Dallas

Land Management Plan

2020-2030

Includes the Kellas Oakwood SSSI plan

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

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

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Dallas
Land Management Plan

Section A Introduction and Background Description

A.1 Property details

This plan sets out the strategic direction for management of **Dallas** with details of the operations proposed in the first 10 years i.e. this plan period.

For further information on the plan please contact:
Forestry and Land Scotland
East Region
Portsoy Road
Huntly
AB54 4SJ

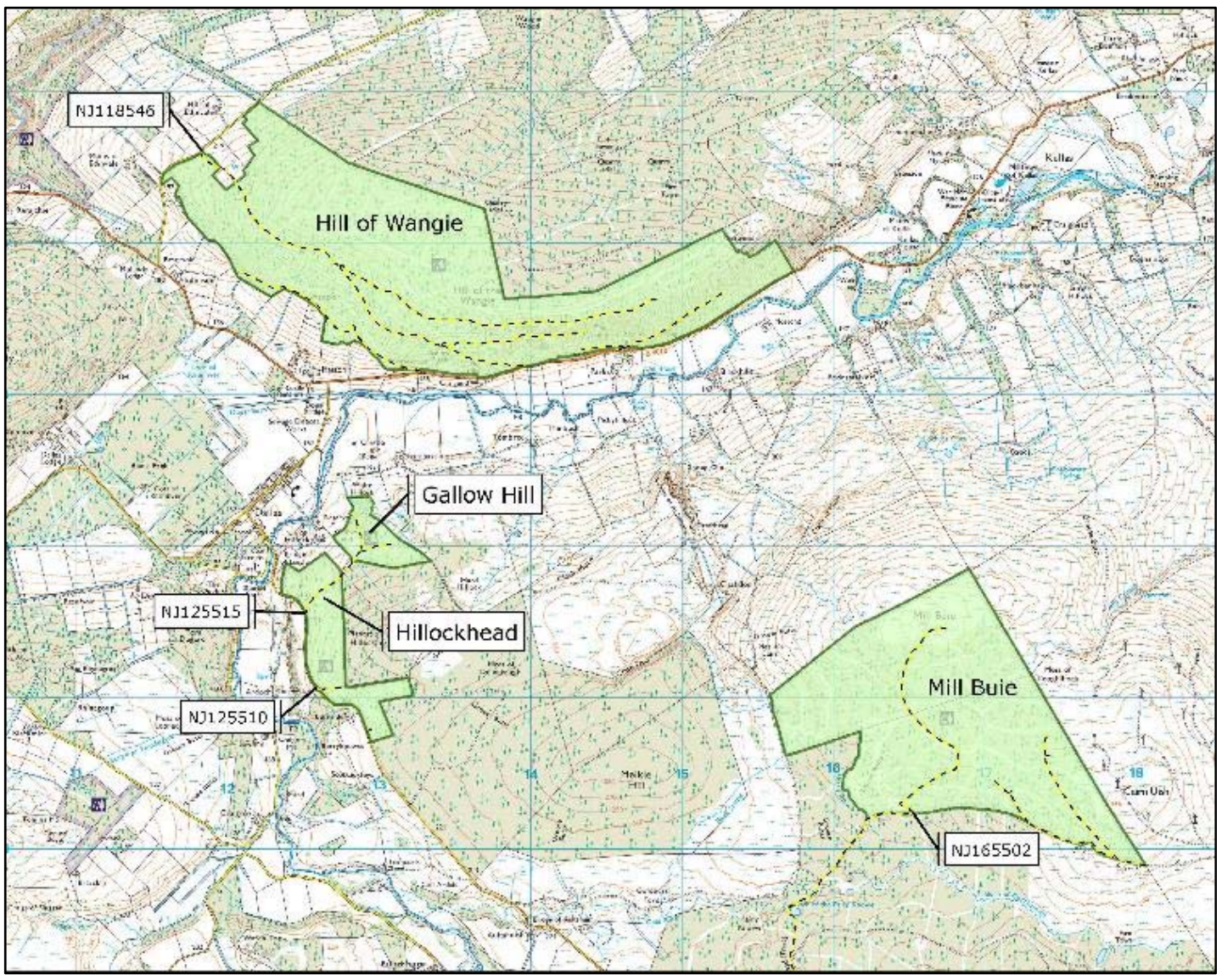
T: 0300 067 6380
E: enquiries.east@forestryandland.gov.scot

A.2 Location and context

See Map 1 Location

The plan area includes the Hill of Wangie, Gallow Hill. Hillockhead and Mill Buie. The entrance to Hill of Wangie is located approx. 10km south east of Forres. The plan area extends to 577ha.

10.6ha of the Hill of Wangie is part of the Kellas oakwood SSSI. There are 24.3ha of Plantation on Ancient Woodland Site (PAWS) mostly in Hillockhead and 273.3ha of the whole plan area is woodland of Long Established of Plantation Origin (LEPO).



A.3 Existing permissions

The current Land Management Plan approval expired on 26th November 2019.

This plan presents in detail the management, felling, thinning and restocking proposals for the next 10 years (2020-2029). This first ten year period is particularly important because it relates to the part of the land management plan that requires specific approval from Scottish Forestry. Longer term management of the forest is included in the plan but mainly to provide an indication of the direction of travel and to provide context.

This plan includes the plan for the section of the Kellas Oakwood SSSI managed by FLS. See appendix 2.

There are no other permissions or consents currently associated with this area.

A.4 External stakeholder engagement

During the development of this land management plan for Dallas we have consulted publicly including with local community representatives and stakeholders known to have an interest in the plan area. The table below highlight the issues that were raised during the initial scoping process.

Consultee	Issue raised	FLS response
Moray Council	No response to date.	
SEPA	There are no water bodies within or adjacent to the plan area which are at "less than good" ecological status/potential as a result of forestry activities. The plan should highlight this fact, emphasising the importance of maintaining the good quality of the surrounding water environment. We note that you have identified that several of the watercourses flow into the River Lossie where there are areas that are vulnerable for flooding. If you consider this a significant issue then we recommend that you seek input from flood risk professionals in designing the scheme to deal with these issues. We also note that some of the plan area has deep peat. We would be supportive of any proposals for peatland restoration.	All issues raised have been noted and addressed in the plan where appropriate.
SNH	The area includes Kellas Oakwood SSSI. We have not visited the FLS section of the SSSI since the deer fence was erected. It would be useful to include an update on the site condition. We don't have any comments relating to the remainder of the area.	The SSSI plan will for an appendix to the LMP.
RSPB	No response to date.	
Dallas estate	There is a strip on land on the north side of Hillockhead where the ownership boundary between the estate and yourselves is unclear. Perhaps this would be a good opportunity to address this? The water supply for Ardoch Farmhouse rises in Hillockhead (near the line you have shown I think) but runs down the field not along the road. Dallas estate has a right of vehicle access along both tracks that go through Hillockhead but we accept that this does not cover haulage of timber using standard wagons and have recently entered a temporary permission agreement to haul timber and stack in Hillockhead. We do plan to do this again (perhaps in about 7 years) and we will continue to use our vehicle access to harvest birch from the area between your two woods and for shooting access. Finally, I was surprised to see most of Hillockhead shown as PAWS. I appreciate that it is on the Ancient Woodland Inventory but it is a Scots pine 'plantation'. I would be concerned if this area was for some reason not to be commercially managed due to this designation.	Issues noted and addressed in the plan or passed to land agents.
Kellas estate	No response to date.	
Knochando estate	No response to date.	
Rothes estate	'We continue to work together on deer control with regards the Mill Buie section of the management plan', 'access is becoming a little difficult as the roadside regen closes in, so some maintenance of this in the plan to allow long term access for all would be useful to aid deer control'.	Issue noted and passed to our wildlife ranger manager to take forward.
Heldon community council	No response to date.	
CONFOR	No response to date.	
SSE	No response to date.	
Moray mountain bike club	Moray Mountain Bike Club would be keen to be involved in this exercise. I would stress that we do not hold accountability for any of the trails that FLS are aware of in the Hill of Wangle Woodland. We are however a voice for Mountain Biking and I would welcome any positive engagement with the Mountain Biking Community that would enable the responsible use of the woodland.	Issued noted and our visitor services team will reach an agreement where trails can be accepted.

A.5 Long term vision and management objectives

The long term vision for Dallas is to create a forest that fully meets all UKFS requirements.

The steeper ground in the Hill of Wangie will be gradually converted to a oak woodland to mimic and extend the Kellas Oakwood SSSI. While the flatter ground towards the top of the slope and Hillockhead will be managed as Scots pine dominated forest under a low impact silviculture system (LISS) with the objective of maximising the production of quality timber suitable for the local processing mills. Restocking by natural regeneration will be favoured where ground conditions and crops allow.

Mill Buie will remain as open ground with peatland restoration being undertaken where the soil conditions make this a suitable process to increase the sequestration and storage of carbon.

Primary Objective	**Critical success factor**
The management of the woodland to produce a sustainable crop of quality timber suitable for the local processing mills.	Undertake the planned thinning and felling programme during the plan period in order to increase the quality of the timber and to meet the production targets.
Improving the condition of Kellas Oakwood SSSI area so it moves towards being classified as in favourable condition.	The condition of the SSSI continues to be classed as “recovering” during the plan period.
Secondary objective	
Work with the mountain bike trail users to facilitate the use of trails that do not significantly impede the management of the forest.	A network of mountain bike routes are being used that allows operation to proceed without undue conflict with the trail users.
Manage the deep peat areas to maximise their carbon sequestration and storage potential.	Peat areas are identified and a programme of restoration works have started.
Manage the riparian zones to minimise any potential impact on the downstream PVA and maintain the watercourses in “good” ecological status.	Riparian zones that are felled within the plan period have been, or are planned to be, restocked with native broadleaf woodland and open ground.
Mange the Hillockhead plantation to gradually restore it to its ancient woodland character.	Continue the programme of thinning and natural regeneration to allow further areas to be felled as part of the LISS prescription in future iterations of the plan.

A.6 General Site Description

See Map 2 Key features

See Appendix 1 for details of background and survey information used to inform this plan.

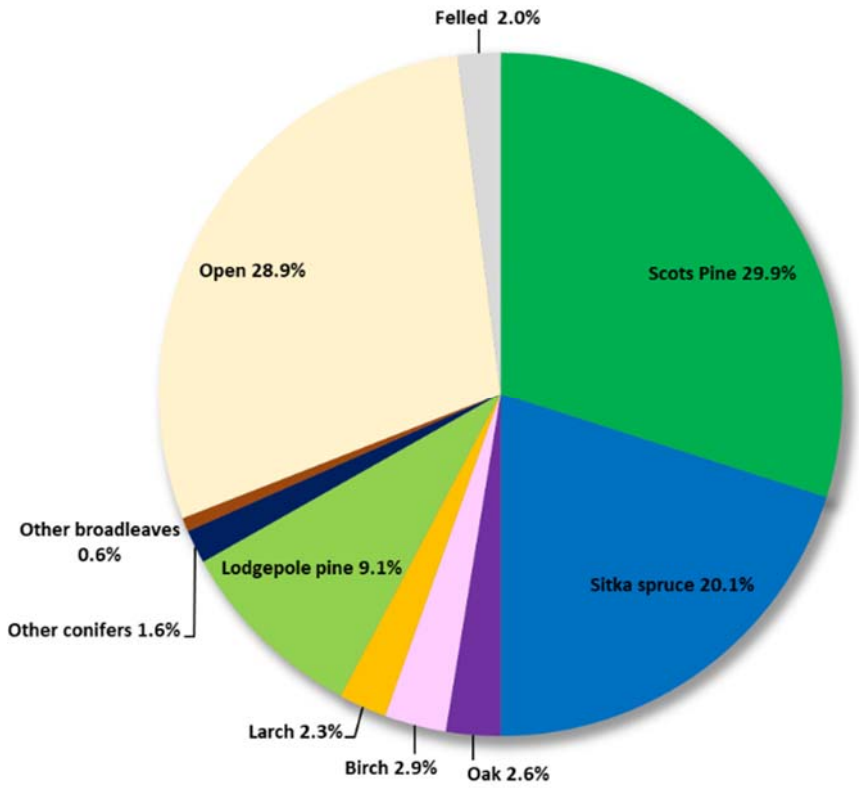
The key issues in this plan are:

- Much of the Wangie block is on steep slopes making operations difficult and more costly.
- The steep slopes make the block good for mountain biking and there are a range of recognised and informal trails currently in use.
- The eastern end of the block forms part of the Kellas oakwood Site of Special Scientific Interest (SSSI).
- The Hillockhead block is a Plantation on an Ancient Woodland Site (PAWS).
- Deer control is difficult due to the steep slopes and the linear nature of the Wangie block.
- There are areas of deep peat soils, especially in the Mill Buie block.
- There is a Potentially Vulnerable Area (PVA) (to flooding) downstream of the watercourses issuing from the plan area.

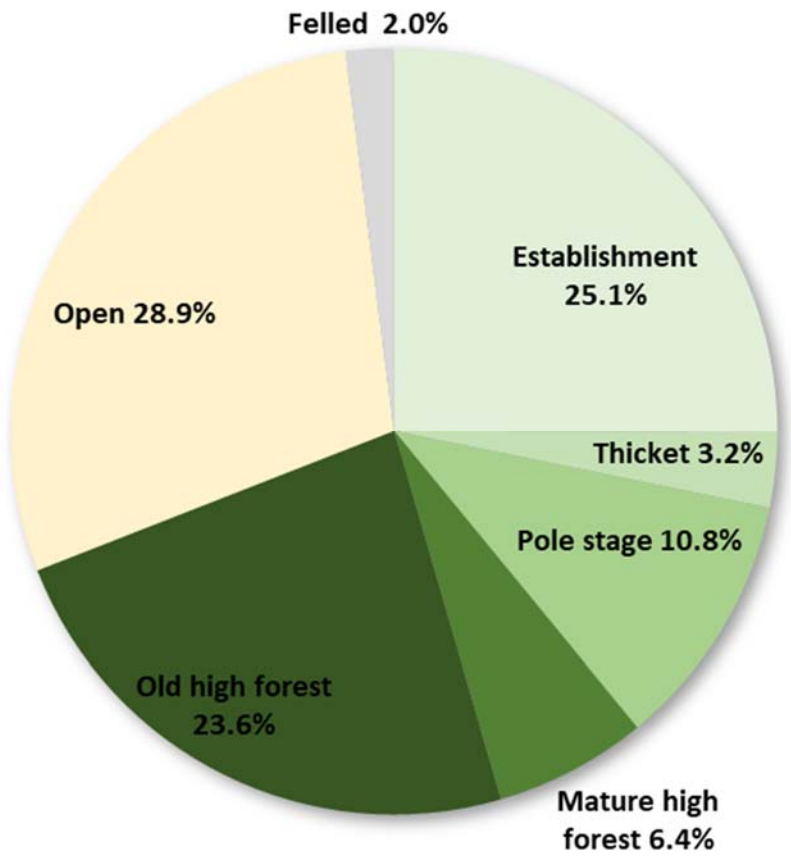
A.7 Woodland description

See Map 3 Current species

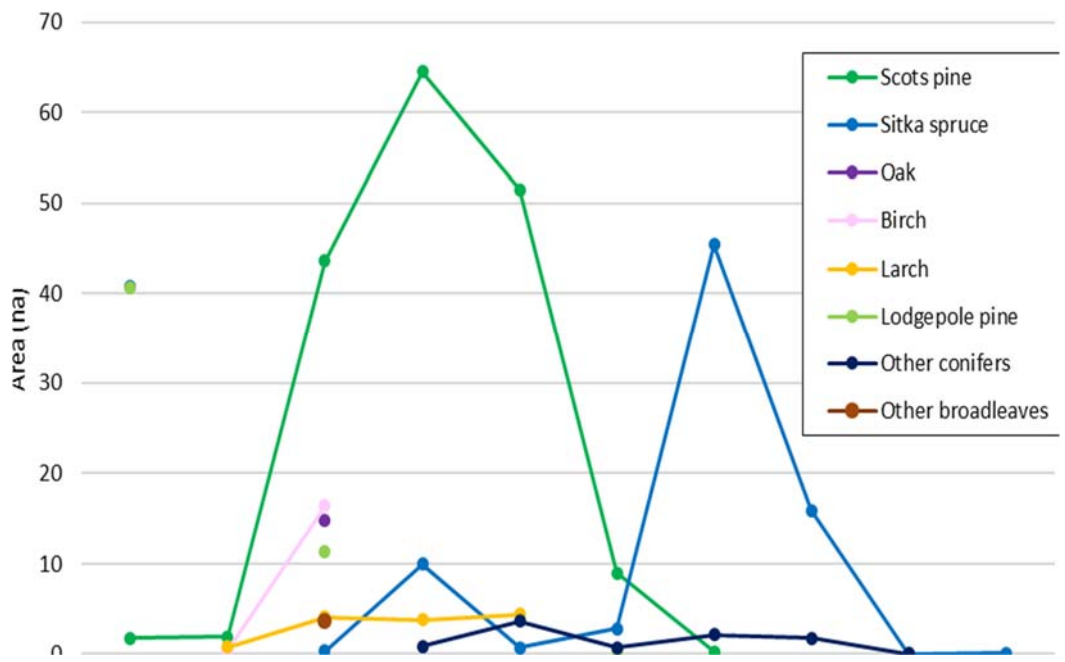
The current species composition is shown in the chart below.



The chart below shows the current age structure of the woodlands



The productivity of the forest is summarised in the chart below.



A.8 Summary of forest management proposals

Proposed felling, restock and infrastructure works are shown on Map 5 Management, Map 6 Thinning and Map 9 Restock in plan period.

Proposed Operations	2020 – 2030
Felling	108.4 ha
Thinning	213 ha
Restocking	38.9 ha
Afforestation	None proposed
Deforestation	81.2 ha
New Road Construction	None proposed
Road Upgrade	Only routine maintenance planned

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.
o 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 covered by this approval is 40 cubic metres per LMP per calendar year.

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

Proposed felling in approval period (2020-2030)

See Map 5 Management

Proposed felling year	Area to be felled (ha)	Proportion of forest area (%)
2020 - 2025	95.5	16.5
2026 - 2030	12.9	2.2

Details of clearfell by coupe in approval period (2020-2030)

Proposed felling phase	Coupe no.	SS	LP	NS	SP	DF	BI	Open	Total
Phase 1 (2020 - 2025)	04304	0.2		0.7	7.8		0.1		8.8
	04902	0.1			3.0	0.1			3.2
	04125	0.3		0.1	1.9				2.3
	04396	40.6	40.6						81.2
Phase 2 (2026 - 2030)	04016	1.1			3.9				5.0
	04905			0.4	7.1		0.1	0.3	7.9
Total		42.3	40.6	1.2	23.7	0.1	0.2	0.3	**108.4**

Change in age class over plan period (2020 – 2030)

Age of trees	Growth stage	2020 Area (ha)	2020 % cover	2030 Area (ha)	2030 % cover
0 - 10	Establishment	114.7	25.1	39.0	6.8
11 - 20	Thicket	18.2	3.2	66.4	11.5
21 - 40	Pole stage	62.6	10.8	72.5	12.6
41 – 60	Mature high forest	37.2	6.4	36.5	6.3
61+	Old high forest	136.0	23.6	115.1	19.9
	Open	166.9	28.9	247.8	42.9
	Felled	11.7	2.0		
Total		**577.3**	**100**	**577.3**	**100**

Proposed thinning in approval period (2020-2030)

See Map 6 Thinning approval & Map 7 Thinning coupes.

Proposed thinning year	Area to be thinned (ha)	Proportion of forest area (%)
2020 - 2025	114	19.7
2026 - 2030	99	17.2

Proposed restocking in approval period (2020-2030)

See Map 9 Restock in plan period.

Proposed restock phase	Coupe no.	SP	OK	Total (ha)
Phase 1 (2020 - 2025)	04005		0.5	0.5
	04011	5.4		5.4
	04012		3.1	3.1
	04014		1.3	1.3
	04026		1.4	1.4
	04125		2.3	2.3
	04304	1.6	7.2	8.8
Phase 2 (2026 - 2030)	04016		5.0	5.0
	04902		3.2	3.2
	04905		7.9	7.9
Total		**7.0**	**31.9**	**38.9**

Species change over plan period (2020 – 2029)

Species	2020 area (ha)	2020 % cover	2030 area (ha)	2030 % cover
Scots pine	172.6	29.8	155.9	27.0
Sitka spruce	116.1	20.1	73.8	12.8
Oak	14.9	2.6	46.8	8.1
Birch (Downy/Silver)	16.8	2.9	16.6	2.9
Larch	13.1	2.3	13.1	2.3
Lodgepole pine	52.3	9.1	11.7	2.0
Other conifers	9.2	1.6	7.9	1.4
Other broadleaves	3.7	0.6	3.7	0.6
Open	166.9	28.9	247.8	42.9
Felled	11.7	2.0		
Total	**577.3**	**100**	**577.3**	**100**

Access and roading proposals

There are no proposals for new or upgrades to existing roads or ATV tracks in the plan period. 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.

A.9 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 full list of these standards and guidance can be found here: https://scotland.forestry.gov.uk/managing/plans-and-strategies/land-management-plans/links

A 11 Meeting UKFS Requirements

The management of the woodland is certified and at all times seek to adhere to the UK forest standards (UKFS) and the UK woodland assurance standard (UKWAS).

A.12 Environmental Impact Assessment

Scottish Forestry
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Environmental Impact Assessment
Screening Opinion Request Form

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

Proposed Work

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

Proposed Work	select	Area in hectares	% Conifer	% Broad-leaves	Proposed work	select	Area in hectares
Afforestation	☐				Forest roads	☐	
Deforestation	☒	81.2 ha	100%		Forest quarry	☐	
Location of work		Mill Buie, Dallas LMP					

Description of Forestry Project and Location

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

Peatland restoration of Mill Buie. See appendix 3 of LMP for details of the proposed deforrestation, the rational behind it and the working methods to be employed. See map 5 Management of LMP for map of area.

Provide details on the existing land use and the environmental sensitivity of the area that is likely to be affected by the forestry project.

The existing land use is a failed commercial conifer plantation of SS/LP planted on deep peat soils. The proposed works restore the deep peat areas to a functioning peatland system which will act as a long term carbon store and increase its value for biodiversity and water quality.

Description of Likely Significant Effects

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

There will be significant positive effects on the environment as a result of this project. See appendix 3 of LMP for details of the positive effects this project will have.

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

Section A4 of LMP details the external stakeholder engagement that has been undertaken in preparation of the LMP which includes details of the peatland restoration project.

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Environmental Impact Assessment
Screening Opinion Request Form

Mitigation of Likely Significant Effects
If you believe there are likely significant effects that the project will have on the environment, provide information on the opportunities you have taken to mitigate these effects.
All significant effects of the project are expected to be positive so no mitigation measures are required. However appendix 3 includes details of the environmental protection measures that will be undertaken during works on site to ensure there are no detrimental impacts on the environment.

Sensitive Areas	
Please indicate if any of the proposed forestry project is within a sensitive area. Choose the sensitive area from the drop down below and give the area of the proposal within it.	
Sensitive Area	Area
Deep peat soil	81.2 ha
Select...	
Select...	
Select...	
Select...	

Property Details			
Property Name:	Mill Buie, Dallas		
Business Reference Number:		Main Location Code:	
Grid Reference: (e.g. NH 234 567)	NJ 162 502	Nearest town or locality:	Dallas
Local Authority:		Moray	

Owner's Details			
Title:		Forename:	
Surname:			
Organisation:	FLS, East region.	Position:	
Primary Contact Number:		Alternative Contact Number:	
Email:			
Address:	Portsoy Road, Huntly, Aberdeenshire.		
Postcode:	AB54 4SJ	Country:	
Is this the correspondence address?		Select...	

Agent's Details			
Title:	Mr	Forename:	Mark
Surname:	Reeve		
Organisation:	FLS	Position:	Planning Forester
Primary Contact Number:	07990 802879	Alternative Contact Number:	
Email:	mark.reeve@forestryandland.gov.scot		
Address:	Portsoy Road, Huntly, Aberdeenshire.		

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Scottish Forestry
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Environmental Impact Assessment
Screening Opinion Request Form

Postcode:	AB54 4SJ	Country:	
Is this the correspondence address?		Yes	

Office Use Only	
GLS Ref number:	

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A.13 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
SF 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

Section B Analysis and Concept

B.1 Key Issues and challenges

Map 2 Key features shows the features and issues that are to be addressed in this plan period.

B.2 Constraints and Opportunities Analysis

The following table details the features and issues identified and the opportunities and constraints that these present and the concepts for how they will be addressed.

Key feature/issue	Opportunities	Constraints	Concept
Commercial timber production	Provide a planned and sustainable timber supply through thinning and felling operations.	The steep ground in some of the plan area will make operations more difficult and expensive.	Prioritise the timber production to the areas where operations will be most economical.
Kellas oakwood SSSI	Increase the area of oak woodland within the Hill of Wangie that is contiguous with the SSSI making use of the steeper slopes that are less suited to timber production.	Grazing pressure from deer will need to be controlled/eliminated. The natural regeneration of non-native conifers and broadleaves will need to be controlled.	Following the felling of small coupes of conifers on the steeper slopes erect deer fencing and replant with oak and other appropriate native broadleaves. Periodically remove the natural regeneration of undesirable species.
Mountain biking	The steep slopes in the Hill of Wangie make it very suitable for mountain bike trails.	The widespread of trails currently in use make it difficult to undertake forestry operations without causing damage to them.	Work with the local mountain biking community to agree where trails can be retained that will allow forestry operations to be undertaken without causing excessive damage.
Water quality and peak flow management	The existing watercourse provide features that can be utilised to improve the biodiversity potential of the block by establishing riparian woodland.	The watercourses are tributaries of the river Lossie which flows into an area vulnerable to flooding downstream of the plan area.	Undertake felling and establishment operations to ensure they have minimal impact on the amount and rate of water entering the watercourses and thus affecting the downstream flood risk. Undertake all operations according to UKFS water guidelines. Improve the water quality of the watercourses by establishing riparian woodland.
Plantation on ancient woodland site (PAWS)	Create a native pine woodland with a diverse structure in the Hillockhead block.	The current age structure is fairly even with little diversity.	Mange the pine crop in Hillockhead under a LISS regime, utilising natural regeneration where possible, to create a more uneven age structure.
Deep peat soils	Undertake a soil and peat condition survey to identify areas with deep peat soils in the Mill Buie block.	The area was previously ground prepped and planted with trees.	Undertake peatland habitat restoration to improve the ability of deep peat soils to sequester and store the maximum amount of carbon.

B.3 Concept

The concept detailed in the previous table forms the broad framework for the detailed design and is presented graphically in Map 4 Analysis and Concept. A number of the concepts overlap on the same area and they will be implemented together to achieve a broader range of objectives.

Section C Management Proposals

C.1 Silvicultural practice

This plan has been designed in accordance with sound silvicultural and environmental principles within the framework outlined by the UK Forestry Standard and the UK Woodland Assurance Scheme.

Map 5 gives details of the felling proposals, Maps 6 & 7 the thinning proposals, Maps 8 & 9 the future species and restock proposals. The map in Section F of this plan shows the coupes and their numbers referred to throughout this plan. The tables in Section A8 summaries the proposals for this plan period and the impact they will have on the composition of the forest in the same timeframe.

C.2 Woodland Management Prescriptions

C.2.1 Felling

See Map 5 Management

189ha (33%) of the plan area is currently managed as clearfell using harvester and forwarder working where the ground conditions allow and skyline and/or skidder in the steeper areas.

Clearfelling (and subsequent replanting) provides the most flexibility for changing the current species towards the long term vision for the blocks. The size of the clearfells will be kept fairly small on the steeper ground given its visibility while those on the flatter ground on the top of the slope will be larger while still being guided by topology and current crop status.

In the longer term as the block starts to get closer to the long term vision the area of clearfelling will decrease and it is hoped that eventually all the commercial crops will be able to be managed under LISS prescriptions.

Felling of Trees 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 covered by this approval is 40 cubic metres per Land Management Plan 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.

C.2.2 Thinning

See Maps 6 & 7

We will maximise the area managed through thinning in the plan area. FLS policy assumes that all productive conifer crops will be thinned except:

- 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.

The plan is on a seven year cycle due to the species present and their growth rates. All thinning decisions will be guided by Operational guidance Booklet No 9 ‘Managing thinning.’

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.

C.2.3 LISS

See Map 5 Management

Currently 73ha (13%) of the plan areas is managed with LISS prescriptions. Opportunities to increase the area managed under LISS will be taken as the crops and site conditions allow. It is hoped that eventually all the commercial crops (212ha or 37%) will be able to be managed under LISS prescriptions.

During this plan period there are no proposals for selective felling in the areas currently managed under LISS. The Hillockhead block has previously had groups felled within the matrix and although regeneration is occurring more time is needed to allow these to develop before the current groups are extended or further groups are felled. In the Hill of Wangie some of the Scots pine crops are still too young to need interventions other than thinning. The more mature areas (P47 to P53) are reaching the age at which selective felling could be undertaken but as there are a number of clearfell coupes that are more of a priority to be felled and Scots pine is a long lived tree and can be managed on a long rotation there is no requirement to intervene in these areas in this plan period other than for thinning.

C.2.4 Long Term Retentions (LTR)

See Map 5 Management

The areas of oak currently planted and being restocked with natural regeneration are being designated as LTR in this plan. Although there is no plan to manage these areas 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.

C.2.5 Restocking and Natural Regeneration

See Map 8 Long term future species and habitats and Map 9 Restock in plan period.

Commercial tree species will be established, after clearfell, by a combination of regeneration and planting. The riparian zones contain broadleaf species such as Alder and birch will be partially planted but may also partially regenerate naturally from seed from desirable trees already present and left after clearfell where practically possible. The restocking of felled areas is guided by the objectives of the plan and the ESC results for this climatic area and soil types.

All conifer restocking will be managed to achieve a minimum of 2500 stems per hectare at year five.

All areas identified for restocking by natural regeneration will been recorded and programmed for inspect 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 of 2500 stems per ha is reached if there is insufficient natural regeneration.

Due the Kellas oakwood SSSI and the objective of enhancing it by extending the area of oak within the Hill of Wangie block all broadleaf planting in this plan will be undertaken with this in mind as well as moving towards the UKFS requirement of each LMP having 5% of the area being native broadleaves. The broadleaf replanting, or natural regeneration, will be managed to achieve 1600 stem per ha in the fully stocked areas with up to 25% of the area being retained as open ground where appropriate. Details of the breakdown of the mix of broadleaves and open ground are included in the summary table in section A.8. The fully stocked broadleaf areas will be planted in the most appropriate locations within the coupe. This decision will be taken by the operations and environment foresters once the preceding crop has been felled and the full suite of site conditions can be properly assessed. Therefore there has been no attempt to map these areas as part of this plan.

C.2.6 Deforestation/planned woodland removal

The Mill Buie block is an area of conifer planting that has failed across the majority of the block. This area is on deep peat soils and this will be restored to a functioning peatland system. This will involve the removal of any remaining live conifers and undertaking ground works to restore the original ground surface as best as possible. An EIA screening determination is being sort as part of this plan submission to allow the deforestation to be undertaken (see section A12). Further details of the site and the restoration process are in Appendix 3 Mill Buie peatland restoration plan.

C.2.7 Recreation

The Hill of Wangie block is currently extensively used by mountain bikers with vehicle parking being one of the issues. Entrances are being blocked and vehicles are parking on what is quite a busy single track road sometimes making it difficult for other vehicles to pass safely. The blocking of entrances into the wood carries with it the usual issues of getting easy access for emergency or FLS vehicles. Discussions with the users of the mountain bike trails will be undertaken during the period of this plan to agree a rationalisation of the trails so they are more discretely zoned and an improved approach to vehicle parking. This will allow future forestry operations to be undertaken without causing significant damage to trails and safer use of the public road by the local community.

C.2.8 Protection strategy and deer management

Wild deer on the National Forest Estate (NFE) 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 takes 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 land 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 where this does not conflict with our primary objective of maintaining deer impacts at an acceptable level, in line with 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.

Within the Dallas block it is expected that conifer species will be able to be established with culling being the only means of deer control. However for the coupes to be planted/regenerated with oak deer fencing will be required. This will be maintained for the period required to achieve successful establishment and subsequently removed.

C.2.9 Management of Tree health

The **large pine weevil** (*Hylobius abiatis)* is likely to be the only major tree health issue encountered in this plan.

The *Hylobius* Management Support System (MSS) will be used to determine the best way to manage clearfell sites for successful, cost effective and environmentally friendly restocking. This system will be used along with past results and experience to determine the optimal time to restock while minimising the use of chemicals. Restocking will take place as soon after felling as possible with two years being the usual period but this could be delayed up to four years.

C.3 Management of Infrastructure

C.3.1 Forest roads

No new roads are required in the plan area however a programme of maintenance will be undertaken to ensure existing roads are suitable for forest operations.

C.4 Management of the environment and open land

C.4.1 Historic environment

No scheduled sites or features of regional importance are present within the plan area. A check of both our own records and the SMR will be undertaken to establish the location of any unscheduled features which will be included in the work plan that is drawn up prior to all forestry operations being undertaken. All operations will follow UKFS and FLS guidance for the management of heritage sites.

C.4.2 Habitats and biodiversity

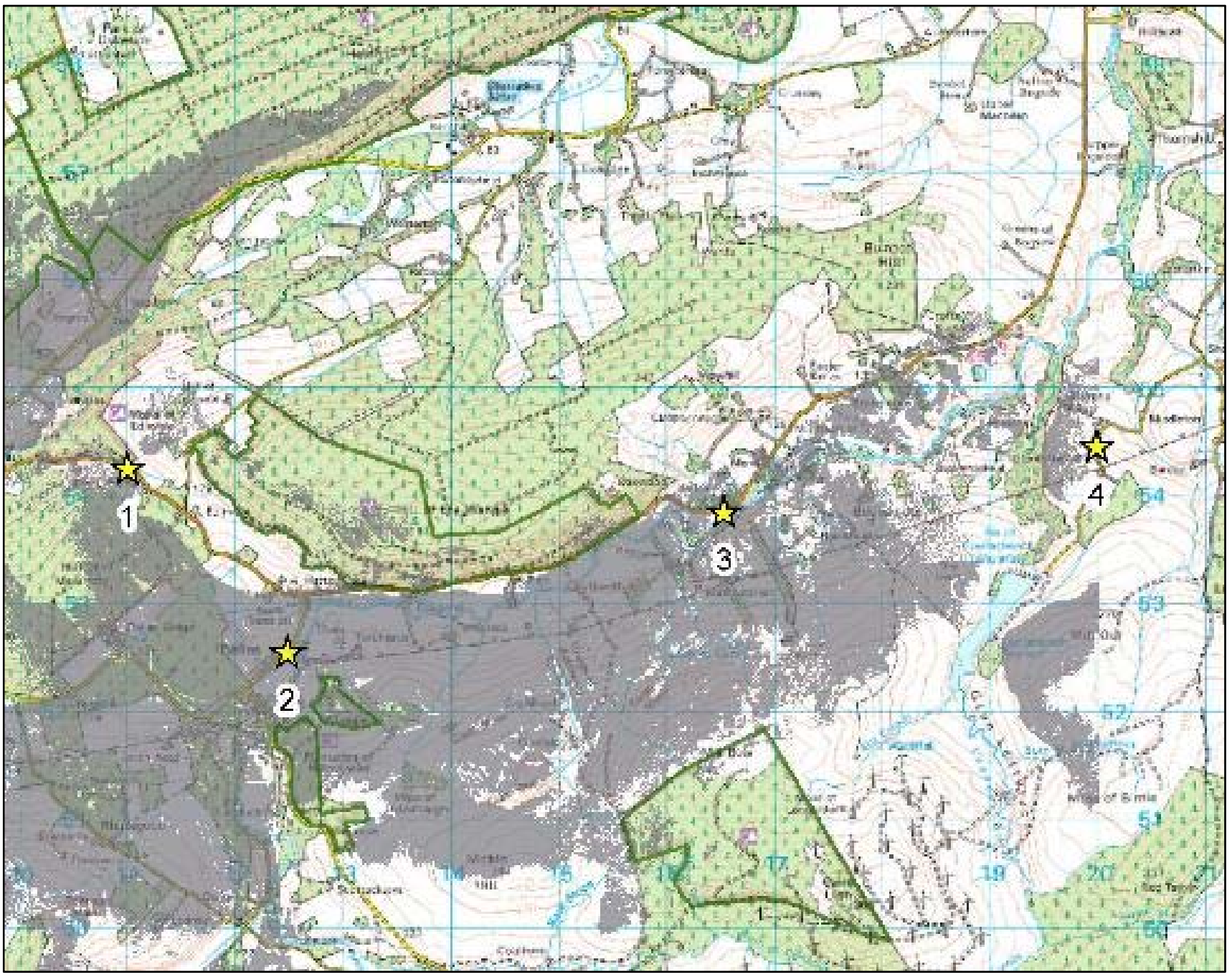
The table below identifies works to enhance the habitats and biodiversity in the plan area. Those items highlighted in red must be undertaken as they are designated sites. Those in orange should be done but this is dependent on the appropriate coupes being felled or the resources (human and financial) being made available to allow them to be undertaken. While those in green could be done to benefit the habitats or biodiversity but only if the work can be carried out as part of another planned operation.

Issue / Site Name	Aim/Rationale	Proposal	Action/Comment
Kellas Oakwood SSSI	Statutory designation. Continue to move site into favourable condition by reducing browsing levels by the installation of deer fence and the on-going removal of non-natives.	See SSSI plan in appendix 2.	Discussion with SNH
Kellas and Hillockhead PAWS	UKWAS/FLS policy To restore and enhance through the expansion of native woodland.	Monitor PAWS site and remove non-native regeneration as required.	Restoration plan to be prepared in plan period.
River Lossie water quality	A number of minor tributaries are within the Hill of Wangie and Hillockhead blocks. Enhance riparian habitat.	Ensure riparian zones meet UKFS water guidelines as a minimum. Establish riparian woodland with 50% tree cover and 50% open habitat to buffer 10m either side of all watercourses.	Undertake enhancement as and when coupes adjacent to watercourses are felled.
Peatland restoration	SG Climate Change Strategy, SF/FLS Policy, Scottish Biodiversity Strategy.	Undertake surveys of habitats and peat depth to inform the preparation of peatland restoration plan.	Restoration plan to be prepared in plan period.
Hill of Wangie LEPO	Adjacent to designated Oakwood and PAWS. Potential to increase semi-naturalness and expand native woodland.	Maintain species diversity and look for opportunities to increase LISS and semi-naturalness.	Undertake works as and when the appropriate coupes are programmed to be worked.
Woodland Grouse – Capercaillie and Black Grouse	FCS 6 Key Species, UK BAP	The gradual conversion of the Hill of Wangie block to a Scots pine dominated woodland will enhance the habitat for Capercaillie. There is potential for native woodland creation on Mill Buie, subject to open habitat survey, which would enhance the habitat for Black Grouse.	Restock with Scots pine as per the future species map as planned coupes are felled. Peatland restoration plan to be prepared in plan period. This could include elements of native woodland creation depending on survey results.
Kellas – non-native threat to designated site	Removal of seed source	Potential to fell mature NS/SS beside PAWS at the top of Kellas Oakwood.	Felling of all none native conifers close to SSSI is planned for phase 1 felling.

Section D Visualisations

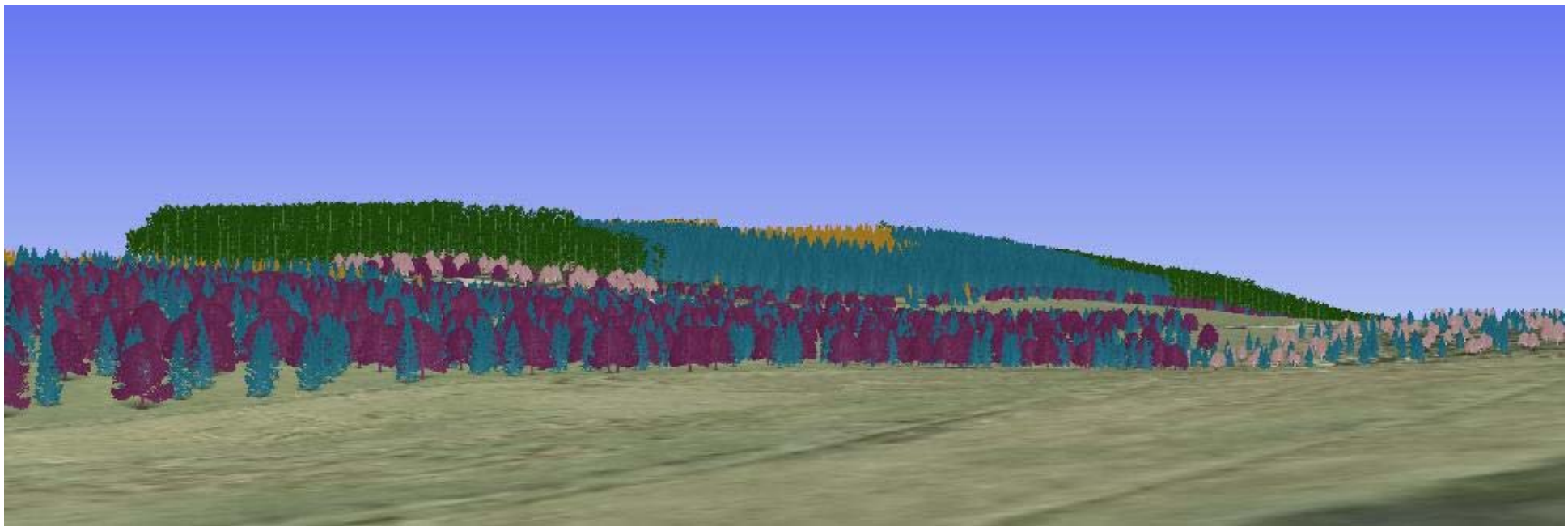
D.1 Map of viewpoints

Only the planned operations in the Hill of Wangie will have any impact on the local landscape. A visibility assessment has been undertaken and those areas with a grey wash overlay on the map below have some degree of visibility of this block. The viewpoint locations have been selected with this in mind and are shown on the map below .

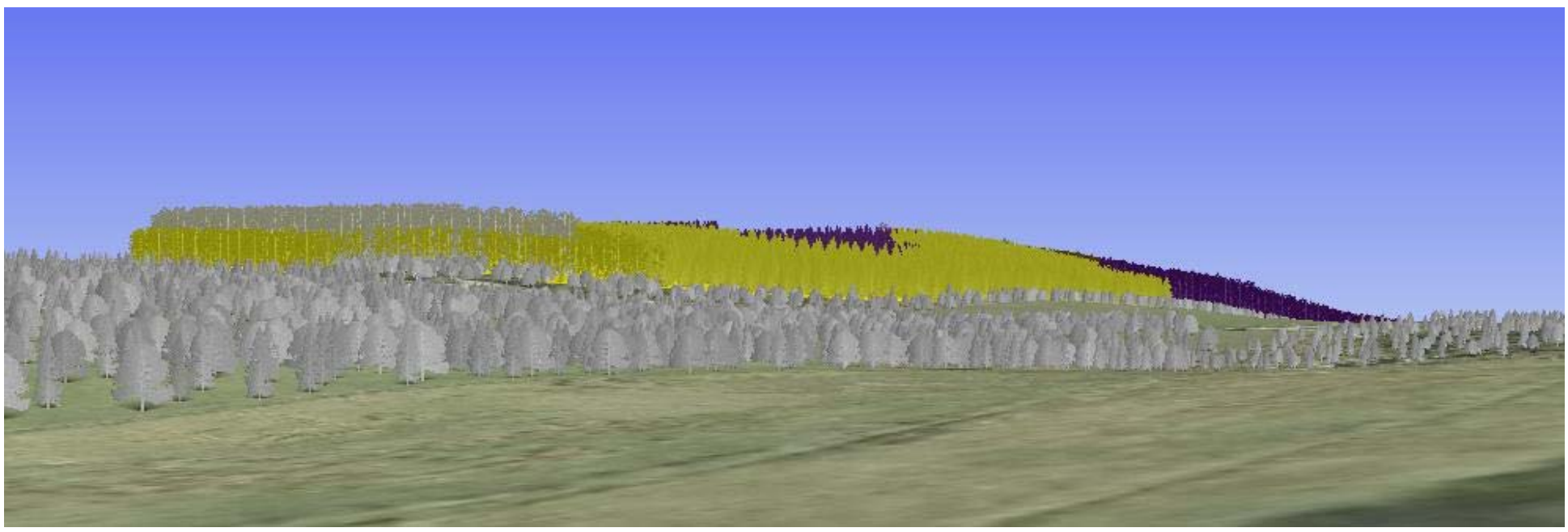


D.2 Visualisations

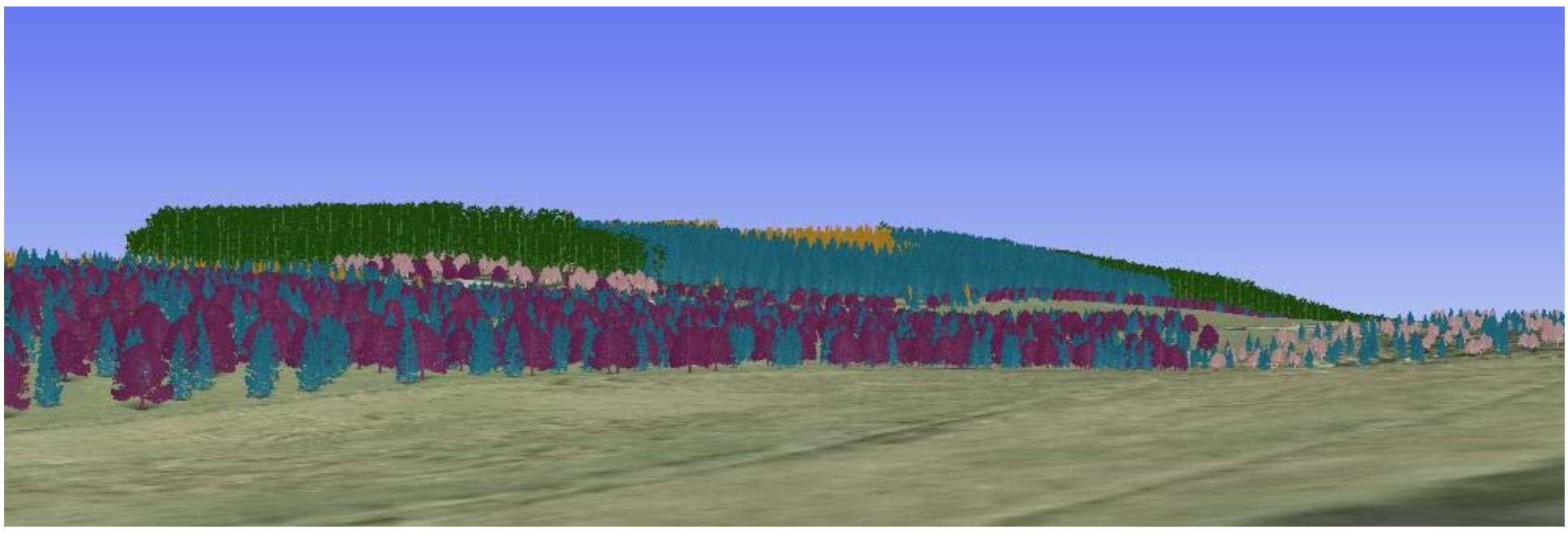
Viewpoint 1 Current species



Viewpoint 1 Management proposals



Viewpoint 1 Future species (end of plan period)

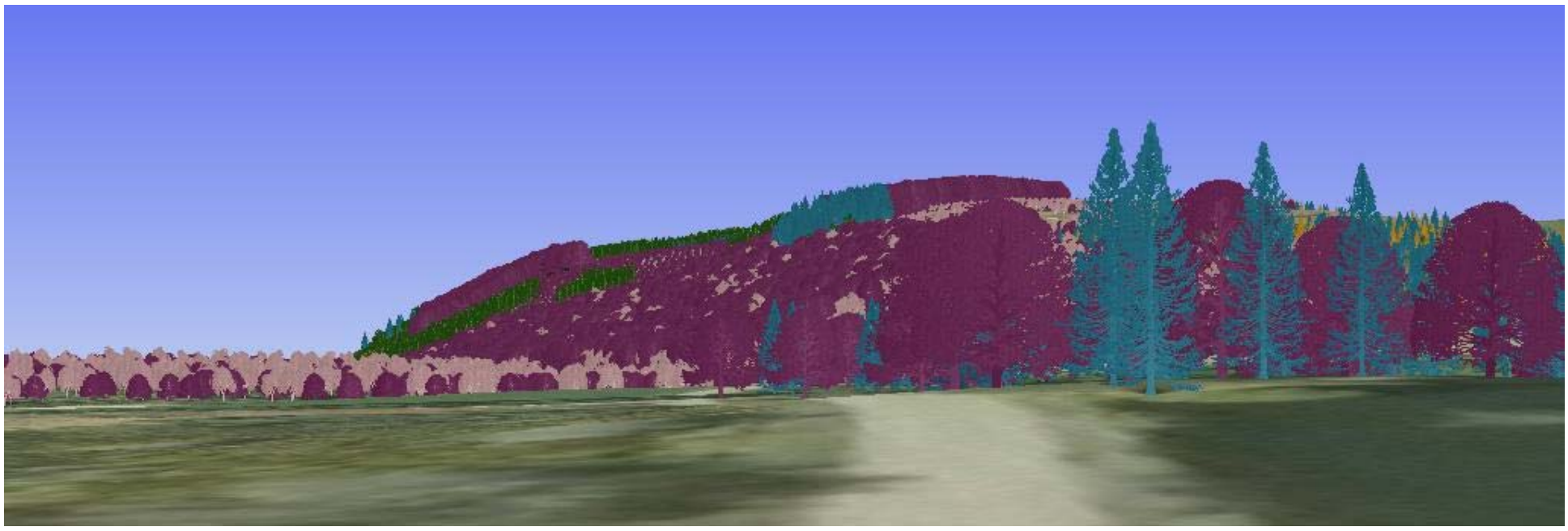


Viewpoint 2 Current species

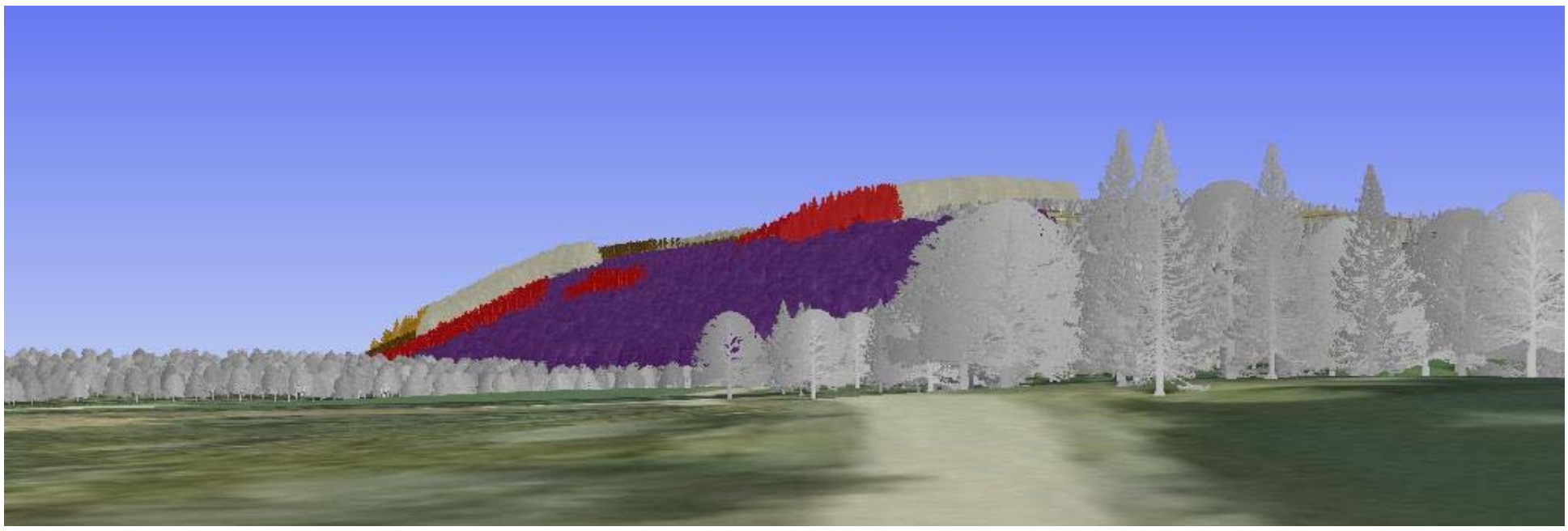
Viewpoint 2 Management

Viewpoint 2a Future species (end of plan period)

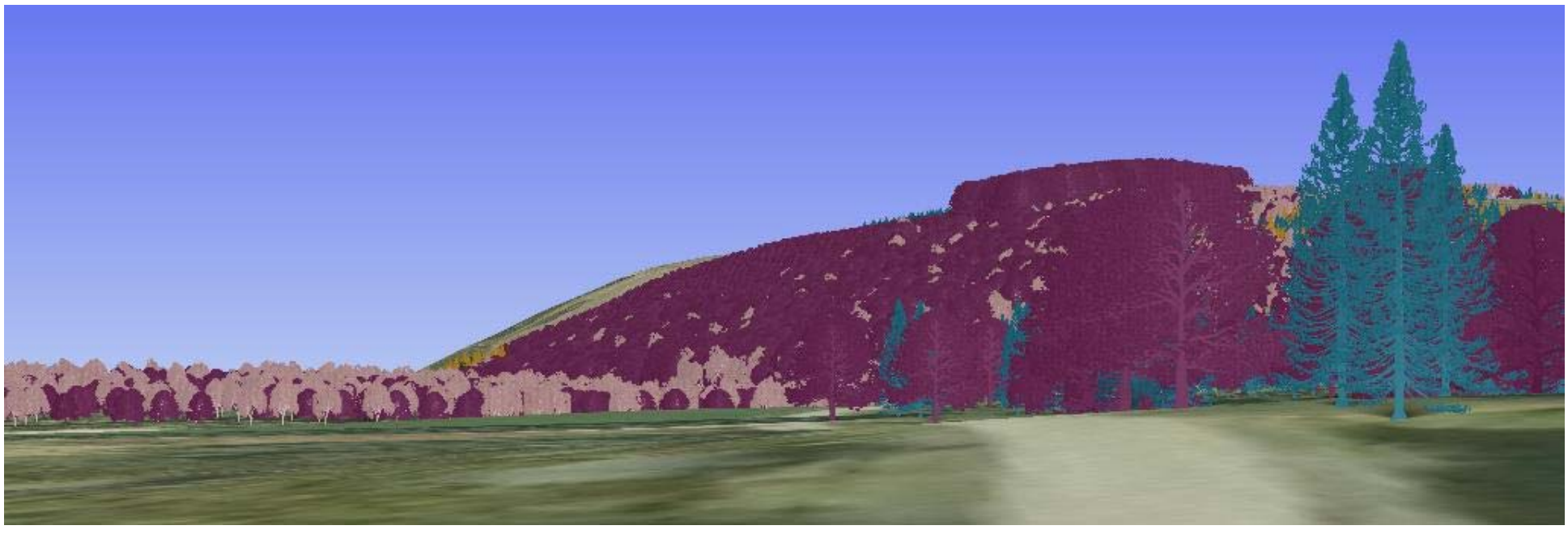
Viewpoint 3 Current species



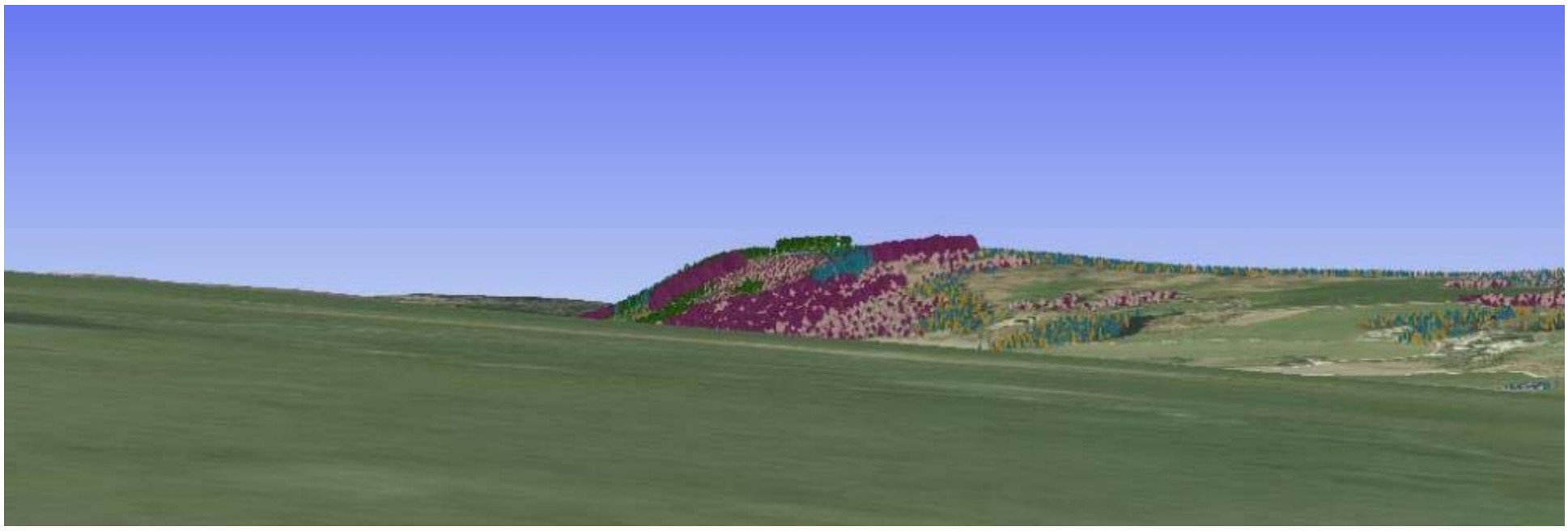
Viewpoint 3 Management



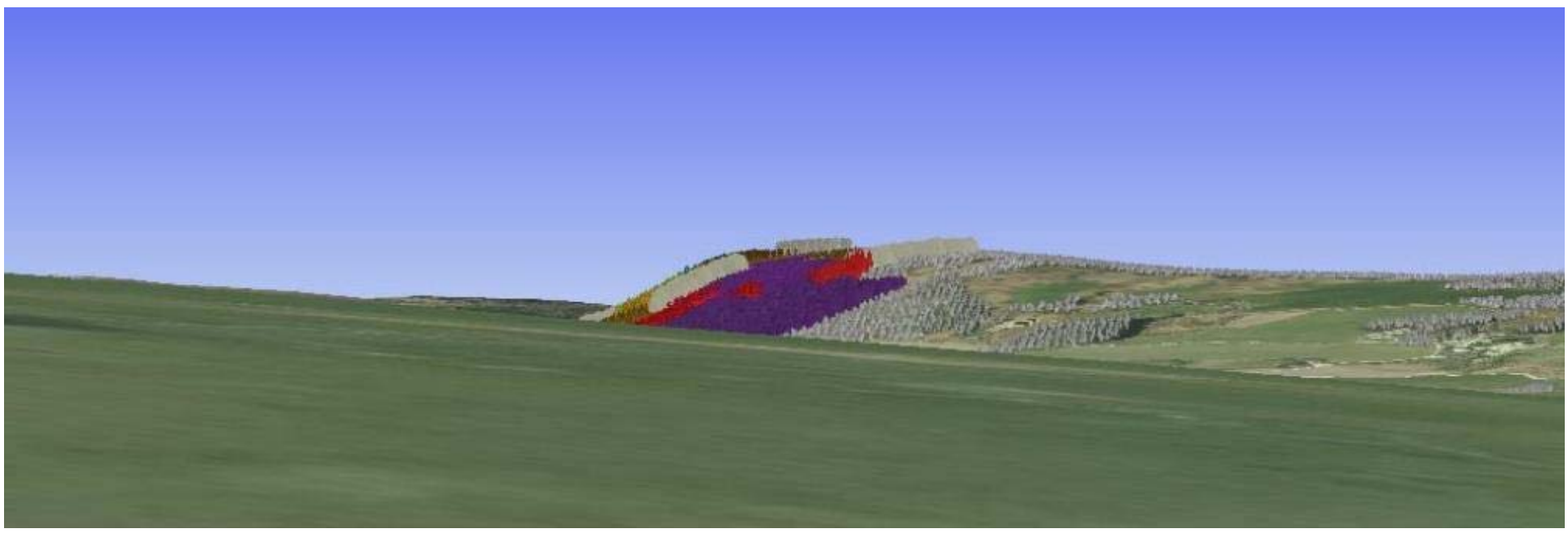
Viewpoint 3 Future species (end of plan period)



Viewpoint 4 Current species



Viewpoint 4 Management



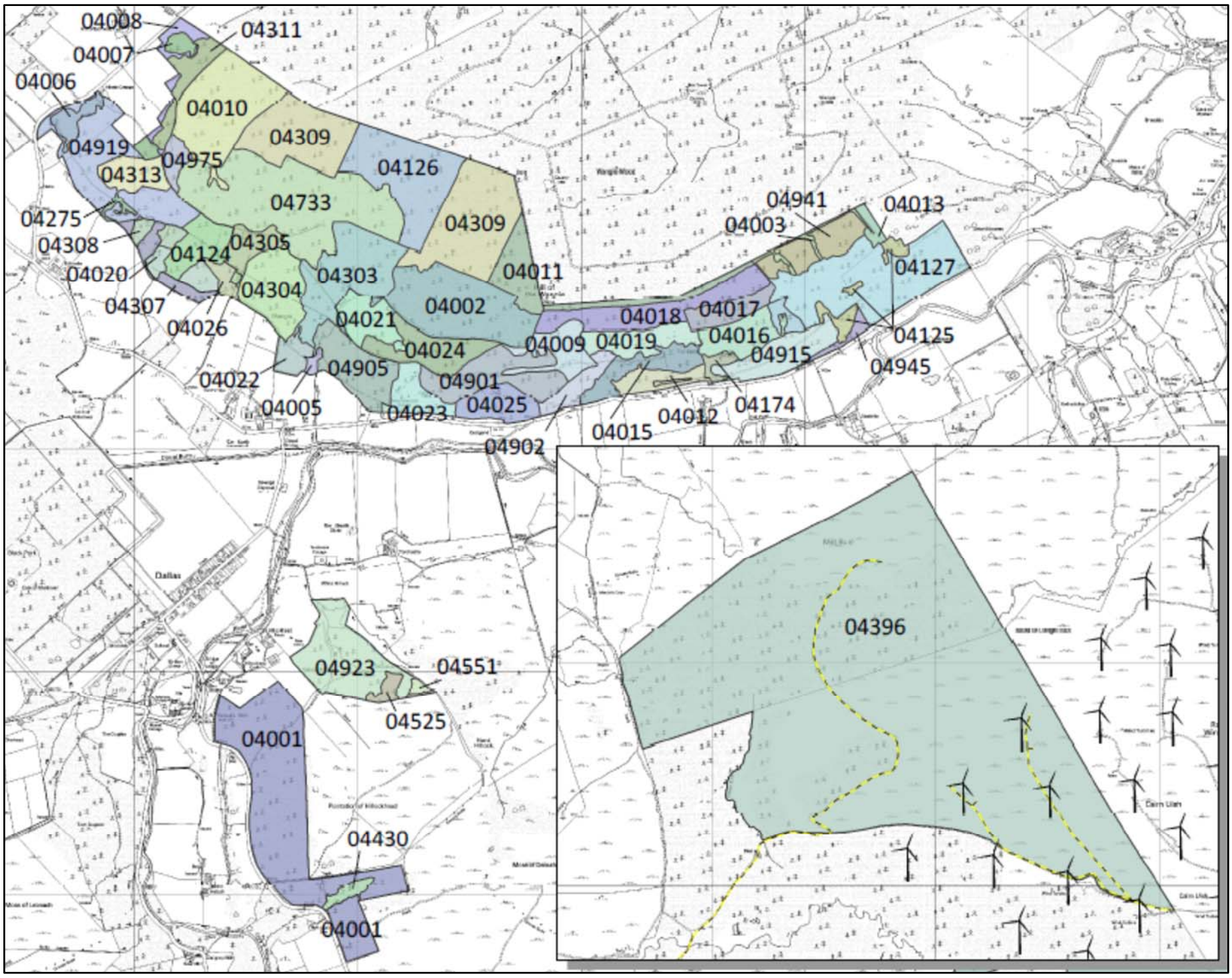
Viewpoint 4 Future species (end of plan period)

Section E Production Forecast

E.1 Thinning and felling over the first ten years

Phase	Thinning volume	Thinning area	Felling volume	Felling area	Total volume
1 (2020 – 2025)	3884 m^3	114 ha	9822 m^3	95.5 ha	13649 m^3
2 (2026 – 2030)	3685 m^3	99 ha	3698 m^3	12.9 ha	6731 m^3

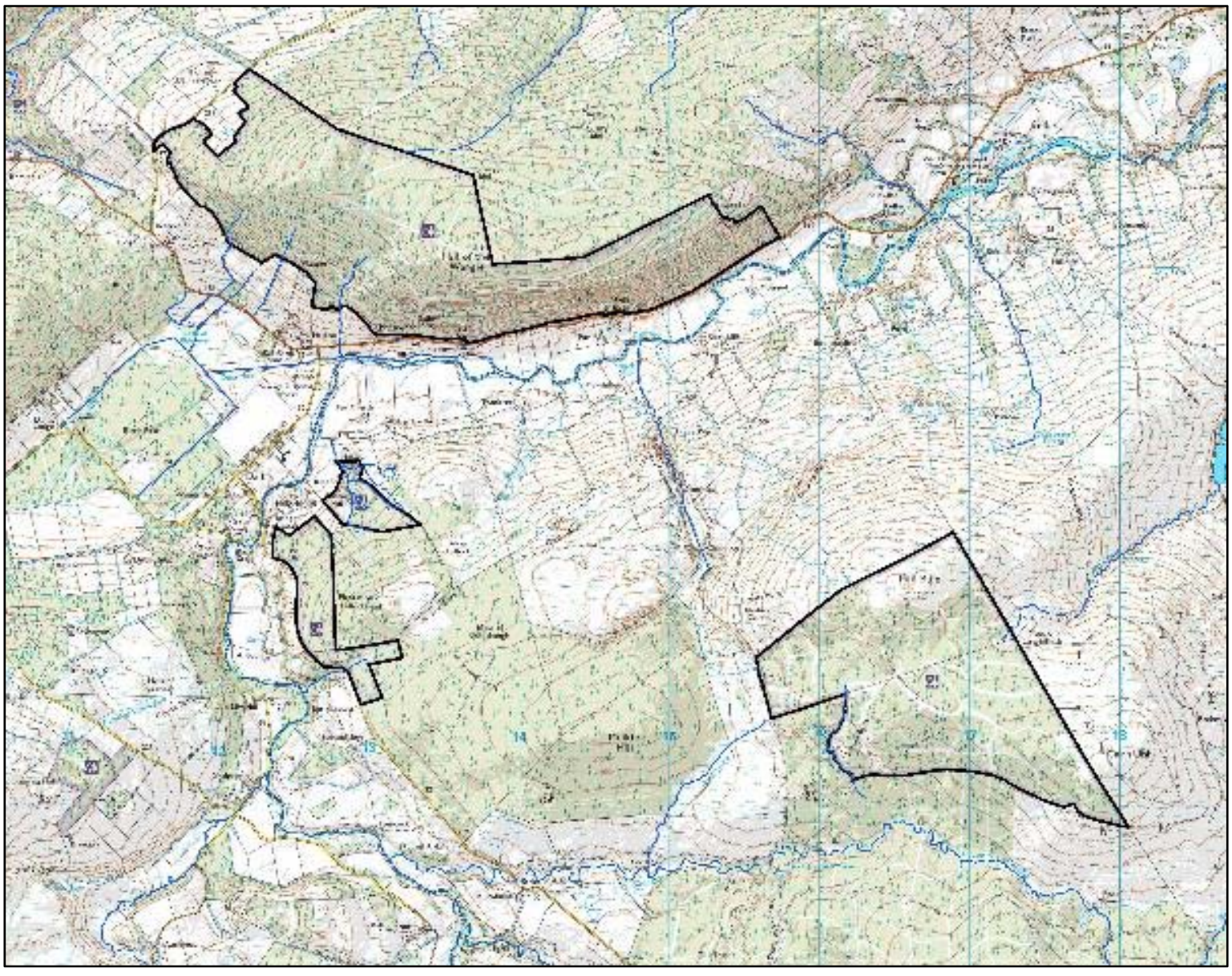
Section F Coupe numbers



Appendix 1 Description of Land Use: Background information

1.1 Topography

The elevation of the plan area runs from about 150m at the base of the Wangie slope up to approx. 360m at the top of Mill Buie (Cairn Uish). Wangie is located on the steep south facing slope of the Hill of the Wangie. Hillockhead is on the much gentler north west, west and south west facing slopes on an un-named hill overlooking the river Lossie valley. Mill Buie is on the gentle south west facing slopes of both Cairn Uish and Mill Buie hills.



1.2 Geology and soils

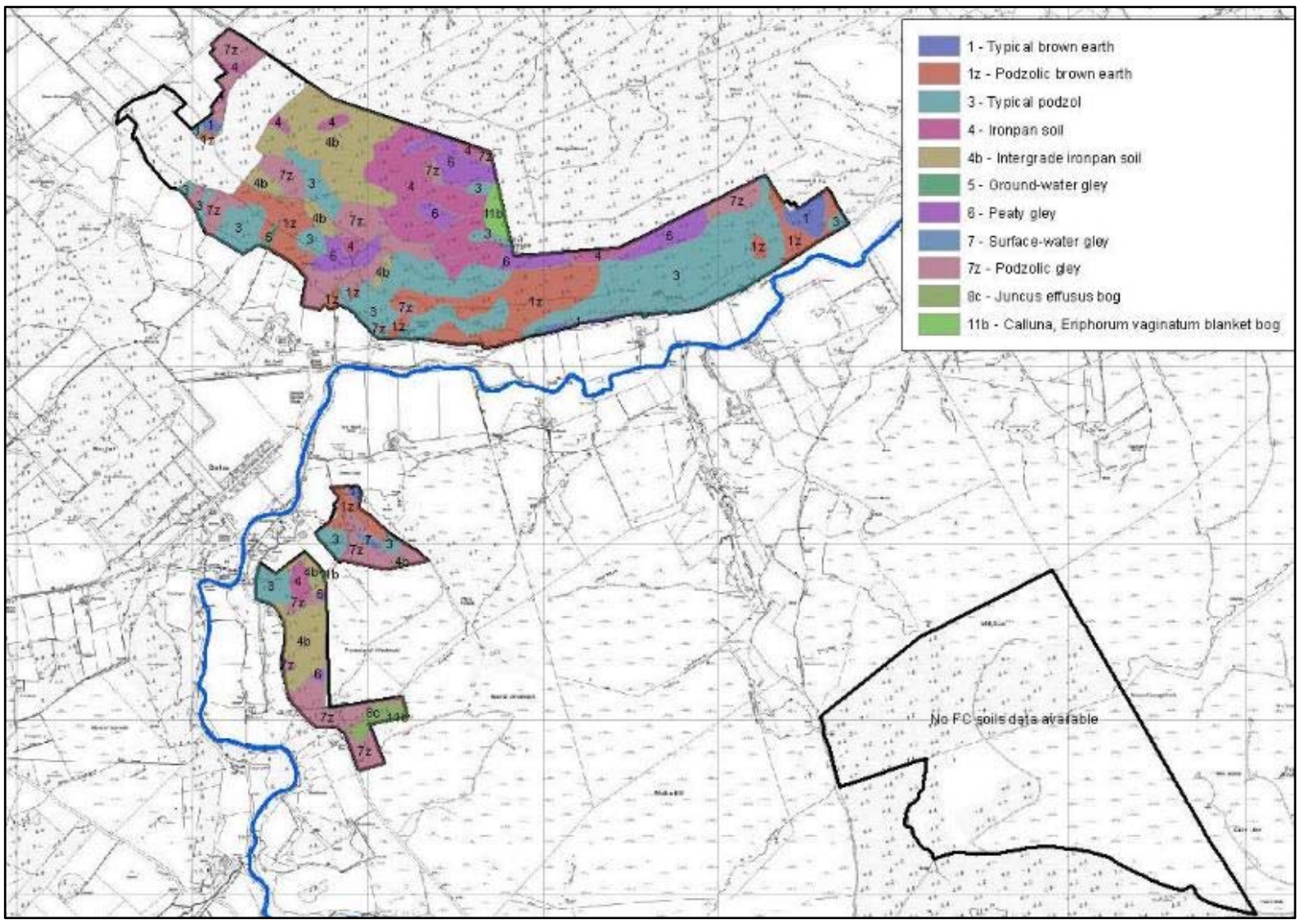
Geology,

According to the British Geological Survey the majority of the plan area is underlain with Psammite, a fine-grained, fissile, clayey sandstone. This is overlain by a drift geology of mostly Diamicton till, which is a terrigenous (resulting from dry land erosion) sediment that is poorly sorted and contains particles ranging in size from clay to boulders, suspended in a matrix of mud or sand.

These geological conditions lead to soils with low levels of nitrogen available for tree growth.

Soils

Approx a third of the plan area where soil surveys have been completed have typical podzol soil with about equal portions of podzolic brown earth, ironpan soil, intergrade ironpan soil and podzolic gley. These soils have a wide range of moisture regimes from very wet through to slightly dry and nutrient regimes that run from very poor to rich. These factors influence the species of trees that will grow successfully in these woodlands. For further information see Bulletin 124, An Ecological Site Classification for Forestry in Great Britain



1.3 Climate

The climate data for the design plan area is obtained from the Ecological Site Classification system (ESC).
The results of interrogating this system gave the following data.

AT5	DAMS	MD
857 - 1106	9 - 17	48 - 103
Cool	Sheltered – Highly exposed	Wet - Moist

Each tree species has tolerances for these and other factors and they can be used to identify species suitable for the site conditions. The results above will be used to help assist in the choice of tree species for restocking in this plan.

Further information on these criteria and the application of ESC can be found in Forestry Commission Bulletin 124 - An Ecological Site Classification for Forestry in Great Britain.

1.4 Hydrology

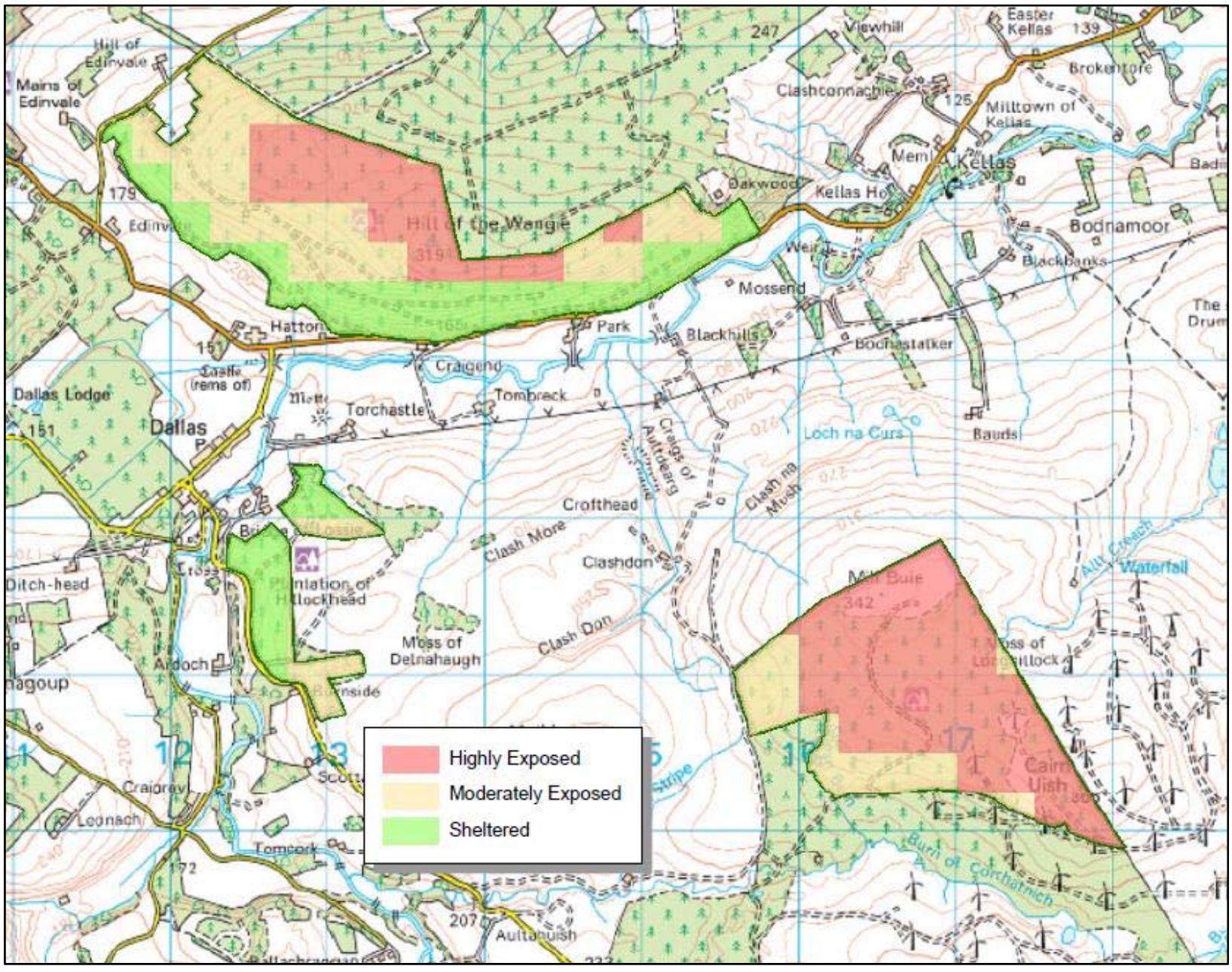
The Dallas forest blocks are all within the catchment for the river Lossie, although they make up a very minor (2%) proportion of the total catchment area. FLS managed land makes up approximately 9% of the catchment when other LMP areas are included.

There are two private water supplies that are supplied from within the woodland area. One in Wangie and another in Hillockhead. All these will be protected during any operations by following the UK forest standard guidelines for forests and water as a minimum.

According to the SEPA website there is a Potentially Vulnerable Areas to flooding downstream on the river Lossie from the plan area. This area is PVA 05/05 Elgin. The main flood risk is associated with the river Lossie on the city of Elgin including 140 residential properties, 110 non-residential properties and associated infrastructure. The PVA report does not highlight natural flood management studies or works as an action that will have a major impact on alleviating the flooding threat. However all forest operations will be undertaken in accordance with the forest and water guidelines to ensure no additional flooding risk is created. If opportunities present themselves to undertake work to help alleviate flood risks during the course of operations these will be discussed with the relevant flood management authority and undertaken if appropriate.

1.5 Wind throw risk

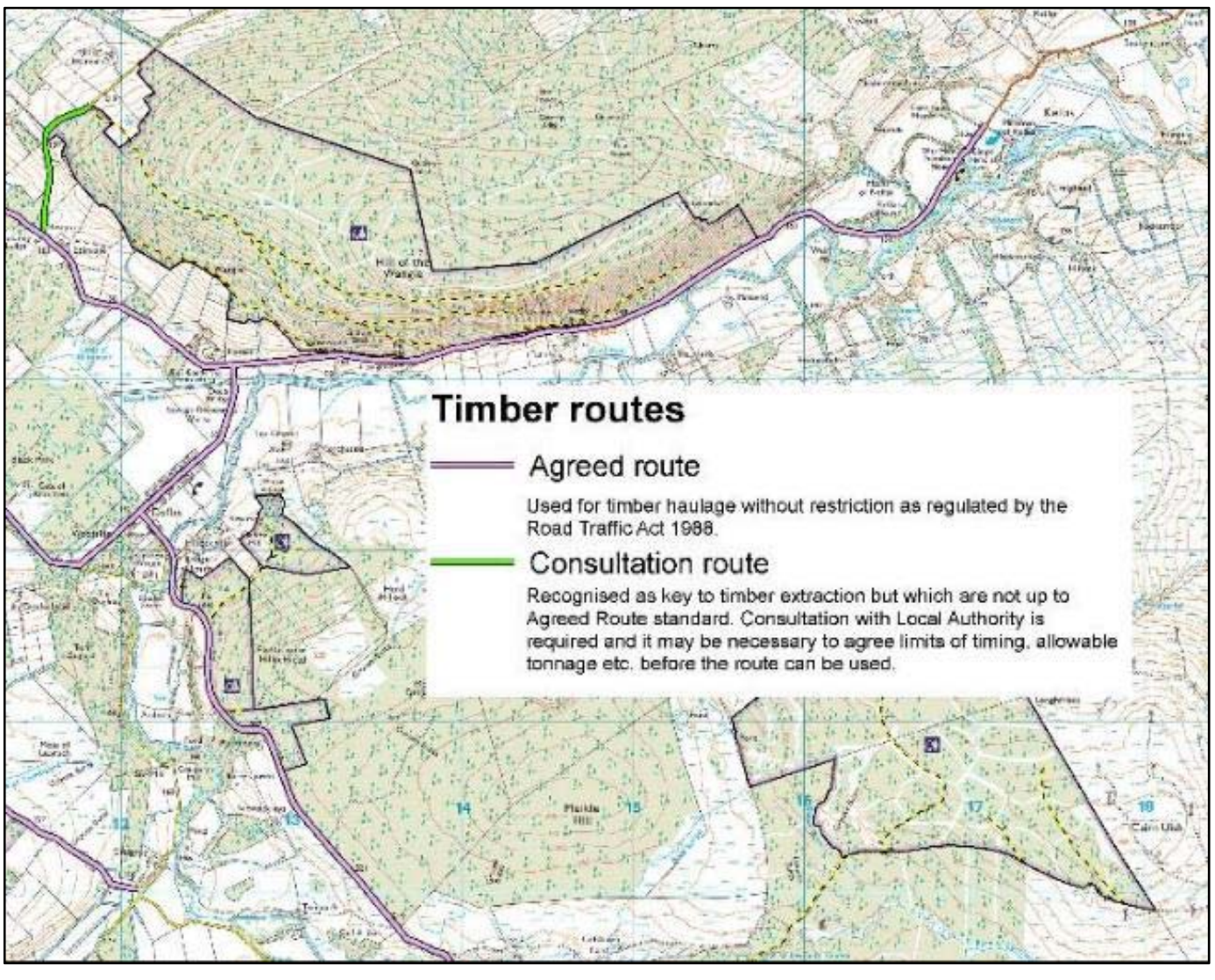
The wind throw risk is measured by the DAMS score for the forest area. The results of this are shown on the map below. This indicates that, as you would expect, the areas at the tops of the blocks are most exposed and therefore more liable to wind throw. This information will be taken into account when felling coupes are planned and LISS prescriptions are to be implemented to reduce the potential impacts.



1.6 Adjacent land use

1.7 Road access

The existing network of forest roads is adequate for the forest operations in this plan therefore no additional roads are planned. Maintenance will be undertaken prior to and/or post operations to retain the existing roads in good order.



1.8 Deer management

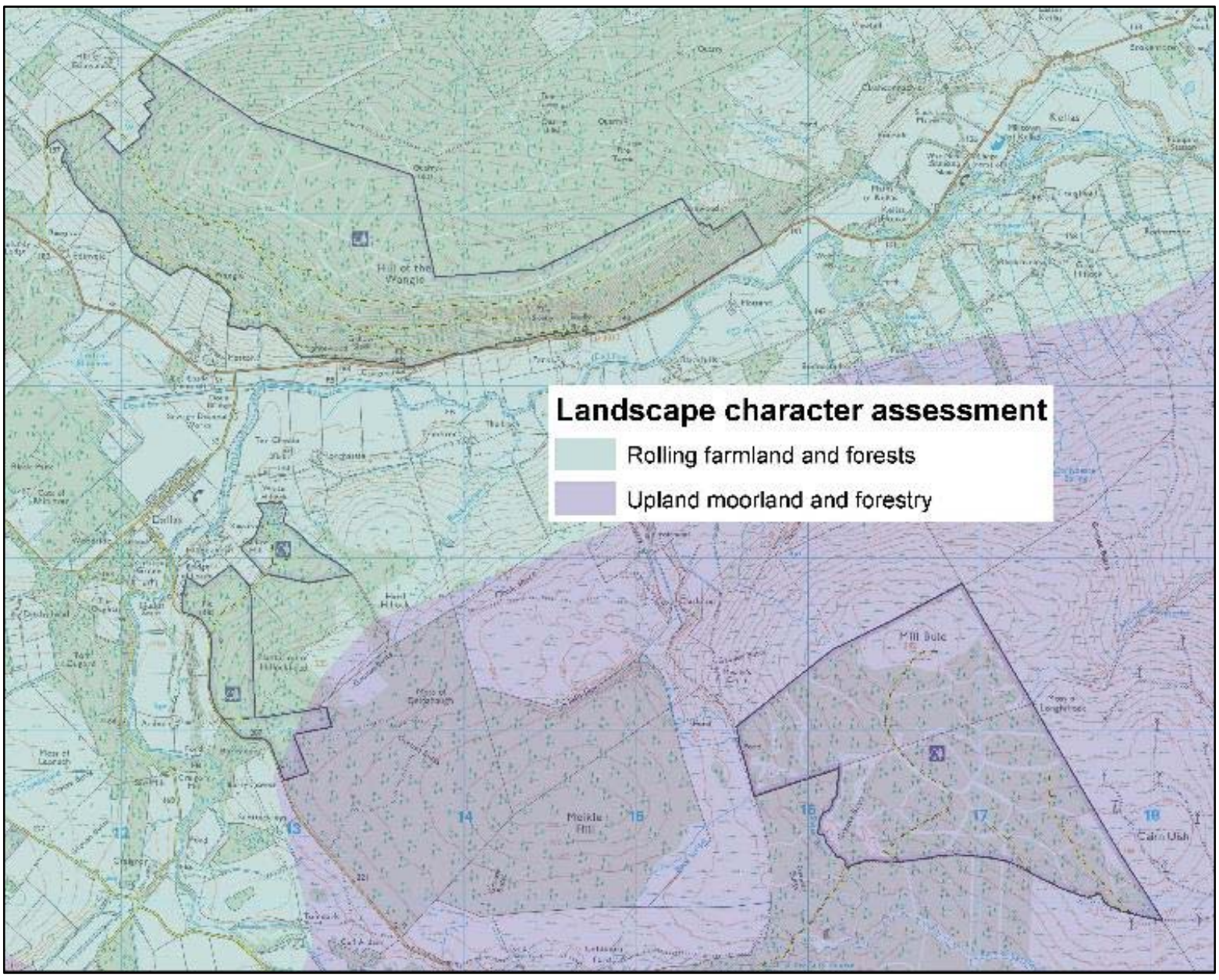
Deer management will be carried out in line with the district strategy for deer control on a contract. Cull figures fluctuate but predicted culls are based on Estimated Deer Utilisation (EDU) carried out by independent contractors. The aim of current policy is to reduce deer densities to five deer per km2 within the woodland area in order to ensure all species including natural regeneration and associated habitats are protected from the negative impacts from over grazing.

1.9 Recreation and visitor access and management

There is a reasonable level of public use of the forest. The steep slopes make it a favoured location for mountain bikers who have constructed a number of trails within the woodland.

There are no Core Paths within or adjacent to the site.

1.10 Landscape character



ROLLING FARMLAND AND FORESTS

Key Characteristics

- Low to mid elevation, undulating landform with rolling, gently rounded, sometimes steep-sided hills, and broad and narrow valleys containing mainly natural, meandering courses of rivers and burns and associated ribbons of broad leaved woodland.
- Prominent major hills and their forested tops and slopes, and occasionally steep sides, combined with farmed, wooded and intimate valleys.
- Rich and varied texture of the landscape as a result of the rolling landform, mosaic of farmland and tree cover, mixed with historic buildings and ruins, vernacular estate and farm buildings.
- Winding rural roads that respond to the landform and winding river valleys and numerous tributaries which run down and through this landscape from the elevated plateau to the south.
- High proportion of connected tree cover, consisting of mixed conifers and broadleaves, in small to large plantations, woodlands, road side trees and tree belts, with many large and ancient trees associated with older forests and policy plantings.

- Mix of pasture and arable in irregular shaped fields, often edged with banks and stone walls, gorse and remnant trees.
- Frequent presence of gorse and broom providing seasonal interest from yellow flower displays.
- Historical and cultural diversity provided by estate buildings, Pluscarden Abbey, castles, ruins and many traditional farm buildings and cottages, with their hill side or valley setting, and associated woodlands and many large and ancient trees.
- Long distance views across the Firth, to the coasts and mountains of the north, and occasionally to the south, afforded from high points and roads descending from higher ground.

ROLLING FARMLAND AND FORESTS

Key Characteristics

- Widely spaced, broad, rounded hills and upland plateaux with smooth, even, gentle slopes.
- Generally simple, large scale landscape with expansive scale of interior plateau area.
- More defined, higher hills on edge of the interior plateau, forming landmark features from the adjacent lower lying landscapes to the north and south and providing a backdrop to these.
- Predominantly simple landcover of extensive, geometric conifer forests and heather moorland.
- Large scale commercial forestry blankets much of the mid and upper slopes, many of which are undergoing deforestation and restocking. The differing tree heights and open areas of landcover disturbance are prominent on the simple broad slopes, reinforced by the wider resurfaced forest roads upgraded for timber extraction.
- More intimate farmed landscapes at the margins and close to burns and roads, with farms, small holdings and marginal pastures.
- Large expanses of un-settled areas, with settlement very sparsely scattered near the very few roads.
- Largely inaccessible core area with relatively limited visibility in from surrounding landscapes.
- Regenerating native trees and lone pine trees in moorland areas.
- Windfarm development both within the Landscape Character Type and in adjacent landscapes.
- Small number of built features which are generally visually separated by distance, and do not coalesce to create visual confusion.
- Central areas away from public roads have relatively strong wild character, due to their remoteness, rugged terrain and perceived naturalness.
- Extensive views out of this landscape, through gaps in the forestry cover, to the north and to the south from elevated areas.

1.12 Biodiversity and habitat

Kellas Oakwood SSSI is partially within the Hill of Wangie block and includes areas of ancient woodland. The site is recovering due to management following the erection of a deer fence to reduce browsing pressure and the control of non-native trees and scrub. Seed collected from the oak wood provides plant material which has been used to expand native woodland to the west.

Hillockhead is a plantation on ancient woodland site and the scots pine crop is managed under a LISS prescription. Large parts of the Wangie and Hillockhead are LEPO.

There is a small area of deep peat to the south of Hillockhead which borders open ground on the Moss of Delnahaugh. Soils maps indicate that the 227ha of Mill Buie is deep peat. This requires further surveys to determine depth and ecological potential for restoration

A number of small watercourses flow from the Wangie and Hillockhead directly into the River Lossie.

Open habitat interest is restricted to the failed conifer planting on Mill Buie which is now predominately upland heath with areas of blanket bog.

There are a number of Scottish Biodiversity Action Plan species and FLS Key Species recorded in the Dallas woodland blocks.

Capercaillie have been recorded on the Hill of Wangie and there is a historic lek 200m from the eastern boundary of the block. Black and red grouse are important consideration at Mill Buie. A black grouse lek is recorded 1km SSE of the block. Heather management is on-going on Mill Buie within the lease agreement with the windfarm developer.

Red squirrel are recorded throughout the woodlands that comprise the Dallas LMP area, along with records of numerous badger setts.

A number of woodland raptors are recorded within the Dallas block.

1.11 Historic environment

There are a wide range of unscheduled sites across the forest, some of which have been known of for some time and others discovered more recently through pre-operation site checks and surveys carried out by a local archaeologist.

1.12 Plant health

The large pine weevil (*Hylobius abiatis)* can cause extensive feeding damage to young trees used to restock clearfell sites but damage is often highly variable. This species lays its eggs in deadwood/stumps on clearfell sites and the emerging adults feed on the bark of young trees, often with devastating effect on newly planted conifer crops.

The *Hylobius* Management Support System (MSS) is based on a simple monitoring protocol using billet traps to measure *Hylobius* numbers on individual clearfell sites. The numbers recorded are used, with other information entered into the *Hylobius* MSS software, to determine the best way to manage clearfell sites for successful, cost effective and environmentally friendly restocking. This Support System will be used along with past results and experience to determine the optimal time to restock while minimising the use of chemicals.

Restocking has traditionally taken place within two years of sites being clearfelled. However, many seedlings were badly damaged or killed by the Large Pine Weevil, *Hylobius abiatis.* In order to "reduce the use of insecticides where feasible" restocking is planned to take place at the end of year 2. Restocking may take place up to four years following felling if monitoring, using MSS shows that it is expected that there will be a high level of Hylobius.

Ash dieback is an aggressive fungal disease and is caused by Hymenoscyphus fraxineus (previously Chalara fraxinea). The disease causes leaf loss and crown dieback in affected trees, and usually leads to tree death.
There will be no planting of ash trees as there is currently a moratorium on its planting within FLS woodlands to try and help slow the spread of the disease. However as this disease is endemic to the wider environment no action will be taken regarding mature established trees that contract the disease beyond felling for safety reasons in areas with high recreation use.

Phytophthora ramorum is a fungus-like plant pathogen which attacks a wide range of tree and shrub species. European and hybrid larch are particularly susceptible to P. ramorum but current evidence indicates that the impact of the disease is greatest on Japanese larch, which can die within one
to two seasons, with consequential economic, environmental and amenity impacts. Therefore there is currently a moratorium on the planting of larch within FLS woodlands to try and help slow the spread of the disease. We will try to retain existing larch stand where practical to maintain the species
diversity within the Dallas blocks.

1.13 Fire

The fire risk in Dallas is presently manageable. However given the fairly high recreational use combined with predicted climate change this plan will take into account options to mitigate fire risk and facilitate fire control.

Appendix 2 Kellas Oakwood SSSI plan

Start Date of Plan – Same as LMP

End Date of Plan – Same as LMP

Overall Management Aims & Objectives for each designated site

The overall objective for Kellas Oakwood SSSI is to protect the site and to maintain or where necessary, enhance the special features of the site. In essence, the key aim for Kellas Oakwood will be to reduce browsing pressure and competition from non-native tree and shrub species by maintaining the existing deer fence and removing non-native tree and shrub species to promote natural regeneration of Oak, Birch and other native species.

Section 1 Designated Sites covered by this appendix

Designated site name	Site code	Site type	Area of designated site (ha)	Area within this LMP (ha)	Area with in this LMP (%)	Annex containing SNH site documentation
Kellas Oakwood	829	SSSI	25.9ha	8.5	32.8	Annex 2

Refer to Map 2 Key features which highlights the location of the above designated sites in relation to the LMP boundary and the NFE management area. Kellas Oakwood lies to the east of the village of Kellas on a steep slope with a south east aspect.

For further detail on the designation refer to the SNH documentation in the above listed annexes, which refers to the entire designated site area. The remainder of this plan will refer in detail to the element of the above designated sites on the NFE.

The SSSI occupies 8.5ha of the national forest estate at the eastern end of the Hill of Wangie. The designated oakwood extends east onto Kellas Estate.

Section 2 Features on the NFE and condition

Only features that exist on the NFE within this LMP are listed in the table below.

Site type	Site code	Feature description	SCM condition (Date assessed)	Condition on NFE	Management classification (if relevant)
SSSI	829	Upland Oak Woodland	Unfavourable (30/04/2018)	Partially recovering	

Kellas Oakwood

Kellas Oakwood is one of only a few acidic oak woods in the north east of Scotland. The woodland is classified as ancient and semi natural. The earliest record of management is from 1798 when it was managed as oak coppice.

It is understood that subsequently there was little management intervention. Part of the area was acquired by the Forestry Commission from the Dallas Estate in 1946. Soon afterwards in 1952 the mature oak on the upper slope was underplanted with Douglas fir Pseudotsuga menziesii. The lower slopes which had contained only a scatter of oak stems had been planted earlier by the Estate using Douglas Fir in 1933.

Thirty years later, in recognition of the conservation value of the wood, underplanted conifers were removed and cut to waste to release the now restricted oak crop. Birch, Betula pendula which had grown up with the conifers was left to supplement the oak. Subsequently in 1984-85, the older Douglas fir on the lower slopes was clear felled. The felled area was not replanted to provide scope for oak natural regeneration. The scattered mature oak were left though 8 were felled and stumps individually fenced to prevent browsing of any coppice shoots.

Cuttings were taken from the first year's coppice growth and after rooting were potted by Forestry Commission research staff at Newton. In November of the same year, 165 potted oak seedlings were planted in 9 separate groups, varying from between 14 and 25 plants per group. In 1990, 105 of these seedlings were still growing well. This planting pattern was adopted to provide a wide diversity of age structure throughout the rehabilitation period. Tree shelters were used to identify and protect the young trees from browsing. Naturally regenerated seedlings which were already growing on the site were hand weeded and tree shelters were placed over the plants.

In November 1990, the Forestry Commission took advantage of a good seed year and collected approximately 30 kg of acorns. Along with 10 kg provided by Mr T Christie owner of the neighbouring section of the wood, this seed was sown at Newton Nursery under the guidance of the Research Silviculturist. During the period 1991 to 1996 work according to the first Forest Enterprise/Scottish Natural Heritage Management Plan was progressed with the planting of 200 oak along with the identification of natural regeneration of oak on site. The planted and regenerated stock has been tubed for protection. Work was ongoing in tube maintenance activities, along with removal of birch and broom from around planted trees. Conifer regeneration was removed from the site during 1995 and 1996 whilst acorns were collected in 1995 to be used as planting stock for future years. Local collections of holly and hazel have been undertaken.

From 1997 to 2002 work has continued in the same vein as the previous five years. The removal of conifer seedling regeneration was repeated in 1998. Each year establishing young oak were released from their grow tubes and had competing broom cut away. Searches were made for germinating seedlings which were protected with tubes. A small amount of seed was collected and further seedlings are under propagation at Newton Nursery. Kellas has not had a good mast year in the period. In 1999 oak raised from Kellas acorns were planted in groups mainly to the west of the SSSI in a newly clearfelled area, to extend the oak stand.

During Spring 2008 the last of the non-native trees were felled to waste (Douglas Fir & Western Hemlock).

During 2011, gorse, rhododendron and hemlock was felled to waste and the stumps treated with Glyphosate.

In 2012, the adjacent area was fenced and native broadleaves were planted, including Oak grown on from acorns collected from Kellas.

A deer fence was erected around the Oakwood on the NFE in 2016.

Section 3 Pressures and proposed actions

Site type	Feature description	Pressures	Proposed action	Timescale	Location map highlighting work & other key limiting factors
SSSI	Upland Oakwood	Presence/changing extent invasive species – non-native	Fell to waste all non-native scrub and tree regeneration	2020/2021	
		Over-grazing	Maintain deer fence currently around the site	Ongoing	

Section 4 Operations within the LMP that could impact on the designated features on the NFE

Operation type	Detailed description of operation and method	Mitigation measures to be applied	Timing	Map reference & other relevant comments
Tree/Scrub removal	Removal of tree and scrub regeneration from across the site. This will be done using chainsaw/scrubsaw. Cut material will be left on site as deadwood.	Trained operators and following industry best practice.	Throughout the lifespan of the plan	
Thinning / Re-spacing	Re-spacing and thinning of Birch to maintain diversity and prevent shading of Oak and other native species (Rowan, Holly etc). This will be done using chainsaw/scrubsaw. Cut material will be left on site as deadwood.	Trained operators and following industry best practice.	2020 and throughout the lifespan of the plan	
Seed collection	Collection of acorns. Nets will be placed on the ground in advance of seed fall during good mast years. Seed will then be grown on in FLS nurseries to be grown out on site in the Oakwood and the native woodland expansion to the west.	Nets will be removed following seed collection. Seed will only be collected during good mast years.	Throughout the lifespan of the plan	

Section 5 Operations within the LMP or aspects of the national forest estate within the LMP that could impact on designated sites adjacent to national forest estate

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

Section 6 Appropriate Assessment/s undertaken on work contained within the LMP

Not required.

Section 7 Approvals, agreements & signatures

I confirm that the above management plan which covers the SSSI "Kellas Oakwood" (Site code 482) within land management plan "Dallas" contains the necessary detail, content and mitigation measures to comply with the statutory requirements contained within the Nature Conservation (Scotland) Act 2004 and in particular in relation to Part 2, Chapter 1, Section 14 (d), which covers consents via an agreed management plan (i.e. "SNH's consent under section 13 is not required in relation to carrying out an operation of the type described in subsection (1) of that section – …….(d) in accordance with the terms of a management agreement between SNH and the public body or office-holder carrying out the operation").

SNH Signature ……. Date ……..

SNH Name ……..

SNH Job Title ……..

Address……..

Email ……..

Contact telephone number ……..

FCS has a corporate requirement under UKWAS (4th edition) and under the FCS Framework Document for FES (2010) to manage all designated sites in accordance with plans approved by the statutory authority, I therefore sign below to approve the contents of this plan in relation to the designated site Kellas Oakwood that fall within its boundary on the NFE.

SNH Signature ……. Date ……..

SNH Name ……..

Annex 1

Map highlighting the location of the designated sites in relation to the LMP boundary and the NFE management area.

See Map 2 Key features.

Annex 2

KELLAS OAKWOOD
Site of Special Scientific Interest
SITE MANAGEMENT STATEMENT
Site code: 829
Address: 32 Reidhaven Street, Elgin, Moray IV30 1QH
Tel: 01343 541551
Email: Elgin@snh.gov.uk

Purpose

This is a public statement prepared by SNH for owners and occupiers of the SSSI. It outlines the reasons it is designated as an SSSI and provides guidance on how its special natural features should be conserved or enhanced. This statement does not affect or form part of the statutory notification and does not remove the need to apply for consent for operations requiring consent.

We welcome your views on this statement.

Description of the site

Kellas Oakwood is of the best examples of oak woodland in Moray, one of very few in north-eastern Scotland. It occupies a steep, predominantly south-east facing slope between 150 and 275m above sea level. Kellas is an ancient woodland site (woodland is known to have been present on the site since at least 1760), which has been considerably modified by past management.

The majority of the canopy is almost pure sessile oak but, in the more open and recently managed upper slopes and clear-felled areas, birch predominates. The shrub layer is very sparse (except where rhododendron has been planted), and consists of scattered holly and juniper.

Most of the woodland is found on poor, acidic soils. Here the field layer is mainly wavy hair-grass with hard fern, bell heather, chickweed wintergreen, blaeberry, climbing corydalis and common cow-wheat. Ling heather, Yorkshire fog and bracken are locally abundant in more open areas. Mosses such as Dicranum species and Leucobryum glaucum are quite frequent and there is a moderately high cover of epiphytic lichens. On the lower slopes and in several flushes, local soil enrichment has given rise to a slightly richer woodland community with wood sorrel, wood anemone, primrose, bugle, yellow pimpernel and bramble.

Natural Features of Kellas Oakwood SSSI	Feature Condition (date monitored)
Upland oak woodland	Unfavourable - no change (June 2004)

Site condition monitoring was last carried out in 2004. This found the woodland to be in unfavourable condition, mainly due to the abundance of Rhododendron in the shrub layer (over around 10% of the site), and also due to the extent of regeneration by exotic species, in particular Douglas fir and western hemlock along the south-west boundary of the site.

Past and present management

The earliest record of management is from 1798 when the wood was managed as oak coppice. This was discontinued in the early 19th century and much of the wood is now a rather dense, single-storied and almost pure stand of sessile oak stems, singled from former coppice about 190 years old.

In the Kellas Estate section of the site, stands of conifers, predominantly Scots pine, were planted early in the 20th century on the slopes above the oaks. Some of these conifer stands were felled in the 1980s. About 60 to 65 years ago, several belts of Rhododendron species were planted with the aim of creating a rhododendron garden. Several amenity paths were also created to connect oakwood with Kellas House.

Agricultural use seems to have been limited to small areas of pasture and arable land at Woodhead Croft (now marked Oakwood) in the early years of the 20th century and, until the early 1980s, access to sheep grazing from the tenant farm to the east. Stock fences now prevent sheep entering the wood and agricultural use has long since been abandoned.

The oak stems in the Forest Enterprise owned block are approximately 50 to 60 years old. The lower slopes of this block were felled and planted with Douglas fir in 1933-34 and the lower slopes were underplanted with Douglas fir and western hemlock in 1952. Almost all of these conifers were removed between 1982 and 1985, to enhance the conservation value of the area.

In 1989 a small section of oak woodland along the B9010 was lost as part of a road alignment works.

The Kellas Estate section of the site was until recently subject to Management Agreement with SNH the objectives of which were:

1. To maintain the Special Scientific interest of the land as a semi-natural woodland.

2. To encourage tree regeneration to take place and allow the shrub layer and ground flora to develop naturally.

3. To re-establish and/or extend similar native woodland where this formerly occurred or where ground conditions are appropriate.

The Management Agreement also contained policies to remove 50% of the rhododendron cover, establish native shrubs and retain deadwood in deadwood retention zones. Rhododendron control is carried out annually. Kellas Estate has, for a number of years, encouraged natural regeneration of oak by protecting seedlings with tree shelters.

The principal use of the Kellas Estate section is pheasant shooting. The area is regularly stocked with pheasants and these are shot. Roe deer and pest species are also controlled in this section. Fallen timber is removed from areas outwith the deadwood retention areas and dangerous trees or limbs may be occasionally felled throughout the Kellas Estate section, and particularly close to the public road.

Oakwood Croft is used as a summer house. Grass is mown and bracken controlled with herbicide in its immediate environs.

The Forest Enterprise section of the site is subject to an agreed Management Plan. The primary management objective of the Management Plan is "to rehabilitate and maintain a well-stocked, high forest cover of native oak with associated structure, ground vegetation and flora and fauna. Some small-scale timber production may be gained by group or selective felling on a rotation of not less than 150 years. Restocking of this area should ideally be by natural regeneration with supplementary plantings of Kellas-reared stock. Between 1986 and 2001, 365 oak seedlings (raised from Kellas acorns and cuttings) were planted in the FE section of the site. Naturally occurring regeneration of oak is identified and protected with tree tubes. FE continue to collect acorns from Kellas for restocking of the site and collections of holly and hazel have also been made for the same purpose. Birch, gorse and broom which is competing with planted oak is removed and conifer regeneration is periodically removed. Dangerous trees or limbs may be occasionally felled if they present a public safety hazard. No felling for timber production has been carried out. Pest and game species are killed by a sporting tenant but no pheasants or other species are released in the FE section.

Objective for management (and key factors influencing the condition of natural features)

We wish to work with the owners and occupiers to protect the site and to maintain and where necessary enhance its features of special interest. SNH aims to carry out site survey, monitoring and research as appropriate, to increase our knowledge and understanding of the site and its natural features and to monitor the effectives of the management agreements.

To maintain the extent and diversity of the native woodland, in particular the oak woodland, and associated flora and fauna

• The regeneration and establishment of appropriate native tree and shrub species (particularly oak) should be encouraged. Regeneration should occur in suitable gaps in the canopy. Grazing levels should allow regeneration to establish beyond browsing height.

• Modern intensive silvicultural practices should be limited. The woodland should be allowed to regenerate naturally, with planting comprising no more than 25% of area of regeneration over a 20-year period; all mature trees over 150 years should be retained; and ground disturbance and the impact of herbicides should be minimised.

Date last reviewed: 26 May 2011.

CITATION

KELLAS OAKWOOD
SITE OF SPECIAL SCIENTIFIC INTEREST
Moray

Site code: 829

NATIONAL GRID REFERENCE: NJ156539
OS 1: 50 000 SHEET NO: Landranger Series 28
1: 25 000 SHEET NO: Explorer Series 423

AREA: 25.9 hectares

NOTIFIED NATURAL FEATURES

Biological:Woodlands:Upland oak woodland

DESCRIPTION

Kellas Oakwood is located 10 km south-west of Elgin. It is one of the best examples of oak woodlands in Moray. It occupies a predominantly south-east facing slope between 150 and 275m above sea level. The woodland is ancient and semi-natural, the earliest record of its management being from 1798 when it was managed as oak coppice.

little or no shrub layer. The field layer reflects the acid brown earth soils with abundant wavy hair grass Deschampsia flexuosa as well as hard fern Blechnum spicant, bell heather Erica cinerea, chickweed winter-green Trientalis europaea, blaeberry Vaccinium myrtillus, climbing corydalis Corydalis claviculata, cow-wheat Melampyrum pratense and Dicranum mosses. At the foot of the slope local soil enrichment and flushing gives rise to a slightly richer community with primrose Primula vulgaris and bugle Ajuga reptans.

On the upper slopes oak is scarce, being replaced by birch over a field layer dominated by the Yorkshire fog Holcus lanatus and bracken Pteridium aquilinum. Several glades exist, some also dominated by bracken, others containing fragments of dwarf-shrub heath dominated by ling heather Calluna vulgaris.

NOTIFICATION HISTORY

First notified under the 1981 Act: 18 August 1988.

Reviewed under the 2004 Act: 26 May 2011.

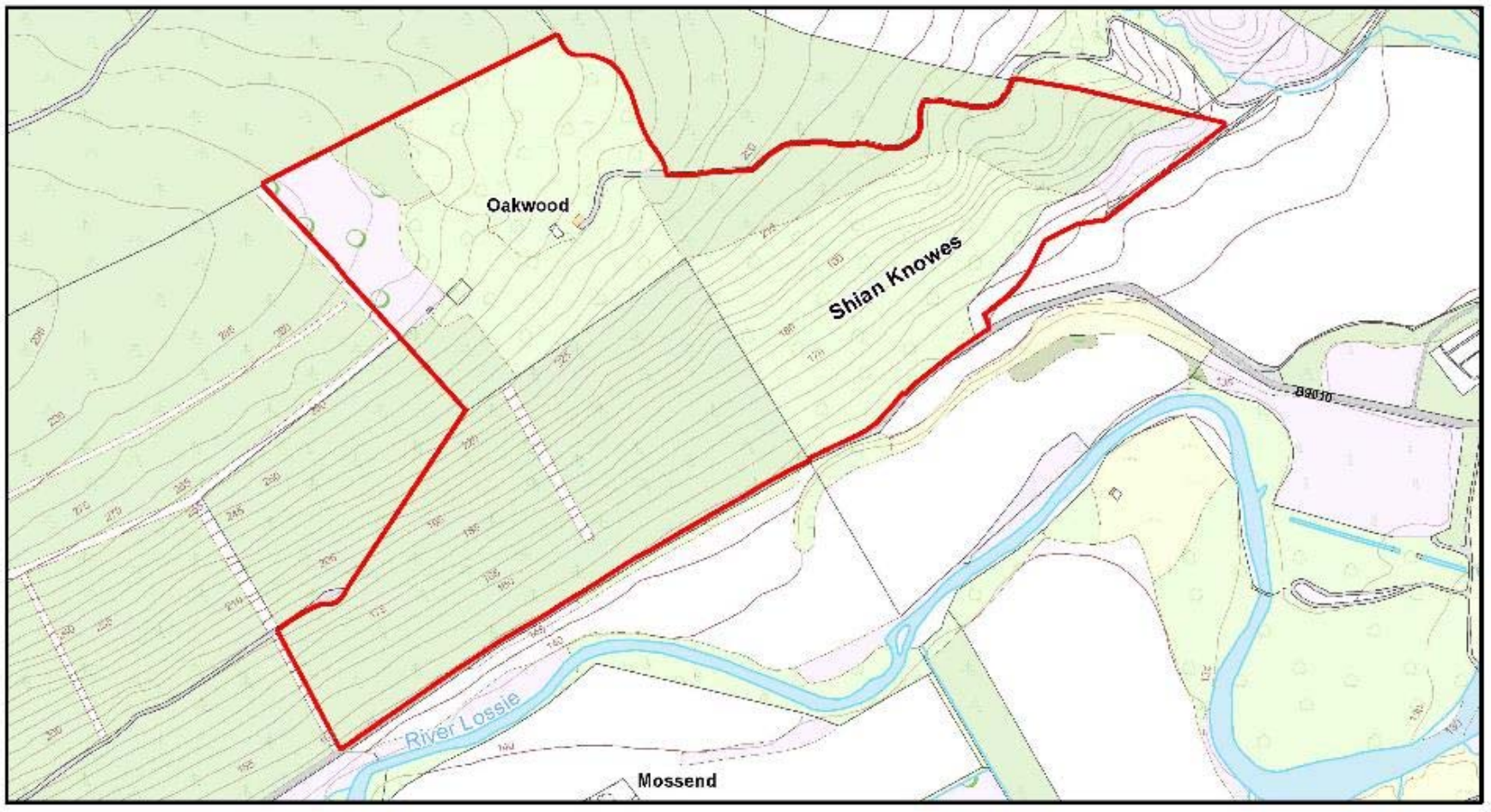
REMARKS

Measured area of site corrected (from 25.8 ha).

26 May 2011
KELLAS OAKWOOD SITE OF SPECIAL SCIENTIFIC INTEREST
OPERATIONS REQUIRING CONSENT FROM SCOTTISH NATURAL HERITAGE

If you propose to carry out, or permit to be carried out, any of the operations listed below, you must first obtain consent from SNH unless a local authority has granted you planning permission (under Part III of the Town and Country Planning (Scotland) Act 1997) or a designated regulatory authority has given you written permission (under s.15 of the Nature Conservation (Scotland) Act 2004). If you have such a permission, you may proceed without obtaining consent from SNH for the same operation.

Standard Ref. No.	Type of Operation
1	Cultivation, including ploughing, rotovating and reseeding.
2	The introduction of grazing.
3	The introduction of stock feeding.
4	The introduction of mowing.
5	Application of manure, fertilisers and lime.
6	Application of pesticides, including herbicides (weedkillers).
7	Dumping, spreading or discharge of any materials.
8	Burning.
9	The release into the site of any wild, feral or domestic mammal or bird, plant or seed.
11	The destruction, removal or cutting of any plant including (e.g. tree, shrub, herb, dead wood, moss, lichen etc.)
12	Changes in tree and/or woodland management (including afforestation, planting, clear and selective felling, thinning, coppicing, modification of the stand or underwood, changes in species composition, cessation of management).
13a	Drainage (including the use of mole, tile, tunnel or other artificial drains).
20	Extraction of minerals, including sand and gravel, topsoil.
21	Construction of roads, tracks, fences, hardstands, banks, ditches or other earthworks, or the laying, maintenance or removal of pipelines and cables, above or below ground.
22	Storage of materials.
23	Erection of permanent or temporary structures, or the undertaking of engineering works, including drilling.
26	Use of vehicles or craft likely to damage or disturb features of interest.
27	Recreational or other activities likely to damage features of interest other than those activities carried out responsibly in keeping with the Scottish Outdoor Access Code.
28	Changes in game and waterfowl management and hunting practice.



Kellas Oakwood

Site of Special Scientific Interest

Site Code: 1[illegible]

Site boundary follow the inside edge of the boundary line shown

Produced by: Geographic Information Group, SNH, 2009
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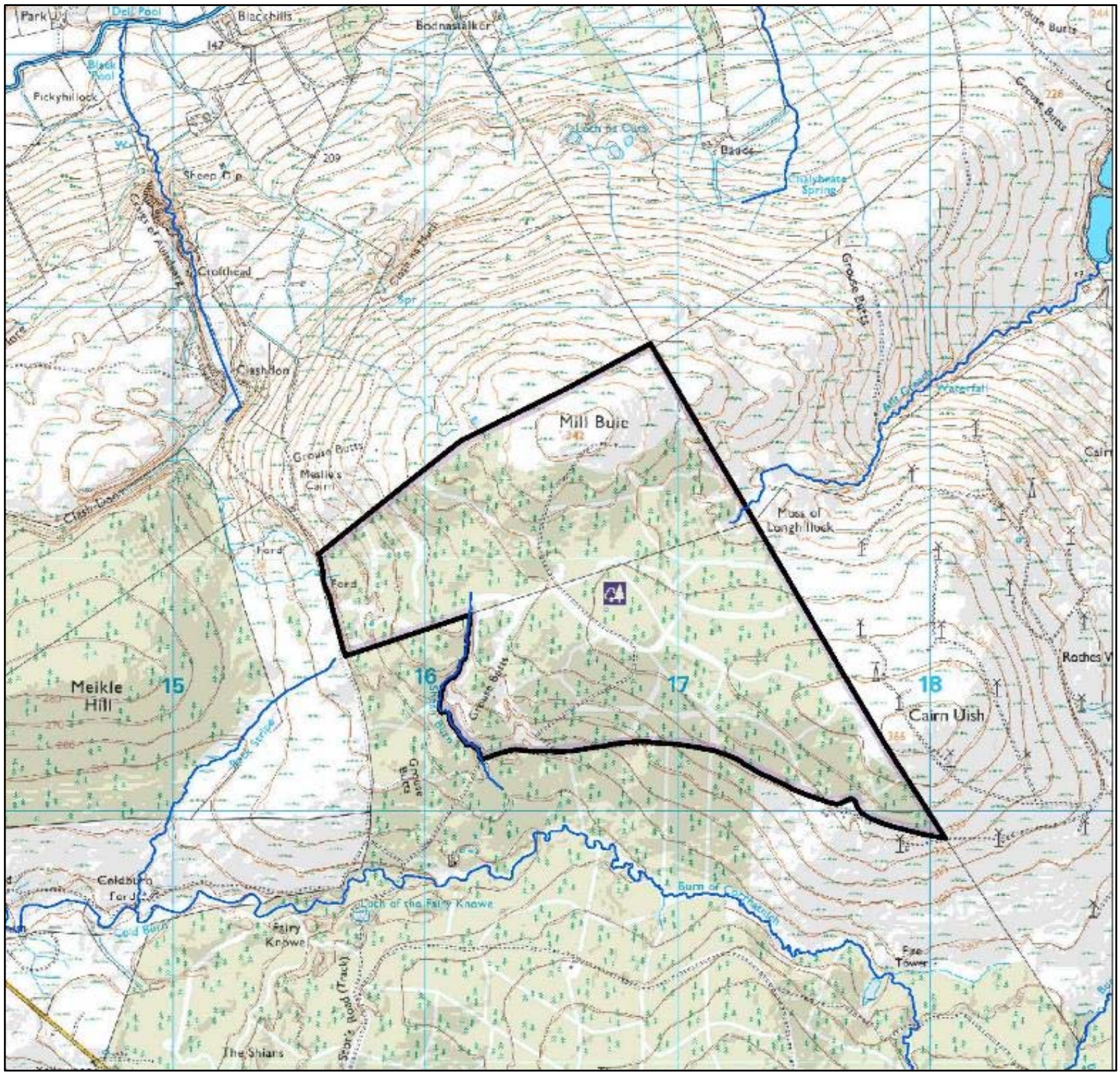
This is an updated representation of the notified site boundary. Any apparent small differences are due to changes to the OS backdrop.

Scale 1:5,000

Appendix 3 Mill Buie peatland restoration plan

Location



Long term vision

The long term vision for Mill Buie is to restore the site to its previous condition of blanket bog and upland heath through the sensitive removal of the mostly failed conifer plantation and a programme of peatland restoration. With the aim of allowing the key peat forming species, such as sphagnum mosses and cotton grass, to become the dominant ground flora and allowing the associated biodiversity to thrive in the priority habitat. Upland heath, small areas of native woodland and peat edge woodland will complement the habitat and further increase the biodiversity value of the area.

Management objectives

1. Systematically restore the deep peat areas to a functioning peatland system which will act as a long term carbon store and increase its value for biodiversity and water quality.

2. Recover the existing timber from the current conifer crop while balancing this with the primary objective of peatland habitat restoration.

3. Protect the existing bog habitat, and future peatland areas, by the removal of regeneration of non-native conifers.

Critical success factors

- Utilise appropriate harvesting techniques to minimise ground impacts and so protect to the carbon storage potential of the blanket bog habitat.
- Where practical realise the biomass potential of all scrub and harvesting waste, leaving as clean a site as possible to help facilitate bog restoration.
- Utilise low impact forwarding methods to extract products to minimise ground damage.
- Apply current best practice and expertise in peatland restoration operations and use suitably experienced contractors with the appropriate machinery.
- Maintain a level of deer browsing conducive to native broadleaf regeneration by culling.

Restoration rational and plan

Summary

- The hill at Mill Buie comprises upland heath and blanket bog, both are listed on the Scottish Biodiversity List and the UK BAP as Priority Habitats. Therefore the site is a priority for restoration on ecological grounds.
- Afforestation is listed as one of the key threats to blanket bog and upland heath having a significant impact on their conservation status at a national level (Control of Woodland Removal Policy – Annex 3: woodland removal without a requirement for compensatory planting).
- Restoration of blanket bog is a key action of the Scottish Biodiversity Strategy. FLS as a Scottish Government agency has a duty to further the protection and enhancement of these habitats under the Nature Conservation Scotland Act (2004).
- The upland heath and blanket bog at Mill Buie are part of a wider landscape of upland habitats which provides connectivity with the habitat restoration works undertaken on the Rothes windfarm site.
- Remnant bog vegetation is abundant on the rides and open areas within Mill Buie indicating that the site has good potential for successful restoration.
- Forest to bog restoration techniques have advanced over the last few years and FLS is regarded as one of the leading organisations in developing best practice and delivering positive restoration programmes. Using current best practice we anticipate a more rapid recovery of the water table and successful establishment of bog vegetation on restoration sites than has been experienced previously.
- The SS/LP crop currently on site has mostly failed with very poor rates of tree growth on any surviving conifers. The habitat in its current condition will be acting as a carbon source.
- Recent advances in restoration techniques indicates that the site has very good potential for restoration thus turning this carbon source into a moderate carbon sink with long term secure carbon storage.

Background

The purpose of this document is to provide supplementary information to support the EIA screening determination (see section A12) for deforestation as part of the Dallas LMP submission for the purpose of initiating large scale peatland restoration on Mill Buie.

This document also demonstrates alignment with the following key SG and SF policy and practice:

- The Scottish Government Control of Woodland Removal Policy – in particular guidance on woodland removal without the requirement for compensatory planting
- FCS Practice Guide – Deciding future management operations for afforested deep peatland
- Forestry on Peatland Habitats (FCS, 2000)
- UK Forestry Standard
- SG Biodiversity Strategy: Route Map to 2020

FLS approach to peatland management

Restoration of blanket bogs is a key action from the Scottish Biodiversity Strategy, the habitat is recorded on the Scottish Biodiversity List. Beyond its value as a carbon store, peatlands contain a huge diversity of organisms. Planting trees on peat leads to a fundamental change in the ecosystem[1].

FLS's approach to peatland management different to that the rest of the Forest industry. FLS's objectives and legislative framework has an added dimension. Being a Scottish Government agency, FLS has an added 'Biodiversity Duty', as stated in the Nature Conservation Scotland Act (2004). Protection of conservation values is required as part of UKWAS certification and principles of sustainability are required under the UKFS. This means that for afforested peatlands restoration is considered before deciding if replanting is appropriate.

This is set out in "Making future management decisions of afforested peatlands Practice Guide". This practice guide outlines how to deal with afforested peatlands that are not going to be restored for biodiversity reasons. It states that replanting must be justified by considering if the crop will achieve YC8 or more for SS. The default is to not replant unless there is evidence it will achieve a good growth rate of harvestable timber. If YC8 or above is not achievable then restocking peatlands is unsustainable. A slow growing crop will not result in a profit, it will be acting as a carbon source thus contributing to climate change and so society would be disadvantaged or threatened based on current scientific information.

[1]Payne et al., 2018: The future of peatland forestry in Scotland : balancing economics, carbon and biodiversity. Scottish Forestry. pp. 34-40.

Conservation Status and Restoration of Mill Buie

The main part of Mill Buie is blanket bog with additional areas of upland heath – listed on the Scottish Biodiversity List and a UK BAP as Priority Habitats, therefore the site is a high priority for restoration for FLS.

The restoration potential of the entire site is considered to be high due to the very wet ground conditions and abundant remnant bog vegetation that persists in rides and other open areas. FLS are committed to a long-term restoration programme of this priority habitat. Restoration works have already been undertaken on the adjacent Rothes Estate as part of mitigation for the Rothes wind farm development.

Forest-to-bog restoration techniques are constantly evolving and FLS have been dominant in the implementation of novel methods to address the unique challenges present by these sites including existing drains, plough furrows, peat cracking, peat piping, harvesting brash and stumps. Contemporary methods often utilise a combination of techniques, including ground smoothing, stump flipping, drain blocking and backfill trenching, which results in a very high water table capable of resisting incursion by conifer regeneration. Further information on restoration methods is provided below.

Restoration Plan for Mill Buie

The long-term for the Dallas LMP area includes the restoration of priority blanket bog habitat in Mill Buie for multiple benefits. This restoration works falls with the category of 'woodland removal without a requirement for compensatory planting' under Annex 3 of the Scottish Government's policy on "Control of woodland removal: implementation guidance" (February 2019) because of the objective of 'enhancing priority habitats and their connectivity'.

Objectives for the restoration of the Mill Buie site are:

- Expand the area of peatland habitat by applying restoration treatments, restoring it to a functioning peatland within 30 years;
- Protect the storage of carbon within the soil (peats);
- Maximise the sequestration of carbon by the peatland in the future;
- Improve the water quality leaving the site and help regulate its flow;
- Monitor the impacts of treatments on the water quality to establish if it been improved over the long term.

Operational methodology

In many areas of the UK large expanses of deep peat blanket bog have been drained and replaced with commercial forestry. This afforestation has resulted in the degradation and loss of large areas of peat bog. Currently with a greater emphasis on soil carbon storage and the realization that many of the trees on deep peat are vulnerable to growth check and wind-blow there is a major shift to restoring these low return forests back to open bog.
Traditional methods of achieving hydrological restoration of peatlands, such as ditch-blocking with dams, can improve the situation on damaged open bog habitat but on previously afforested sites more intensive interventions are often required. The majority of these sites retain a legacy ridge and furrow pattern from the single or double ploughed furrows varying from 30 cm up to 1 m in depth, in extreme cases. These furrows act as drainage conduits thereby lowering the natural water table and drying out the peatland.

FLS have been a key organisation in developing new ground smoothing and stump flipping methods of peatland restoration. This method re-profiles this uneven surface in an attempt to restore the natural surface topography of afforested sites. This is achieved by flattening any plough ridges and/or infilling the furrows which allows a greater proportion of the ground surface to be closer to the water table. This improved restoration technique results in much better surface re-wetting thereby promoting the development of peat-forming species (i.e. Sphagnum mosses) and reducing the opportunity for tree regeneration that often occurs on uneven or drained sites. These techniques will be applied across the Mill Buie restoration site where appropriate. This technique is often used in conjunction with an element of drain blocking and backfill trenches (see later in this document) to achieve the best results.
The advantage of ground smoothing and stump flipping is that the vegetated surface of the peat is left upper-most, rather than being inverted, which helps minimise the exposed of bear peat. Where there are bigger more solid wood stumps these root plates will be inverted into the furrow. The intact vegetation between the areas of the two plough ridges will assist with re-colonisation of bare peat where the ridges have been removed. Once the digging aspect of the work has been completed the machine then tracks across the furrows to further flatten out any topography or brash that may still be standing proud.

Environmental protection

Surface management techniques, such as stump-flipping and cross-tracking, can potentially create areas of bare peat prior to vegetation re-establishing. This has the potential to pose a risk to the downstream water environment via runoff and erosion of the bare peat surfaces.
Stringent pollution prevention control measures are an integral part of any ground-smoothing project. This includes the intensive management of on-site drainage and the protection of watercourses within proximity of the restoration site. One element of this is robust sediment management measures, particularly in areas where stump-flipping is carried out. Consultation will be undertaken with to ensure that appropriate design and siting of silt traps is implemented across the site.
Generally a cascade of silt traps made from plastic piling is created on previously clear-felled sites in addition to any fabric dams installed to trap any sediment run-off. These may already be in place on recently felled sites, along with lengths of drain that have been dammed, as part of pre-felling mitigation. If drains were not blocked, or silt traps installed, in preparation for harvesting operations this will be put in place prior to ground-smoothing works commencing. Buffer zones of at least 20 m will be employed to mitigate against elevated levels of dissolved organic carbon, suspended solids, phosphates or nitrates from entering any river, burn, ditch or wetland towards which the land drains.

Machinery specification

Ground smoothing techniques require the use of suitably equipped low ground pressure tracked excavators to allow safe working practice on wet and unstable terrain. FLS specify 360° low ground pressure excavators on 1100 mm to 1400+ mm track pads, using a wide toothed digging bucket, to achieve an average ground pressure of less than three pounds per square inch.

Backfill trenching

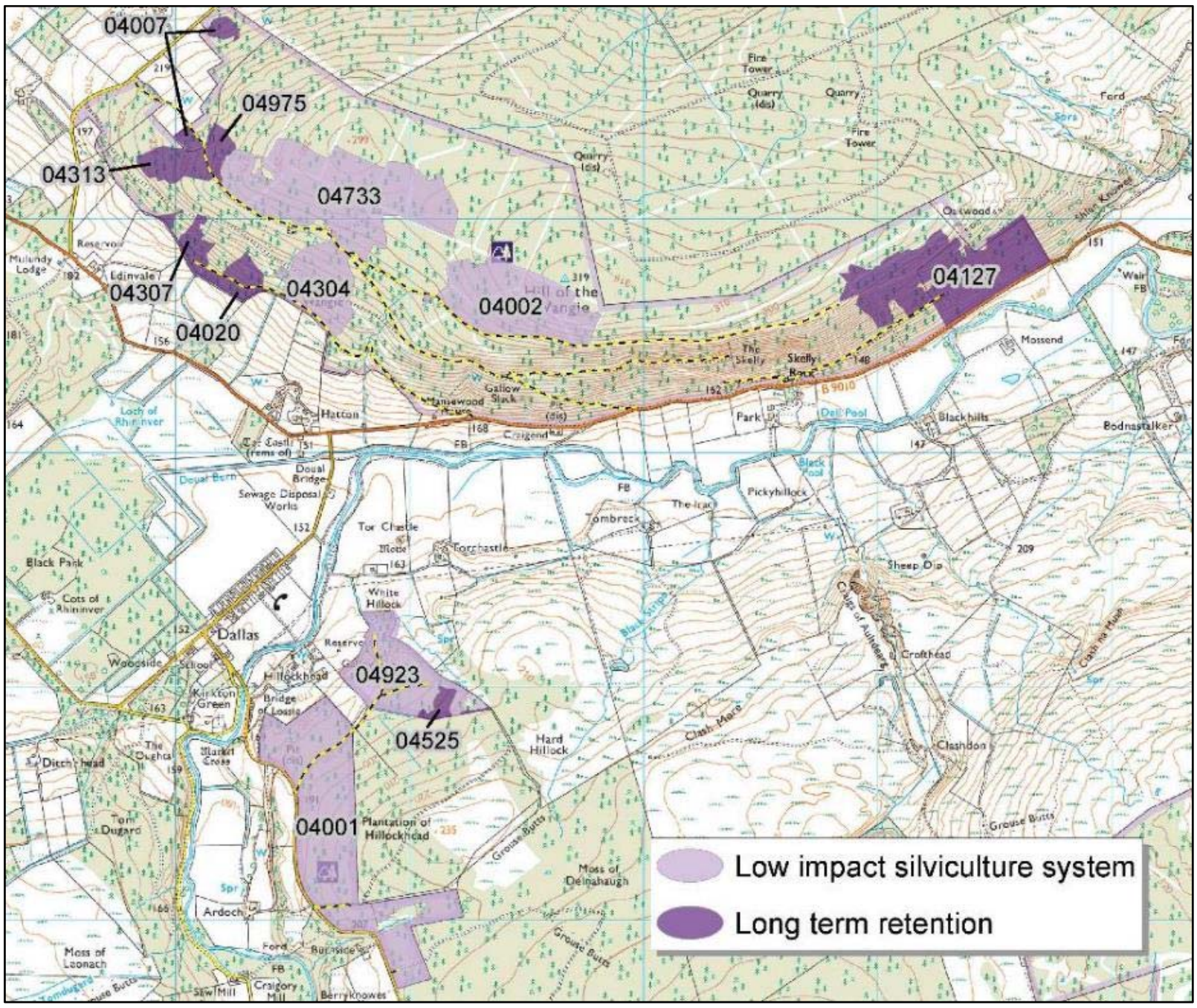
Some afforested peatlands suffer from surface cracking of the peat due to water deprivation which along with the existing root structures can lead to underground ‘pipes’ forming. These can act as a conduit to water, dissolved and particulate organic carbon loss and can hamper the rewetting process by acting as hidden drains. Forest Research have developed a method to tackle this problem, greatly improving restoration efforts. Barriers to prevent water flowing through the ‘pipes’ are formed by digging trenches perpendicular to the flow of the ‘pipes’. These are deeper than the cracks and are then repacking them with peat either with or without a plastic membrane lining on one side of the trench. The requirement for backfill trenching on Mill Buie will be determined following the felling of the tree crop.

Monitoring

The site will be monitored on a regular basis to assess the change in surface vegetation (also a proxy indicator of water table level) and to check for conifer regen. It is envisaged that more monitoring will be undertaken by drone-based aerial photography at least bi-yearly.
FLS continues to work closely with Forest Research on the effects of restoration on water quality and will follow the best practice recommendations made in a recent publication by Shah and Nisbett based on 10 years of data collected from Flanders Moss.

Appendix 4 LISS prescriptions

The locations of the LISS coupes are highlighted on the map below which is followed by the table of the LISS prescriptions for the period of this plan.



Coupe ref. (See map above)	Management Type and area	Management objective/Reason for selection	Long-term structure and desirable species	Age, Trans. period and return time (years)	Regeneration and ground flora	Observations (e.g. likely barriers to achieving objective)	Next treatment required	Other useful information
04001	Group selection 19.2ha	Production of timber. Good seed source present over the site. Evidences of successful natural regeneration within groups previously felled.	Uneven aged crop of Scots pine with a minor percentage of broadleaves.	**Age** – Mostly SP 70yrs. **Trans period** – 80 yrs **Return time** – 10 yrs	Heather, Blaeberry with some birch and rowan regen. Also SP regen in areas which receive more light.	Ground vegetation and deer browsing pressure.	Crown thinning including removal of Peridermium pini infected trees. Heavier thinning around southern edges of existing groups to increase light levels.	Allow existing groups to become more established before further groups are felled.
04923	Group selection 8.6ha	Production of timber. Good seed source present over the site.	Uneven aged crop of Scots pine with a minor percentage of broadleaves.	**Age** – Mostly SP 70yrs. **Trans period** – 80 yrs **Return time** – 10 yrs	Heather, Blaeberry with some birch and rowan regen. Also SP regen in areas which receive more light.	Ground vegetation and deer browsing pressure.	Crown thinning including removal of Peridermium pini infected trees.	Allow existing felled areas to regenerate and become fully established before further felling is undertaken.
04002	Uniform shelterwood 16.9ha	Production of timber. Good seed source present over the site. Crop previously thinned.	Even aged crop of Scots pine with a minor percentage of broadleaves.	**Age** –SP 67 to 77yrs. **Trans period** – 80 yrs **Return time** – 10 yrs	Heather and blaeberry.	Ground vegetation and deer browsing. Scarification may be required to expose soil.	Crown thinning including removal of Peridermium pini infected trees.	
04304	Uniform shelterwood 8.8ha	Production of timber. Good seed source present over the site. Crop previously thinned.	Even aged crop of Scots pine and Norway spruce with a minor percentage of broadleaves.	**Age** –72yrs. **Trans period** – 80 yrs **Return time** – 10 yrs	Mostly heather.	Ground vegetation and deer browsing. Scarification may be required to expose soil.	Crown thinning including removal of Peridermium pini infected trees.	
04733	Uniform shelterwood 28.7ha	Production of timber. Good seed source present over the site. Mature crop previously thinned.	Even aged crop of Scots pine with a minor percentage of broadleaves.	**Age** –11.7ha @ 71yrs, 17.0ha @ 6yrs. **Trans period** – 80 & 140 yrs **Return time** – 10 yrs	Mostly heather.	Ground vegetation and deer browsing. Scarification may be required to expose soil.	Crown thinning including removal of Peridermium pini infected trees.	

04007, 04975, 04313, 04307, 04020, 04525	Long term retention 14.3ha	Retention of trees beyond their optimal financial felling age for structural and visual diversity.	Over mature stands of mixed species trees.	**Age** – Various **Trans period** – None **Return time** – 10 yrs	Mostly heather and grasses. Some larch regen associated with larch areas.	Potential for windblow within mature crops.	Thin along with adjacent coupes where appropriate.	Larch is being retained due to the current restrictions on plant thus maintaining species diversity.
04127	Long term retention 21.1ha	Retention of oak over the long term as an expansion of the adjacent oakwood SSSI.	Over mature oak dominated wood with other appropriate native broadleaves present.	**Age** – Various **Trans period** – None **Return time** – Unscheduled	Grasses present throughout, bracken spreading in some sections.	Regen from adjacent spruce, ensure felling takes place to remove seed source.	No treatment planned.	Thinning may be undertaken in future interventions to ensure the long term survival and biodiversity potential of the coupe.