a concern for future possible natural regeneration. Ladyurd contains serval areas of open habitat, including an area of upland heathland located close to the summit of Ladyurd Hill. A notable feature of the forest is the presence of a number of veteran Beech, Oak and Ash trees within coupes 83003 and 83009. These are the oldest trees within the forest most likely dating back pre 1850 and probably formed part of the original field boundaries. Today they provide a range of associated micro-habitats, unlikely to be found anywhere else in the forest. Negative pressures: Biodiversity at Ladyurd faces a number of challenges, mainly due to the presence of invasive non-native species including Salmonberry, Sika deer and grey squirrels. These species are already or have the ability to cause detrimental ecological impacts including competition with native species,

	herbivory, habitat alteration, native species displacement and disease transmission.
Invasive species	The invasive non-native plant species (INNS) Salmonberry *Rubus spectabilis* is established and spreading throughout the forest. Establishment and growth of this INNS has been particularly vigorous within areas that have seen ground disturbance with the past 20 years. Salmonberry is a INNS known to cause competitive displacement of native flora, resulting in habitat alteration. It forms dense monoculture thickets, which locally inhibits the regeneration of native companion plant species. With native species displacement and habitat alteration comes loss of associated species and a decline in biodiversity. Due to the amount of Salmonberry established in Ladyurd, it could be considered that a degree of habitat alteration has already occurred. A small number *Rhododendrum poticum* bushes are located within coupe 83005. These will be controlled as part of planed Salmonberry control measures. Grey squirrels were recorded in Ladyurd forest in 2019 as part of a wider Pine Marten survey, although they have long been known to be present. Sika deer are present within the forest and the population is considered to be high although no formal monitoring has been carried out. This observation is characteristic of the local area, which has historically been a strong hold for the species.
Woodland composition	Ladyurd forest comprises of 288.02 Ha of predominantly upland conifer forest located in the north east of the Scottish Borders. Planting of the forest was done in two phases from 1958-61 and 1978-79, with one small coupe, 83004, restocked in 1995. Forest restructuring has been underway for the past 20 yrs and has focussed on the northern half of the forest, where the initial planting took place. There is a wide diversity of tree species, including a significant amount of diverse conifer.

	The current species composition and distribution of the forest is illustrated on **Map 8.**
Plant health	Ladyurd has had no plant health issues to date. A number of suspicious larch trees were reported as part of previous aerial surveys however the cause of mortality was later confirmed to be as a result of extensive bark striping and bowling by Sika deer. The forest is situated within Zone C of the FLS Larch Strategy reflecting the rapid spread of *P. ramorum* infection out with the Management Zone.

Appendix II: EIA screening opinion request form

Overleaf if required

Appendix III: Consultation record

Consultee	Date contacted	Date of response	Issues raised	FES response
Residents of Kirkurd Gardens	13/12/2019	Met during letter drop.	Explained in person the points of the Concept and Analysis map. One of the residents was the former head of the Ladyurd Community Wood and raised the issue of Salmonberry. They believed salmonberry to be negatively effecting biodiversity within Ladyurd. They explained how the Community Woodland Group had previously tried to help control it within Ladyurd forest and also explained Salmonberry is present on their land adjacent to Hopes burn. They were unaware whether the Salmonberry had spread from Ladyurd forest onto their land as it was already there when they purchased the property over 20yrs ago. I was also made aware of a "half dozen" Horse Chestnut trees that had been planted in the forest, in remembrance of a local resident. The trees I was told have significant importance to local residents	I highlighted our concern over this non-native invasive species and explained that FLS planned on developing a management strategy to stop any further spread of the invasive plant and to reduce current range. I explained that I would try and locate the trees and evaluate what would be best once they has been located.

			and users and was asked that they not be destroyed during any future operations.	
Site Manager at Castle Craig Residential Clinic	13/12/2019	Met during letter drop.	Raised concerns over the safety of their private water supply that he believed was in the forest. He explained that within the last few years they had upgraded their water supply and was concerned that we might not have the new information relating to its location.	I stated that I would examine our database and records and would be in contact. Upon examination of FLS's records, no private water supply within the forest was found. A map outlining the forest boundary and an accompanying email asking for their confirmation that their water supply was within our forest boundary was sent on the 16/12/2019. No response was received. A further email was sent on the 30/1/20 and a voicemail left on the 14/5/20. No response was received.
RSPB	17/12/2019	18/12/2019	Highlighted the plight of the Black Grouse within the local area and recommended targeted planting of native broadleaf's along the forests southern edge to provide potential foraging habitat for the species. They also stated that the nearest known lek site was 7km south of the forest.	Provided assurance that their concerns over the plight of the black grouse and there recommendations would be taken into consideration in the development of the final plan.
Tillhill	17/12/19	18/12/19	Asked for clear communication of the dates of proposed clearfell and thinning operations due to shared access of a section forest and the forest entrance.	Provided assurance that they will be given indicative felling dates as part of the final plan and that they will be consulted as part of the "Work Planning" process for each operation. This will provide them with a

				more detail understanding of the timing of the operations.
SEPA	17/12/19	08/01/20	General advice on forestry activities: UKFS; The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR); felling and replanting proposals; new supporting infrastructure; pollution prevention and waste management; enhancement of ecological habitats e.g. pond creation. Site specific: No private water supplies detailed on map provided.	As part of the LMP review and future operational planning drains will be checked to ensure that they have not become minor watercourses over time. No private water supplies have been found within Ladyurd forest but that we are in communication with neighbour to confirm this (in relation to Castle Craig Clinic). Opportunities to enhance ecological habitats within Ladyurd will be explored throughout the development of the final plan.
LNK Community Council	18/02/20	24/02/20	"Ladyurd Forest is an increasingly well-used and valued place for access & recreation and we would suggest that Forestry and Land Scotland requests details of the proposals for woodland creation by Scottish Woodlands on the adjoining land on Ladyurd farm so that linking the paths can be considered."	"we have already been contacted by Scottish Woodlands about public access between the two sites. The plans we were given proposed installing a number of access points to facilitate access between the sites, including along the existing right of way. This is a feature that we support and hope proves useful to the local community."
Local Resident	Initial email 13/03/20	Final response 26/06/20	"I have been looking at the plan for this forest and would like to make an important point on the subject of access.	"Your comments were very welcomed and have been considered in the development of the land management plan. I can confirm that access along the ROW will be improved

			A Right of Way enters the forest at NT 143406 from Stobohopehead and goes down to Ladyurd farm. Please could a path be reinstated from the forest road to the forest boundary…. Also a gate will be necessary since the small gate that used to be in the fence line was done away with some years ago in favour of a large gate further along the fenceline" I understand that the Ladyurd ground adjacent is due for planting and I did reply to the public consultation on that also. In particular I said that the ROW needed to be kept open and that a gate was necessary. Please could you ensure that one party or other does this and that the gate is multiuse. Please could I have some feedback on this comment."	post clear-felling of the coupe through which the ROW passes. Following harvesting operations a permanent ride along the ROW will be left open. This will be free of any harvesting residue and ground cultivation, providing access to the forest boundary. Access over the fence line will then be provided by a new style, as proposed by Scottish Woodlands, whilst the gate currently found at the fence line further along the forest road will continue to provide multiuser access between the two sites"

Appendix IV: Tolerance table

	Maps Required (Y/N)	Adjustment to felling period *	Adjustment to felling coupe boundaries **	Timing of Restocking	Changes to Restocking species	Changes to road lines	Designed open ground ** ***	Windblow Clearance ****
FC Approval normally not required	N	• Fell date can be moved within 5 year period where separation or other constraints are met.	• Up to 10% of coupe area.	• Up to 3 planting seasons after felling.	• Change within species group e.g. evergreen conifers or broadleaves.		• Increase by up to 5% of coupe area	
Approval by exchange of letters and map	Y		• Up to 15% of coupe area	• Between 3 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 > 60m in either direction from centre line of road	• Increase by up to 10% of coupe area • Any reduction in open space of coupe area by planting.	• Up to 5ha
Approval by formal plan amendment may be required	Y	• Felling delayed into second or later 5 year period. • Advance 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.	• In excess of 10% of coupe area. • Colonisation of open space agreed as critical.	• More than 5ha.

NOTES:

* Felling sequence must not compromise UKFS, in particular felling coupe adjacency

** *No more than 1ha, without consultation with FCS, where the location is defined as 'sensitive' within the Environmental Impact Assessment (Forestry) 1999 Regulations (EIA)*

*** *Tolerance subject to an overriding maximum 20% open space*

**** *Where windblow occurs FCS should be informed of extent prior to clearance and consulted on where clearance of any standing trees is required*

Table of Working Tolerances Specific to Larch

	Adjustment to felling period	Adjustment to felling coupe boundaries	Timing of restocking	Changes to species	Changes to road lines
FC Approval not normally required	Fell date for all larch can be moved and also directly associated other species	Larch areas can be treated as approved coupes. Other conifers directly associated with larch being felled, may also be removed up to an equivalent of 20% of the area occupied by the larch or 5 ha, whichever is greater	To be undertaken within the overall plan approval period.	Replacement as per the agreed restock plan, but where this is not specified or is larch this may be replaced with either another diverse conifer (not SS) or Broadleaves.	
Approval normally by exchange of letters and map. **In some circumstances Approval by formal plan amendment may be required**		Removal of areas of other species in excess of the limits identified above.	Restocking proposals outwith the plan approval period.	Restocking proposals for other species which do not meet the tolerances identified above.	New road lines or tracks directly necessary to allow the extraction of larch material.