FOREST ENTERPRISE SCOTLAND

North Tummel - Land Management Plan

Tay Forest District

11/22/2018

Approval date: 30/11/2018

Plan Reference No: LMP07-2018

Plan Approval Date: 30/11/2018

Plan Expiry Date: 30/11/2028

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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CSM 6 Appendix 1b

FOREST ENTERPRISE - Application for Forest Design Plan Approvals in Scotland

Forest Enterprise Scotland – Property

Forest District:	Tay Forest District
Woodland or property name:	North Tummel
Nearest town, village or locality:	Tummel Bridge
OS Grid reference:	NN 7625 5919
Local Authority district/unitary Authority:	Perth & Kinross

Areas for approval

	Conifer	Broadleaf
Clear felling	600	18
Selective felling	72	0
Restocking	359	297
New planting (complete appendix 4)	0	0
Roads	0	
Quarries	2.4ha increase footprint	

- I apply for Forest Design Plan approval*/amendment approval* for the property described above and in the enclosed Forest Design Plan.

2. * I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for afforestation* /deforestation*/ roads*/ quarries* as detailed in my application.

3. I confirm that the initial scoping of the plan was carried out with FC staff on 11/12/2014

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

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

6. I confirm that agreement has been reached with all of the stakeholders over the content of the design plan and that there are no outstanding issues to be addressed. Copies of consultee endorsements of the plan are attached.

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

Signed ……. Planning Manager

Signed……. Conservator

District……..

Conservancy……..

Date…….

Date of Approval…….

Table of Contents

List of maps:

Foreword

You are about to read the new North Tummel Land Management Plan (LMP) which is an amalgamation of two old Forest Design Plans (FDPs); Allean and Errochty. This new plan continues and evolves forest management prescriptions identified and proposed in the previous forest design plans, as long as they are still achievable. This will be achieved by consolidating CCF (continuous cover forestry) silviculture in landscape sensitive areas and applying conventional thinning and clearfell regimes elsewhere where site specific conditions does not allow the use of CCF.

North Tummel is a productive forest where high quality timber production can be seen as the overall main objective. Along with forest management, other values such as landscape, environment, biodiversity and recreation are continuously promoted to give local people and visitors' access to diverse, attractive and sustainable forests. The shift from old FDP structure towards LMPs is seen as a step towards highlighting the importance of these multiple values side by side.

There will be a growing focus in North Tummel on areas of Plantations on Ancient Woodland Sites (PAWS) covering the lower fertile slopes. Many of these areas have great potential for gradual conversion to native woodland through thinning where natural regeneration of broadleaves is achievable.

Maintaining a quality resource of recreation facilities will remain a key component of forest management through existing forest trails, car parks and other visitor facilities. The presence of rich cultural heritage has a significant impact in terms of forest recreation and forest management, building an even stronger relationship between forestry, people and the landscape.

Although this LMP gives an indication of both short- and long term direction, there are still challenges for planned land management. Forest health is currently an ongoing issue and the threat of the *Phytophthora ramorum* to larch, and *Dothistroma pini* to pine are acknowledged and addressed.

Over this planning process I was greatly impressed by this forest block. North Tummel covers multiple zones, each with their own character and a wide range of possible management options. It is very diverse block where productive commercial forestry can be made to work side by side with the recreational use, tourism, wildlife, archaeology, and PAWS management without forgetting the iconic Highland Perthshire landscape with the stunning autumn colours.

Martin Price,
Planning Forester & Programme Manager

Summary of Proposals

Proposed Felling

Felling will be carried out in both Phase I (2018-2022) and Phase II (2023-2028) within the North Tummel plan area. The management coupe map (Page 4) illustrate Phase I coupes in red and Phase II in orange. Total clearfelling area within Phase I will be 387 ha and within Phase II will be 231 ha with 54ha of selective felling in phase I and 18ha in phase II.

Felling will be used to break up the very uniform age-class structure and move it towards a more normalised distribution, respond to incipient windblow, progress species change and PAWS restoration, and maintain and enhance managed open space on Meall Reamhar.

Proposed Thinning

In general the plan area has had a good thinning history and this will be carried forward within the plan period. Thinning will take place to develop CCF shelterwood management within the plan area, to maintain the thinning cycle of mid-rotation crops, and to initiate thinning in young crops to develop long term stability. An area of around 1290 ha (plan thinning extent, page 5) will be assessed and thinned as required within the plan period.

Proposed Restocking

Planned restocking will tackle 3 broad themes: re-establishment of productive spruce-dominated crops to maintain production, reversion to native species dominated stands within areas of PAWS, principally on the southern faces above Loch Tummel, and conversion to a more pine-dominated structure within the Glen Errochty zone. Restocking will take place as soon as appropriate after felling, balancing requirements to protect against expected pine weevil (*Hylobius abietis*) pressure, maintain site productive potential, and reduce site inputs to control both weeds and weevils. Fallow periods of up to 5 years may be employed where hot planting is not thought to be appropriate, with crop fully established 5 years after that.

In addition, successional regeneration will be accepted and monitored within around 420 ha of open ground, principally around Meall Reamhar.

Restocking coupes showing target future species composition are illustrated on page 6.

Species Composition

The change in species composition for the North Tummel plan area is illustrated in Figure 1 for the next 30 years. Sitka spruce proportion is planned to decrease from 31 to 26 percent with Scots pine proportion increasing from 33 to 38 percent. Lodgepole pine proportion is planned to decrease to reduce the effect of *Dothistroma* needle blight and larch proportion will also reduce in response to the risk posed by *Phytothphora ramorum*. The proportion of broadleaves will increase from around 5 to 16 percent as PAWS restoration progresses and regeneration gradually colonises successional open space.

Age Class Structure

Restructuring of the uniform age-class structure of the plan area over the next 30 years is illustrated in Figure 2. The plan area is currently dominated (*c.* 71%) by 41-60 year-old crops. Restructuring will reduce this cohort to around 40% by 2048 with a more even spread of ages in younger crops.

Figure 1: Species composition of the plan area from 2018-2048

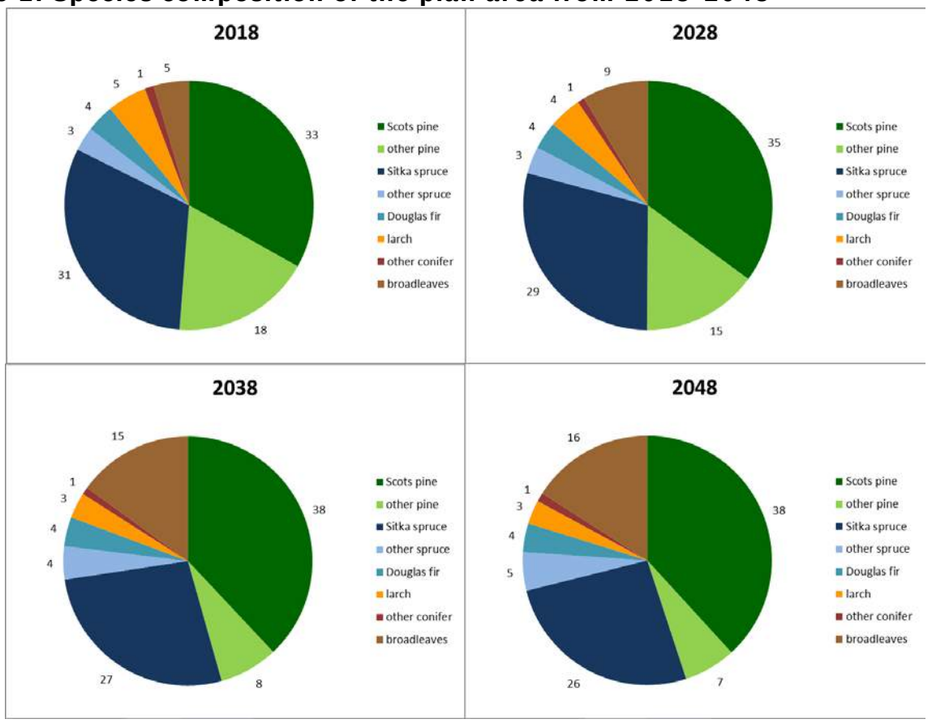
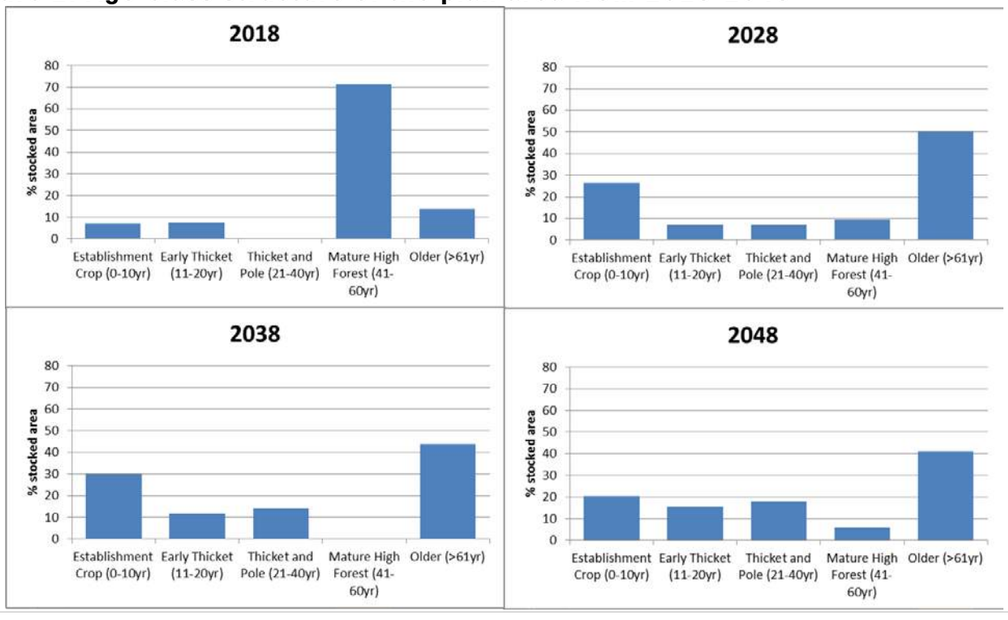


Figure 2: Age-class structure of the plan area from 2018-2048



Management Systems

Proposed management systems are summarised in Table 1 and illustrated on page 4. Current plan systems are illustrated on page 9. Several management system changes are proposed.

Table 1: Summary of Management Systems

Management	Current		Plan	
	Area (ha)	%	Area (ha)	%
Clearfell	1948.1	49.2%	2198.3	55.5%
Open / Other	600.5	15.2%	461.6	11.7%
Clearfell with Seed Trees	208.1	5.3%	201.7	5.1%
Group Shelterwood	227.9	5.8%	44.0	1.1%
Irregular Shelterwood	754.8	19.1%	975.4	24.6%
Minimum Intervention	134.0	3.4%	62.1	1.6%
Natural Reserve	39.5	1.0%	14.3	0.4%
Long Term Retention	44.4	1.1%	0.0	0.0%
	3957.3	**100.0%**	**3957.3**	**100.0%**

Group shelterwood areas in Allean have been converted to a mixture of irregular shelterwood, clearfell with seed trees, and clearfell. PAWS restoration in the eastern part of the zone was not thought to be tenable under the previous system whereas clearfelling will enable quick establishment of productive broadleaves on this site through planting. Stand development above the Queen's View car park was also thought to be better suited to further development through irregular shelterwood than group shelterwood.

Areas of reserve have also been rationalised. Natural Reserve has been limited to a single high-quality area in Glen Errochty. Classification of Minimum Intervention has been restricted to areas of pine and bog restoration in Meall Reamhar and Drumcroy Hill as it is not appropriate for the productive areas of PAWS restoration and birch through Strathtummel and Tummel Bridge zones. Long Term retention has also been rationalised in line with what was thought to be achievable given other constraints, however the retention of trees past rotation or conventional diameter limits will be delivered through seed trees within CCF areas throughout North Tummel.

Area of irregular shelterwood through the Strathtummel zone is planned to increase, taking advantage of well-thinned crops.

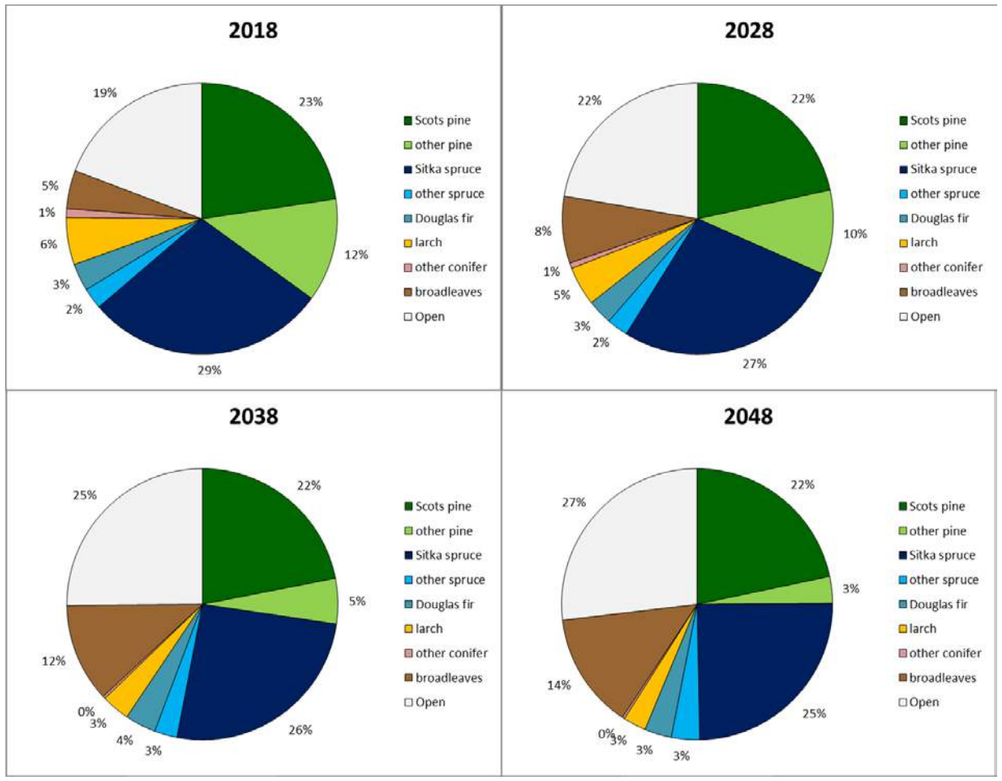
Land Use Summary

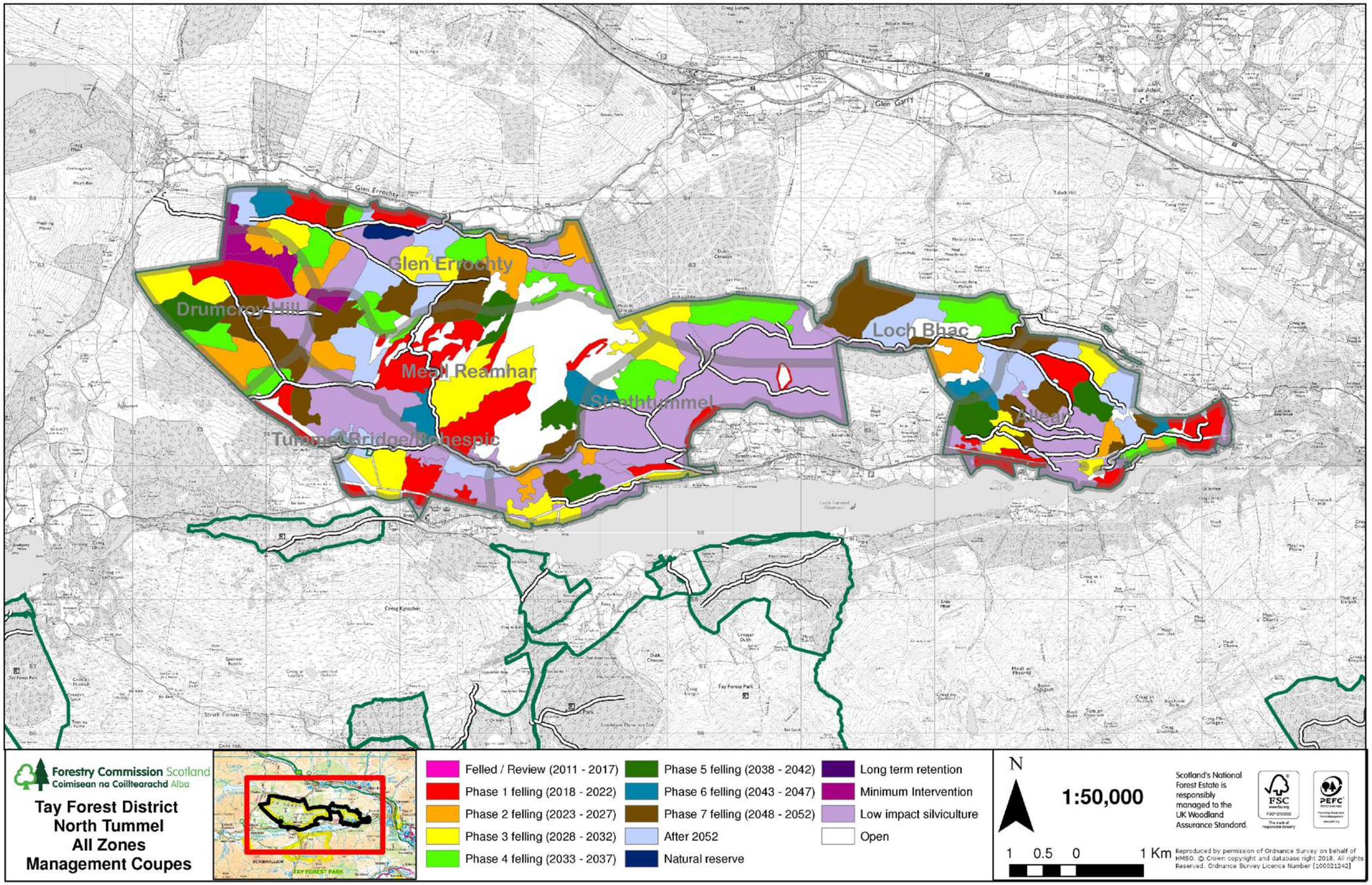
Changes to proportions of land-use are presented in Figure 3. Principally, open space within the plan area will increase from the current 19% to 27% over the next 30 years. This increase is largely due to the removal of poor crops on Meall Reamhar with associated open habitat restoration, primarily blanket bog, and partial replacement with low density broadleaf regeneration.

Access and Timber Transport

The North Tummel plan area is bounded to north and south by Agreed Timber Transport Routes. Access points along both east and west boundaries are served by consultation routes connecting into the main Agreed routes. There are currently 10 access points into the plan area, and another 4 are planned to access currently isolated coupes. Overall, access to the plan area is good and no road-building is proposed; upgrade of existing network and addition of 4 access points with spurs should be sufficient to service harvesting works. Access infrastructure is presented on page 7.

Figure 3: Land-use summary 2018-2048




Glen Garry
Glen Errochty
Drumochoy Hill
Meall Reamhar
Strathtummel
Tummel Bridge/Bohespic
Loch Bhac
Allean
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
All Zones
Management Coupes
TAY FOREST PARK
Felled / Review (2011 - 2017)
Phase 1 felling (2018 - 2022)
Phase 2 felling (2023 - 2027)
Phase 3 felling (2028 - 2032)
Phase 4 felling (2033 - 2037)
Phase 5 felling (2038 - 2042)
Phase 6 felling (2043 - 2047)
Phase 7 felling (2048 - 2052)
After 2052
Natural reserve
Long term retention
Minimum Intervention
Low impact silviculture
Open
N
1:50,000
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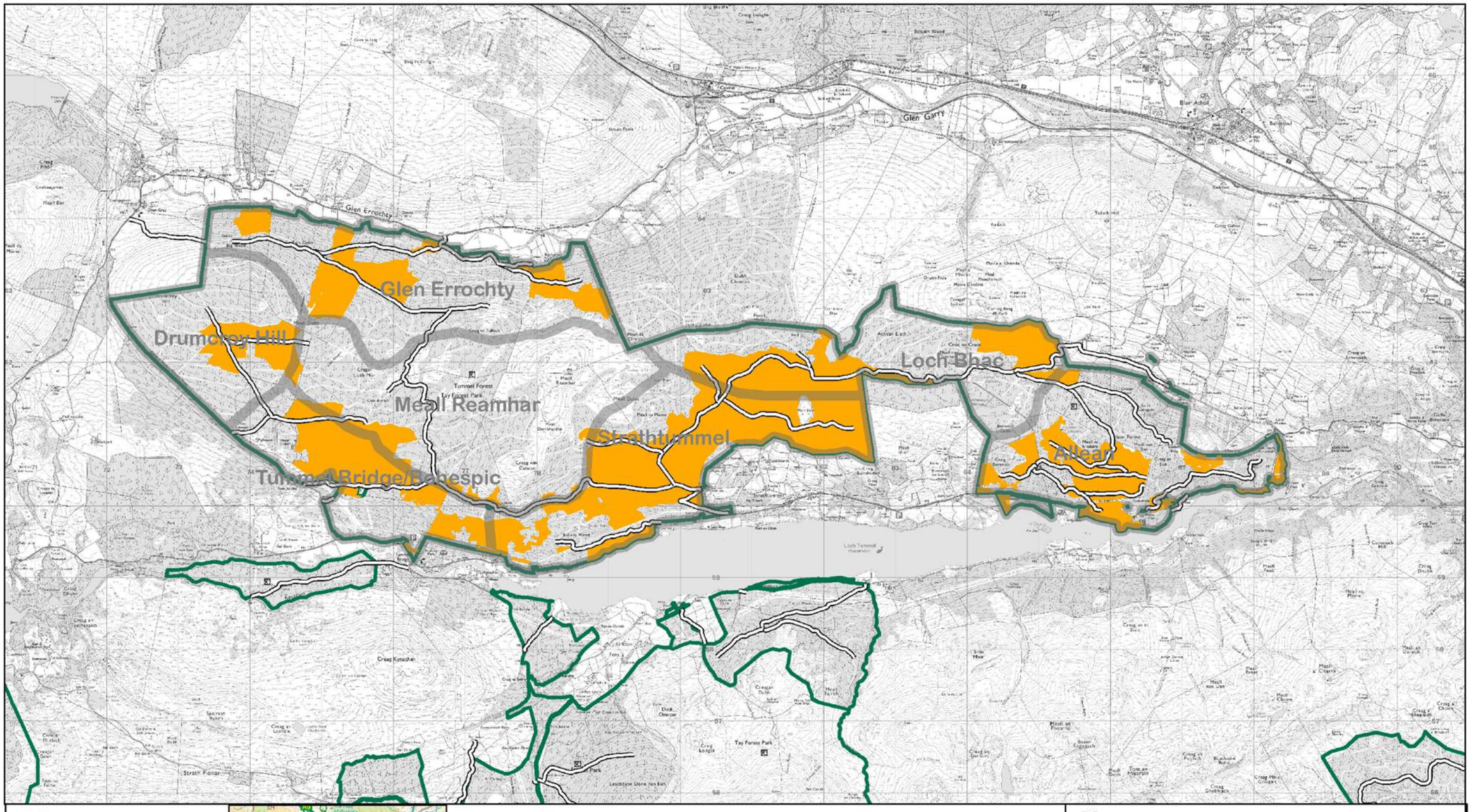

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Plan Thinning Extent

Thinning Area
Forest Roads
Blocks

N

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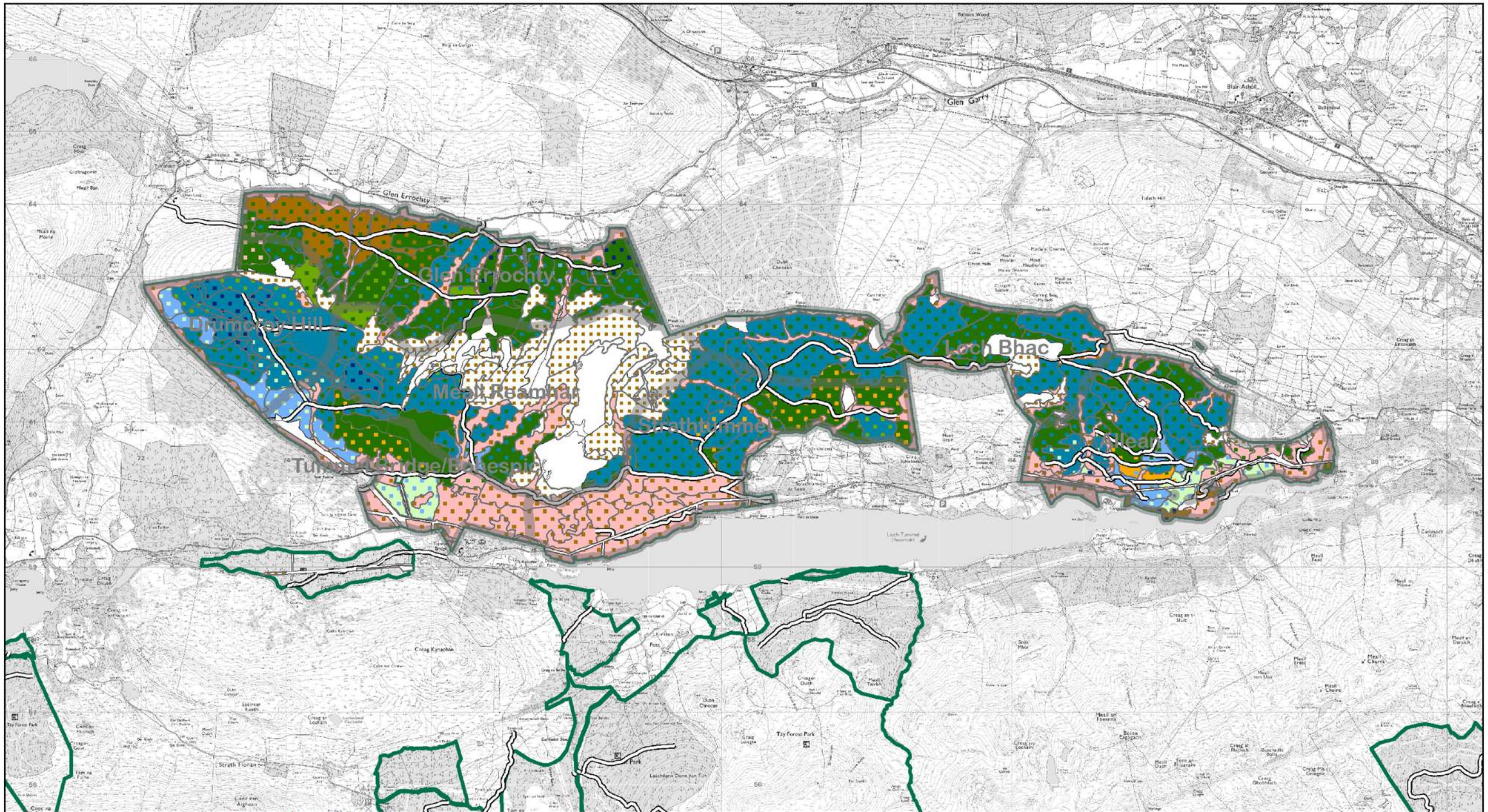
Forest Enterprise Scotland

Managing the National Forest Estate

Forestry Commission Scotland
Coimisean na Coilltearachd Alba



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
All Zones
Restocking Coupes

Sitka spruce (SS)
Norway spruce (NS)
Lodgepole pine (LP)
Scots pine (SP)
Larch sp (EL/HL/JL)
Douglas fir (DF)
Mixed/ other conifers (MC/XC)
Birch (BI)
Oak (OK)
Ash (AH)
Beech (BE)
Mixed/ other broadleaves (MB/XB)
Open land
Species Mixture: Main colour = Dominant species
Dots = Secondary species
Sitka spruce with Birch shown here
North Tummel Zones

N

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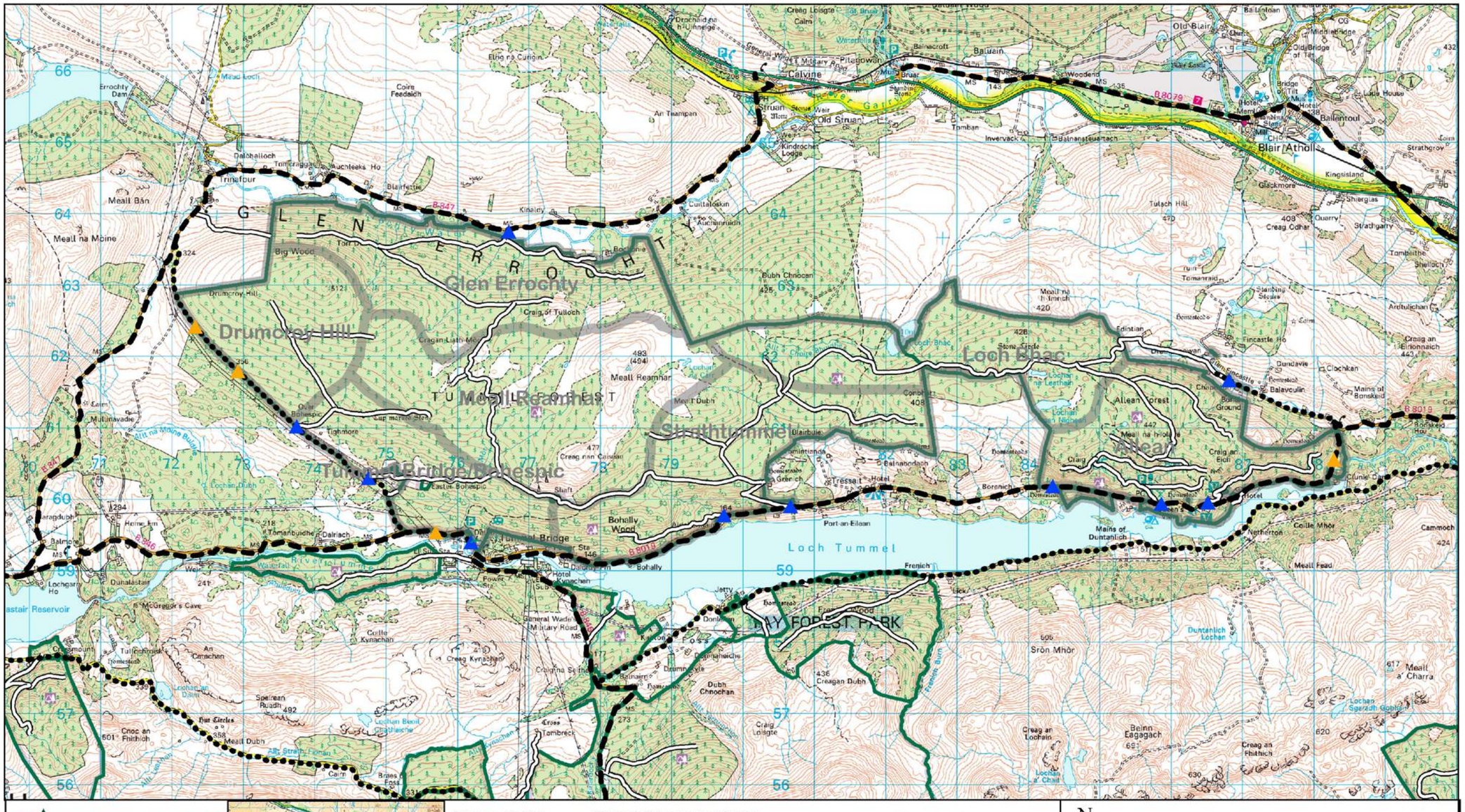

Tay Forest District
North Tummel
Access & Timber Transport

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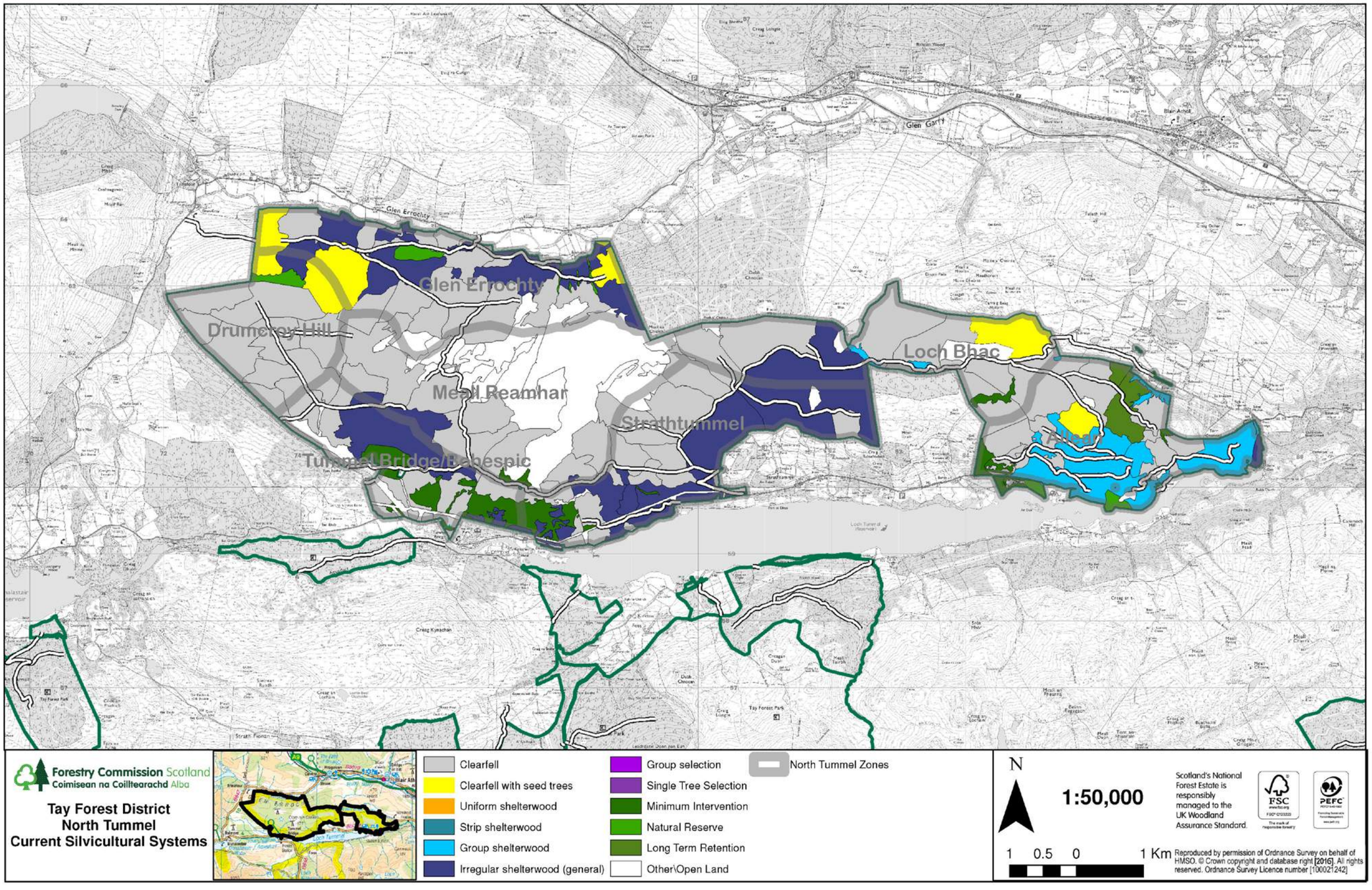
Glen Garry
Glen Errochty
Glen Errochty
Drumochter Hill
Meall Reamhar
Strathtummel
Tummel Bridge/Bohespic
Loch Bhac
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Current Silvicultural Systems
Clearfell
Clearfell with seed trees
Uniform shelterwood
Strip shelterwood
Group shelterwood
Irregular shelterwood (general)
Group selection
Single Tree Selection
Minimum Intervention
Natural Reserve
Long Term Retention
Other\Open Land
North Tummel Zones
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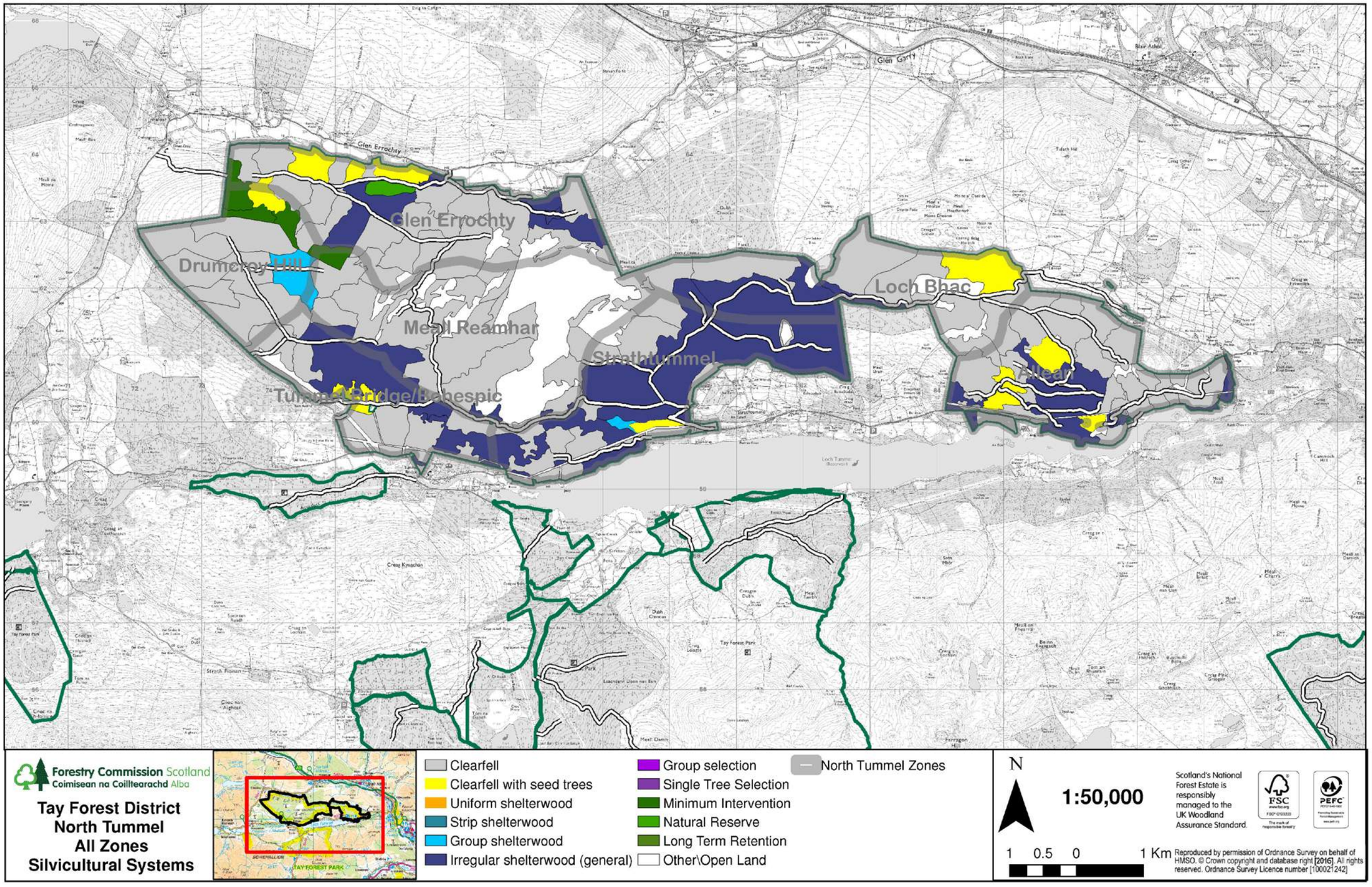
Glen Errochty
Drumchastle Hill
Meall Reamhar
Strathtummel
Tummel Bridge/Bohespic
Loch Bhac
Allean
Glen Garry
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
All Zones
Silvicultural Systems
TAY FOREST PARK
Clearfell
Clearfell with seed trees
Uniform shelterwood
Strip shelterwood
Group shelterwood
Irregular shelterwood (general)
Group selection
Single Tree Selection
Minimum Intervention
Natural Reserve
Long Term Retention
Other\Open Land
North Tummel Zones
N
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1.0 Introduction:

1.1 The existing land holding and location

The North Tummel forest block is situated on the north shore of Loch Tummel and covers an area of 3954 ha. Because of its size and geographic composition the North Tummel area contains a wide variety of ecotypes which support a mixture of proposed land uses as described in this LMP.

On the higher slopes the environmental conditions are a limiting factor. This has resulted in limited diversity of tree species and a patchwork of open ground and woodland. Because of the low yield classes and the windy conditions these areas are currently mostly un-thinned and are managed through the clearfell system. The open ground forms an important asset on these areas, although not in terms of tree cover but in carbon accumulation potential and environmental benefits.

The lower-slope soils are very fertile and planted with mixed species which result in a diverse tree species composition including some of the best conifers in the District. In terms of the silvicultural management these areas are managed under a combination of continuous-cover and clearfell regimes. These lower slopes are also predominantly classified as Plantations on Ancient Woodland Sites (PAWS) areas and also have important environmental, landscape and niche timber market contribution values.

1.2 Setting and context

Focus for this LMP is the integration of two earlier Forest Design Plans (FDPs), namely Allean and Errochty, into a single North Tummel plan. The previous forest design plan covering Allean was last approved on the January 2012 and was set to expire 6th of January 2022. The previous plan for Errochty was last approved October 2006 and was set to expire 18th of October 2016, but was extended to allow preparation of this LMP.

The bulk of the forest area was established from the late 1950s and throughout the 1960s, however Allean was established in the 1940s, and planting continued in smaller areas into the 1970s.

The eastern end of the block (Allean) consists of complex, intimate terrain with a number of small scale summits, steep gradients and mixed species composition. This area plays an important role in the setting of Loch Tummel, particularly for producing good autumn colours that help this area be considered a National Scenic Area (NSA). The western end (Errochty) consists mainly of larger management coupes with a good timber production potential. The lower slopes are more complex and have a good proportion of broadleaved cover. The majority of the south-facing slopes of North Tummel are fertile and are classified as PAWS. These areas also have good potential for alternative conifer species such as western red cedar (*Thuja plicata*), various true firs (*Abies* spp.) or Douglas fir (*Pseudotsuga menziesii*). The areas also link to existing native broadleaves around StrathTummel.

The north facing areas of North Tummel have generally poorer soils and lower growth potential but are well suited to Scots pine (*Pinus sylvestris*) on the higher elevations and Sitka spruce (*Picea sitchensis*) on the wetter or more fertile soils on the lower slopes. The slopes of Glen Errochty also hold PAWS areas with some adjoining native broadleaved woodland.

The block is surrounded by a good public road network. The B8019 runs adjacent to the block on the southern periphery, the B847 on the northern and north-western periphery and C453 on the western periphery. The B8019 and B847 are both classified as agreed timber haulage routes and the C453 road is a consultation route (Timber Transport Forum 2017).

There are six entrances which give access to the block. Four of these can be used to access the major internal road system, whereas two of these (easternmost Allean entrance and westernmost Drumcroy Hill entrance) are shorter sections which just give access to some of the coupes which would be otherwise isolated. Of these six entrances, four are connected to agreed routes for timber haulage, and two are connected to the C453 consultation route.

North Tummel is known to hold five of the six Forestry Commission Scotland (FCS) priority species. Capercaillie (*Tetrao urogallus*), black grouse (*Tetrao tetrix*) red squirrel (*Sciurus vulgaris*), pearl bordered fritillary (*Boloria euphrosyne*) and juniper (*Juniperus communis*) are to be found inside the block.

Although there are no populations inside the management area, conservation of Atlantic salmon (*Salmo salar*) and freshwater pearl mussel (*Margaritifera margaritifera*) is influenced through the quality of water leaving the management block and expansion of riparian woodland to help drive natural processes. All watercourses from the management area flow into the River Tay Special Area for Conservation (SAC)

Other important species present in North Tummel are Kentish glory (*Endromis versicolora*), northern brown argus (*Aricia artaxerxes*) and pine marten (*Martes martes*).

The management area has high deer pressure along north, east and west boundaries, exacerbated by incomplete fencing, and future restocking plans are contingent on reinstating fencing and controlling deer numbers internally.

The Meall Reamhar Site of Special Scientific Interest (SSSI) is located in North Tummel and is designated for its geological interest, which can be easily accessed, observed and studied by visitors.

There are several areas visited by a variety of user groups for their archaeological and recreation value. There is a strong cultural heritage theme within the forest which hosts an Iron Age ring-fort and remnants of an abandoned township. The latter includes a reconstructed clachan which serves as a key interpretive feature.

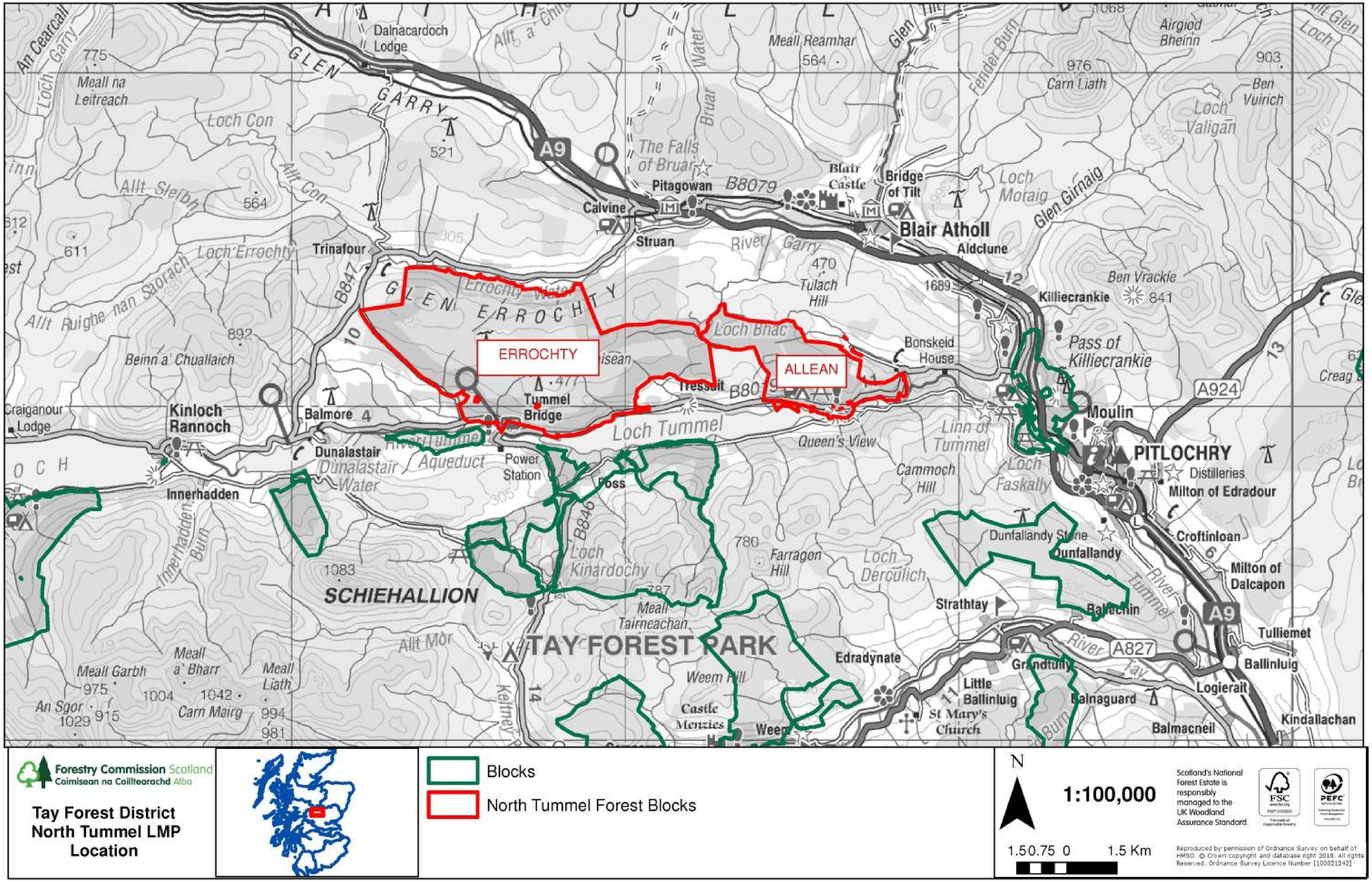
The forest block also contains on its periphery the famous Queen's View with associated visitor centre. This has a forest shop, café, view point trail and car park and is heavily used by coach tours as well as being signposted from the A9. There are also a number of way-marked trails and a picnic area with impressive views down Loch Tummel.

The surrounding land uses consist of a variety of housing, recreational and caravan areas, agriculture, forestry, open hill, and water bodies. Of these, the housing, recreational areas, caravan park sites, agriculture and Loch Tummel are located at the southern side of the block. On the northern, eastern, and western sides the surrounding land use is mainly forestry and open hill land, although some housing and arable agriculture is also present. Loch Bhac within the block is well used for angling, with the main access to it via the forest road network.

Typical of highland Perthshire, tourism is a major industry and Loch Tummel-side is a popular route for individuals and tour parties who either pass through on route to other local destinations or stop at the Queen's View or Allean forest carpark. A seasonal campsite borders Allean, catering for static caravans, as well as touring motor homes, caravans, etc. The campsite and domestic properties nearby are reliant on water from the forest.

The management area contains a large amount of utilities infrastructure; transmission lines along the southern borders of Errochty and Allean, the Beauly Denny transmission lines along the western border of Erroctby, and a surge shaft and associated infrastructure for the hydro power station.

Key Features are illustrated on the Context Maps.


ERROCHTY
ALLEAN
Glen Errochty
Loch Tummel
Tummel Bridge
Kinloch Rannoch
Blair Atholl
Killiecrankie
Pass of Killiecrankie
PITLOCHRY
Moulin
Queen's View
Loch Faskally
SCHIEHALLION
TAY FOREST PARK
Calvine
Struan
Trinafour
Dalnacardoch Lodge
Innerhadden
Dunalastair
Strathtay
Edradynate
Weem
Logierait
Ballinluig
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel LMP
Location
Blocks
North Tummel Forest Blocks
N
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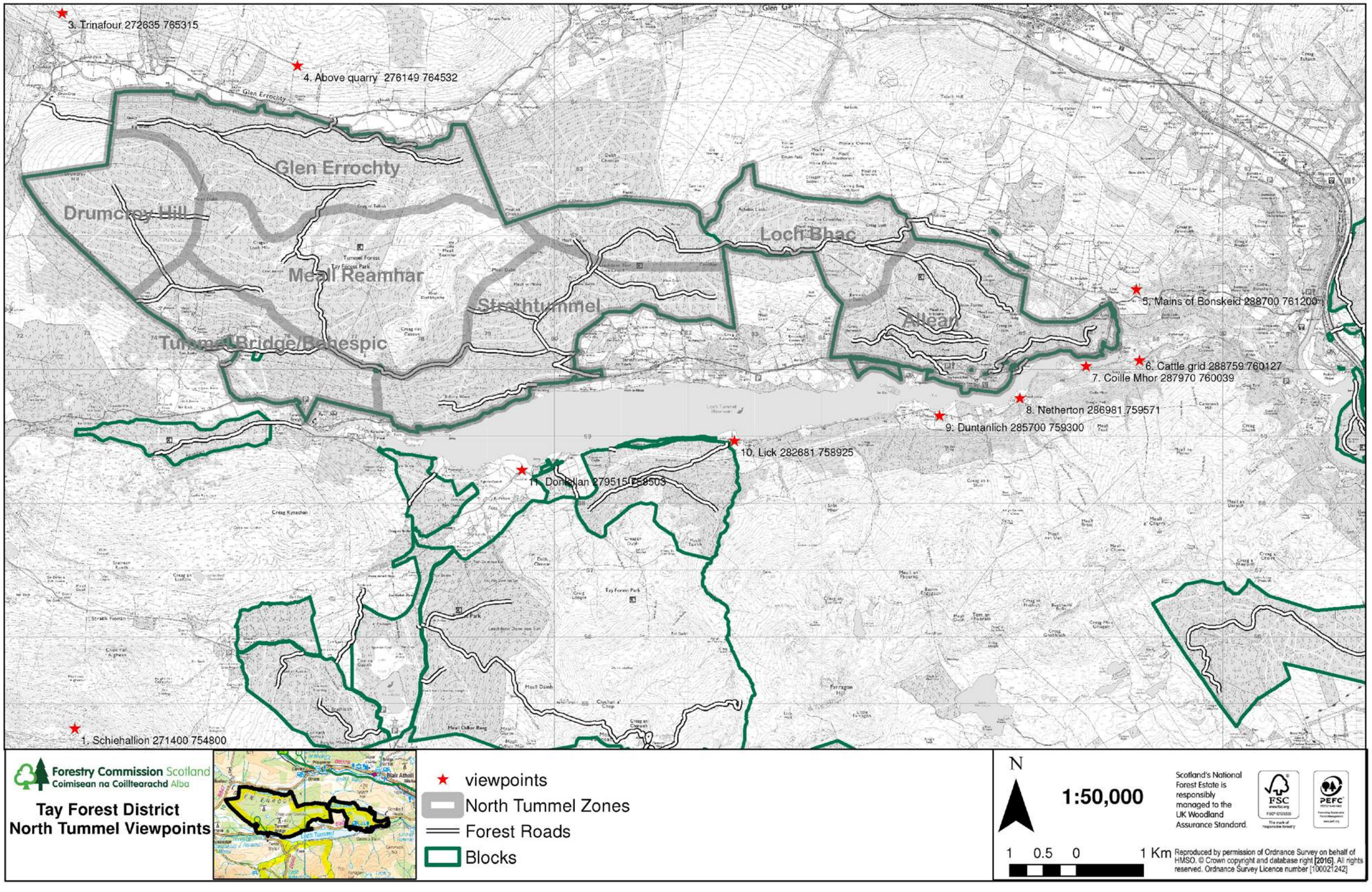
3. Trinafour 272635 765315
4. Above quarry 276149 764532
Glen Errochty
Drumchoy Hill
Meall Reamhar
Strathtummel
Tummel Bridge/Bohespic
Loch Bhac
Allean
5. Mains of Bonskeid 288700 761200
6. Cattle grid 288759 760127
7. Coille Mhor 287970 760039
8. Netherton 286981 759571
9. Duntanlich 285700 759300
10. Lick 282681 758925
11. Dontallan 279515 758503
1. Schiehallion 271400 754800
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel Viewpoints
viewpoints
North Tummel Zones
Forest Roads
Blocks
N
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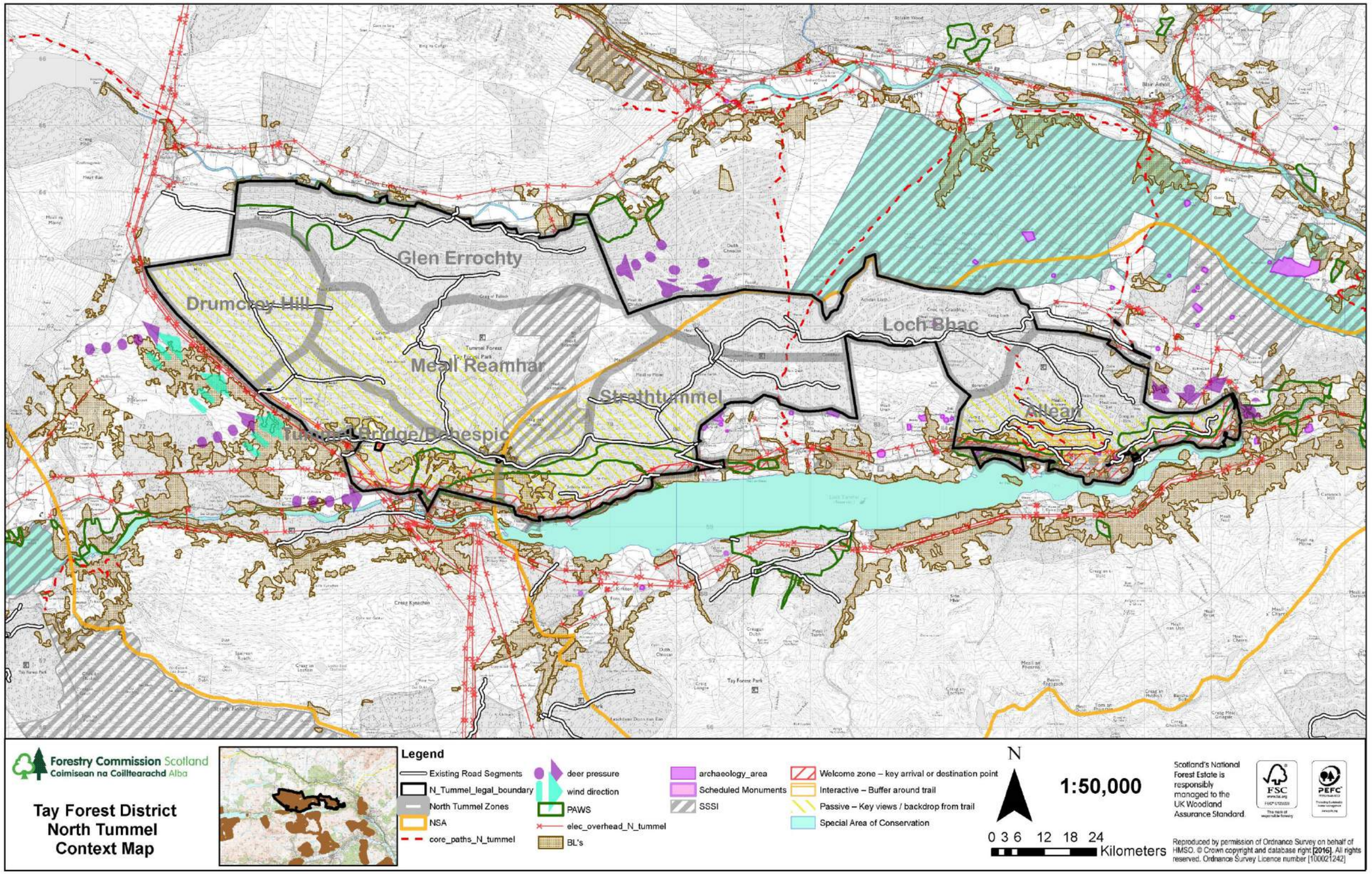
Glen Errochty
Drumcrey Hill
Meall Reamhar
Tummel Bridge/Bohespic
Strathtummel
Loch Bhac
Allear
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Context Map
Legend
Existing Road Segments
N_Tummel_legal_boundary
North Tummel Zones
NSA
core_paths_N_tummel
deer pressure
wind direction
PAWS
elec_overhead_N_tummel
BL's
archaeology_area
Scheduled Monuments
SSSI
Welcome zone – key arrival or destination point
Interactive – Buffer around trail
Passive – Key views / backdrop from trail
Special Area of Conservation
N
1:50,000
0 3 6 12 18 24
Kilometers
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2.0 North Tummel LMP Objectives

2.1 Management objectives

Following the review of the previous plan (See Appendix I), an analysis of the scoping responses (See Appendix V), and the special aspects identified in each management zone, the following management objectives were identified for the whole North Tummel plan area:

Primary: Timber production (Sustainable forestry management)
Secondary: Landscape improvement, PAWS restoration and SSSI site management, Archaeology, and Community and recreation management.

As this LMP covers a very large area, additional objectives have been identified in each management zone, leading to concept and proposals. This way the unique factors of these zones are captured and can be used to drive the overall management. These zone specific objectives are explained in the Sections 3 – 9 of this LMP.

2.2 Analysis and Concept

North Tummel is a diverse forest with a complex set of dynamics which range from high landscape value, archaeology, biodiversity, clearfelling forestry, continuous cover forestry, timely/late/un-thinned sites, PAWS management, remnant semi-natural native woodland and forest recreation which includes trails, picnic sites, fishing and motor sport events.

Objective	Opportunities	Constraint	Concept
Ensure the forest is managed in a sustainable way	• CCF is already well initiated across the forest block. • Areas with poor timber quality are good areas for environmental objectives. • The soils and aspect ensure that most species will grow well • The Western part is dry, grows good timber, is easy to access, has good roads, with good quarries to serve them.	• There are challenges to some CCF areas, particularly in the East: risk of *Phytophthora ramorum* in larch crops; halo thinned broadleaves require further management; PAWS areas under conifers; steep ground working with adjacent roads and utilities.	• Review all the CCF areas. • Assess the top line for productive timber and how this fits into environmental objectives.
Ensure the quality and volume of timber production is maintained or enhanced	• Improved tree quality • encouraged natural regeneration,	Removal of areas of Larch due to moratorium on planting and PAWS restoration and replacement with native trees will reduce productive timber potential.	• Ensure timely thinning continues to be carried, particularly in CCF areas. • Monitor and promote regeneration of stands
Ensure the effects of wind blow are kept to a minimum	• Most of the forest block has had timely thinning.	• Large areas were planted within a few years, of limited species and with few wind firm edges making restructuring difficult without windblow	• Fell into the wind where possible, using large coupes where appropriate in landscape terms. • Establish future wide rides in younger crops to prevent reiterating the problem.
Manage the risk posed by future potential infections of larch within the forest block by *Phytophthora ramorum* by planning removal on difficult sites.	• Phytophthora ramorum is not yet present in the plan area, giving a brief window to plan.	• *Phytophthora ramorum* has been identified very close to the Eastern end of the plan area. • There are a number of issues to overcome such as powerline switch offs, steep ground working and sites next to the B8019: a major tourist route	• Prioritise felling of larch areas which are most difficult to extract so that this can be achieved in a controlled manner.
Ensure the characteristics of the NSA (‘*rich and varied woodland’*, ‘*constant but changing colours throughout the seasons’*) are maintained and expanded.	• There are opportunities to expand further West the characteristic of “rich and varied woodland with autumnal colours” of the Eastern end in Allean. • Queen’s View sits within NSA but looks outwards towards Schiehallion and south Tummel, and other than maintaining the view over the trees directly in front of it, there is little of North Tummel that influences the view.	• Larch may be affected by *Phytophora* at some point. As this is the main species producing the autumn colour that gives the NSA its quality, replacement species need to be considered. • The road along North Tummel is heavily used by sightseers (Lochs and Glens type tours especially), so the visitor experience in this Visitor Zone is important.	• Plant a variety of species, with regard to the seasonal change of colours.
Ensure that coupes are appropriately scaled and shaped to relate to the landform, especially as viewed from key viewpoints	• There are well established areas of LISS on the lower slopes as a permanent element of the forest.	• Some of the most visible parts of the forest have few wind firm edges, and those that are there, are not well shaped with regard to the landform.	• The simplicity and scale of the landform can take large coupes at the Western end. • Younger crops can have rides cut through at thinning to give more choice for the future.
Ensure the conversion to native species on	• Most of the PAWS areas do have an	• Stands of award-winning Doulas fir	• PAWS conversion will be long-term on areas

PAWS sites is continued.	element of native trees in them as a seed source • The most difficult Larch harvesting sites are on PAWS areas; its early removal will instigate the conversion to PAWS.	which are a national seed-source are within the PAWS area. • PAWS restoration may be difficult in conifer-dominated CCF areas on the lower slopes • Native broadleaves along water courses are a high PAWS priority and therefore a priority to protect from deer	with Douglas fir. This will be offset by the early removal of larch in other PAWS areas.
Work with SNH on managing the SSSI site or impacts on SSSI sites	• Agreement is already in place with SNH on managing the SSSI. • Grazing to keep the vegetation clear of the geological interest is an option.	• Some of the better parts of the geology appear within forested areas, and some poorer areas fall within the SSSI. • Watercourses and loch Bhac may affect the limestone if it drains into the SSSI limestone area.	• Adopt a pragmatic approach to managing the best examples, rather than strictly the SSSI boundary. • Instigate and monitor management with grazing.
Work with SEPA on managing for the River Tay SAC, and assess where improvements can be best made.	• Any change in species for SAC protection will also improve the general riparian habitat and linkage. Most of these areas also fall into PAWS areas.	• The SAC covers all of Loch Tummel and Errochty Water, running along the two long sides of the forest block. Its quality will be affected by virtually any management in any part of the forest.	• Remove those areas of conifers most affecting the SAC within this plan timescale. • Ensure any felling works do not adversely affect the SAC.
Enhance priority habitats such as peatland to help create the environment for priority species such as Black Grouse and Capercaillie	• A survey of peatland to be restored has been undertaken. Much of the higher ground with poor tree growth would be a good habitat for Black Grouse and Capercaillie.	• The peatland is not as extensive as previously thought. • Access is challenging in this area due to the wet soils. • Expansion West of the native woodland/open habitat on Cragan Liath Mor is slow to evolve and would have to be long term	• Restore identified peatland • Expand the suitable habitat across the plateau.
Ensure the Historic environment is protected and accessible	• There are a number of well-maintained and accessible scheduled monuments which have good interpretation	• There are historic features close to the FC boundary that do not have a suitable buffer between them and the commercial forest	• Manage areas around key monuments to maintain and improve visitor experience. • Restructure forest edge to favour boundary features
Ensure management for visitor zone areas are well integrated into the LMP.	• The diversity of the woodland and CCF lend themselves to the human scale	• Good soils and robust regeneration can create a corridor of vegetation along the visitor zone corridors	• Consideration should be given to the impact any felling operations or species change will have on the landscape and, in particular, to the iconic view from Queen's View. Options to minimise this impact should be carefully considered during the planning stages of any felling and re-stocking coupes. • Views into the forest and across the loch from the main roads should be created during thinning operations. • Use small scale felling coupes near any Welcome visitor zones.
Protect the iconic view from the Queen's View and enhance the current trails on offer in Allean.	• Good soils give great potential for alternative species which can be used to develop texture and colour on the steep ground of Allean • Chance to re-establish the viewpoint above the Clachan.	• Phytopthora ramorum could necessitate rapid felling of the larch which is a major component of the forest and landscape.	• Develop a more diverse and interesting forest through continued thinning and habitat enhancement. • Develop internal views through careful thinning and external views either by small scale clear felling or heavier thinning. • Consider alternative species to larch which in particular will offer Autumn colour
Increase the protection from herbivores in a timely manner, to protect the planting of soft species, and natural colonisation and regeneration.	• A proportion of deer fence is already in place.	• The deer fence is needed in three locations in order to ring fence the whole block. • Substantial shooting intervention will still be needed to ensure the success of the planting/regeneration.	• Complete the deer fence during this design period
Ensure there are timely	• The existing roads are	• There is some shared	• Identify road

road improvements to access coupes that need management.	generally in good condition • Good quarries exist within the plan area	access with neighbours and this will need to be kept up to standard, and the neighbours kept informed. • Requirement for EIA determination for worked quarries • Requirement for prior notification and potentially planning permission of roads work • Part of management area is within NSA and will have a higher bar	construction, upgrade or maintenance required for Phase 1 and 2 felling, and programmed thinning. • Identify and obtain suitable permissions for development

2.3 Implementation of the objectives

The objectives which extend across the whole of the LMP area will inform the management of the land across all the management zones. Opportunities to implement the approach to taking forward the objectives, as outlined in the 'concept column' above, will be identified in all the management zones wherever possible.

3.0 Zone Information - Drumcroy Hill

- The Drumcroy Hill zone has one dominant hill, elevated even slopes and a dominant west facing ridge, which is exposed to the prevailing wind.
- It is a medium to large-scale simple landscape, with limited diversity.
- There are no major watercourses within this zone.
- The crop is highly productive, even-aged commercial conifer with large coupe sizes, creating a sequencing challenge.
- The current coupe structure takes little account of the landform, with coupe boundaries meeting at the top of Drumcroy Hill, straight lined internal coupes, as well as very straight boundary lines going abruptly from forestry to grazed moorland. These are visually intrusive as they jar with the natural landform, as well as potentially being more prone to windblow.
- The only current open spaces in this zone are felled coupes. There is a desire to expand native scrub/peat restoration from the Cragan Liath Mor zone West onto Drumcroy hill. This would be a long term aspiration as there is no directional seed source (wind from SW)
- There are good quality roads, served by a number of active quarries, although network coverage is limited
- Terrain is generally easy.
- There are few working constraints; there are no power lines, dwellings or roads within this area, although there is a minor road as the SW boundary. There are no recreation facilities, or archaeological remains.
- Visually, the majority of the SW boundary can be seen close-up from the minor road as its boundary. The North and West boundaries are very visually intrusive, although to a relatively small audience. There is a quarter slice of Drumcroy Hill which does not belong to the FC, and is managed as open grazing, contrasting sharply with the productive forestry.
- Schiehallion is an important viewpoint, and the boundaries and internal coupe structure can be clearly seen from there.

3.1 Zone specific issues

- Exposed to the western prevailing wind, ongoing windblow problems,
- The road network is limited and restricts access
- Even-aged crop. Consists of homogenous Sitka spruce
- Management coupes from the last FDP do not account the landform.

3.2 Management Objectives for Drumcroy Hill, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Ensure that all coupes have wind firm edges especially if they are exposed to the prevailing wind.	• Neighbouring birch (*Betula spp.*) woodland may cast its seed along the W boundary, which could create a windfirm edge. • New windfirm rides could be established in younger crops to give a greater choice of good coupe shapes in the future.	• Felling is currently chasing wind blow, dictating what, where and how it is felled. • There is a lack of wind firm edges, and most are not shaped to relate to the landscape.	• Restructure the coupes to take into account wind direction, landform and visual effect. Consider internal coupe boundaries especially over Drumcroy Hill. Lower coupes will follow on from this, working round the hill. • Fell larger coupes to maximise timber before wind blow sets in. • Establish new wind firm rides in younger crops to give a greater choice of good coupe shapes in the future, relating to the landscape. • Encourage birch seed to blow in on the prevailing wind from neighbouring woodland to the West to protect the vulnerable Western edge with a permanent screen of broadleaves.
Improve forest road access at an appropriate timing to carry out the forestry works	• Most of the forest road network in this zone is in good condition. • Maximise the use of the quiet public road running along the Western boundary. • Landform is simple and large-scale across the whole of this zone and can take large simple coupes, potentially reducing the length of the roads needed.	• There is a limited access to the western coupes.	• Rather than extending roads within the forest, install access points spurs off the public road. • Maximise simple large felling and restocking coupes to keep road access points to a minimum, whilst keeping the coupe shapes sympathetic to the landform.
Diversify the crop in terms of species and sequencing whilst maximising high productivity.	• About 1/3 has been felled and restocked in the past 12 years, starting to diversify the sequencing, if not the species. • Optimum crop species is Sitka spruce for a large proportion of this zone, but the good soils and Southwest facing slopes provide an opportunity to plant alternative species. • There is an opportunity to make use of the neighbouring Birch casting its seed onto the Western boundary.	• Sequencing diversity is challenging as all the crop was planted within three years, and windblow is spreading. Optimal felling age for the majority of the crop is within a short window. • Lack of wind firm edges gives sequencing challenges. • Diversification of species will reduce volume production, and may require more management, but may produce higher value crops.	• Create larger felling coupes sympathetic to the landform, to deal with the sequencing before it suffers from wind blow. • Plant alternative species crops needing most management nearest to proposed forest road access points. • Allow for birch regeneration along the Western boundary.
Ensure that all coupes are well scaled and shaped to relate to the landform from viewpoints, especially when viewed from Schiehallion.	• Landform is simple and large-scale across the whole of this zone and can take large, simple coupes. There are no dwellings or visitor zones requiring smaller scale coupes. • Neighbouring land to the North-West is to be planted soon and there should be an opportunity to work with	• Recent felling coupes have left acute angles and straight lines that will not be resolved in this 10 year plan. The Northern and Western boundaries are currently very stark. • Current wind firm edges are not well shaped, but may have to be used to discourage further wind	• Work with neighbours to produce a cohesive whole in terms of species selection and positioning, concentrating particularly on the Northern and Western boundary between the two. • Use large coupes using the most suitable wind firm edges that are sympathetic to the landform from a landscape point of view.

	the neighbours to create a more cohesive whole on Drumcroy Hill.	blow.	• Ensure that existing young crops have rides that allow a choice for the future whilst still being shaped to relate to the landform. • Resolve less than ideal felling shapes at restock stage.
Ensure new planting is protected from deer and other herbivores.	• Completing the deer fence along the Western boundary will help with natural colonisation from the birch on neighbouring land to the West.	• Fences elsewhere may have higher priority than erecting a deer fence along the Western boundary, so regeneration may be hampered for a few years until the fence is complete.	• Work programme and budget for erecting a deer fence when possible financially. • Increase deer culling along this Western boundary if needed in the meantime.

3.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located on this zone is uniform in terms of its age and species. The aim over the next 10 years is to begin the gradual process of diversifying both of these aspects. The clearfelling is proposed to be started from the eastern end of the zone to minimise the losses because of the windblow. As some of the crop already suffers from windblow these areas are proposed to be tidied, and then restocked to return these sites to productive capacity.

There will be an area where a form of group-shelterwood is trialled. Existing pockets of windblow will be cleared and used as regeneration loci. Planting rather than natural regeneration will used initially as the crop has had little development to increase seeding capacity. The matrix will receive a graduated thinning, removing a greater proportion of the crop on the windward side of groups to increase individual tree stability and develop crowns for seed production. Successive (3-4) thinnings will expand groups into the prevailing wind. In case this trial is not successful it is proposed that the area is changed to be managed under a clearfelling regime.

Phase 2 and 3 coupes in the north of the zone and straddling into Glen Errochty are adjacent. Felling will occur in early phase 2 and felling will only occur late in phase 3 when restocking has achieved to avoid adjacency issues.

Thinning:

The thinning proposals for this zone over this plan period consist of a mixture of first thinnings and subsequent thinnings. The higher elevations are likely to be unthinable in the next rotation because of wet soils and high exposure, but most of this zone will offer a good opportunity for thinning operations. Currently much of the zone consists of clearfell coupes which should not be thinned as a part of the on-going rotation, but are viable for thinning after a clearfell in the next rotation. Lack of timely thinnings in the past has resulted in these coupes not developing stable trees, therefore late thinning would carry a high risk of severe windthrow. The zone can grow very good quality timber and it's important that the first thinnings take place appropriately.

As a part of the future first thinning operations wide rides will be cut around the perimeter of the coupes to stabilise the crop in the thinned and adjacent felling coupes.

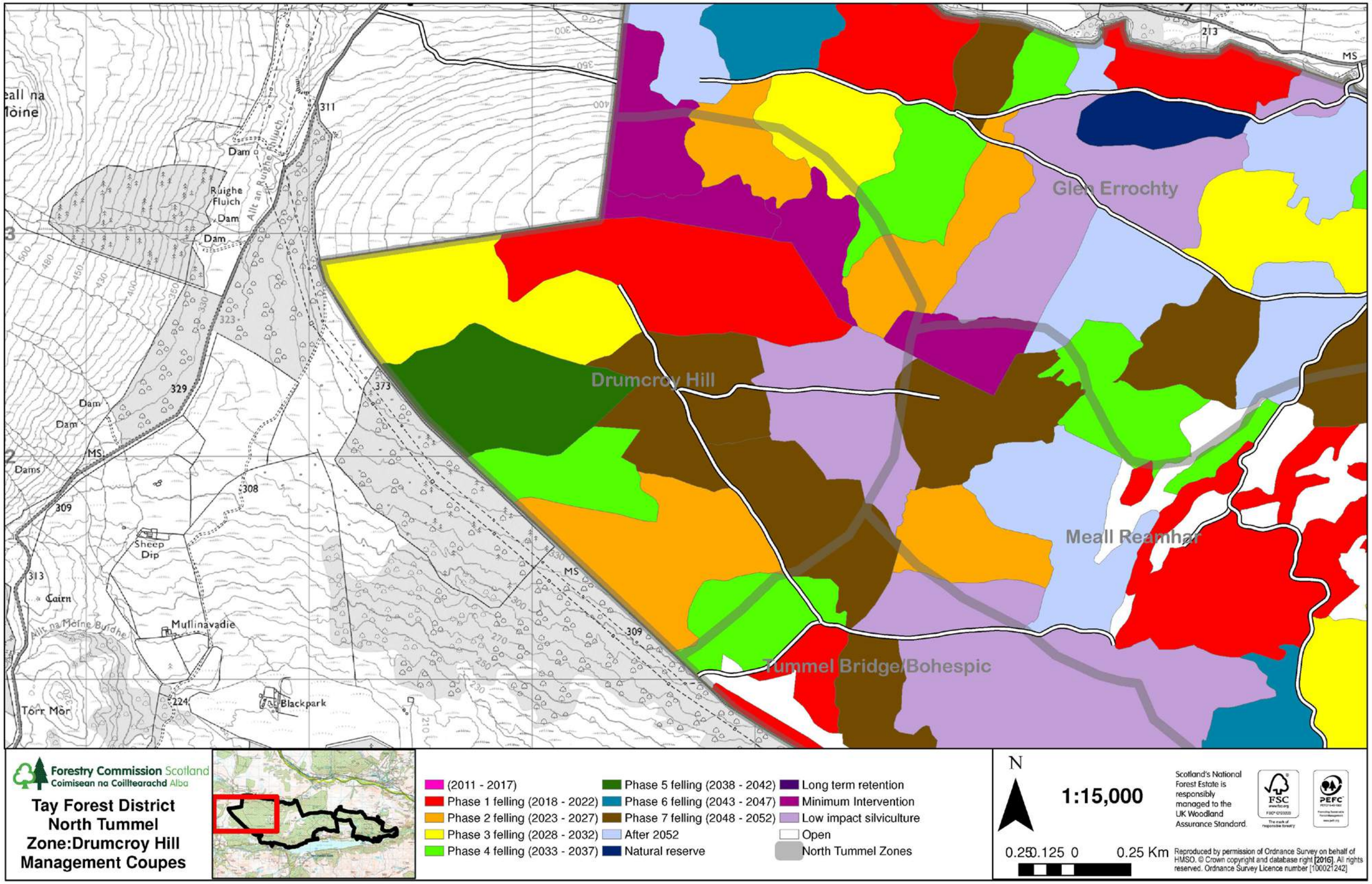
Infrastructure:

Overall the internal infrastructure of this zone is good. The roads are currently in a good working order and are maintained to allow the management operations in the future. In terms of the new infrastructure two new access points need to be built over this LMP to provide access to the coupes which would otherwise stay isolated. Of these two access points the southern one is more urgent as it is needed during the second half of the plan to assist the timber extraction from the phase II coupe. The northern turning point will provide access and stacking area to the phase III coupe and should be constructed over the latter half of this LMP. Authorisations will be sought closer to the start of work to ensure that approval does not expire before it is required.

3.4 Habitats and species proposals for the plan period

The next 10 year plan will start to diversify the species composition of this zone. Sitka spruce will stay a core component, but species such as Norway spruce, Douglas fir, western red cedar grand fir, European silver fir (*Abies alba*), Macedonian pine (*Pinus peuce*), and Scots pine are proposed to be planted as a variety of mixtures depending on the soil conditions.

Over the plan period there will be two coupes clearfelled, and one of these is in phase I which then will likely go through restocking before the next LMP takes place. This coupe is located at the higher elevation and as a result the main restock species are Sitka spruce and lodgepole pine, although some grand fir and western red cedar are proposed to be planted on wet areas. The highest elevations are proposed to be restocked by birch and mixed broadleaves to promote habitat and landscape connectivity.



Glen Errochty
Drumcroy Hill
Meall Reamhar
Tummel Bridge/Bohespic
Ruighe Fluich
Dam
Sheep Dip
Cairn
Mullinavadie
Blackpark
Torr Mòr
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Zone:Drumcroy Hill
Management Coupes
(2011 - 2017)
Phase 1 felling (2018 - 2022)
Phase 2 felling (2023 - 2027)
Phase 3 felling (2028 - 2032)
Phase 4 felling (2033 - 2037)
Phase 5 felling (2038 - 2042)
Phase 6 felling (2043 - 2047)
Phase 7 felling (2048 - 2052)
After 2052
Natural reserve
Long term retention
Minimum Intervention
Low impact silviculture
Open
North Tummel Zones
N
1:15,000
0.250.125 0 0.25 Km
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FSC
PEFC
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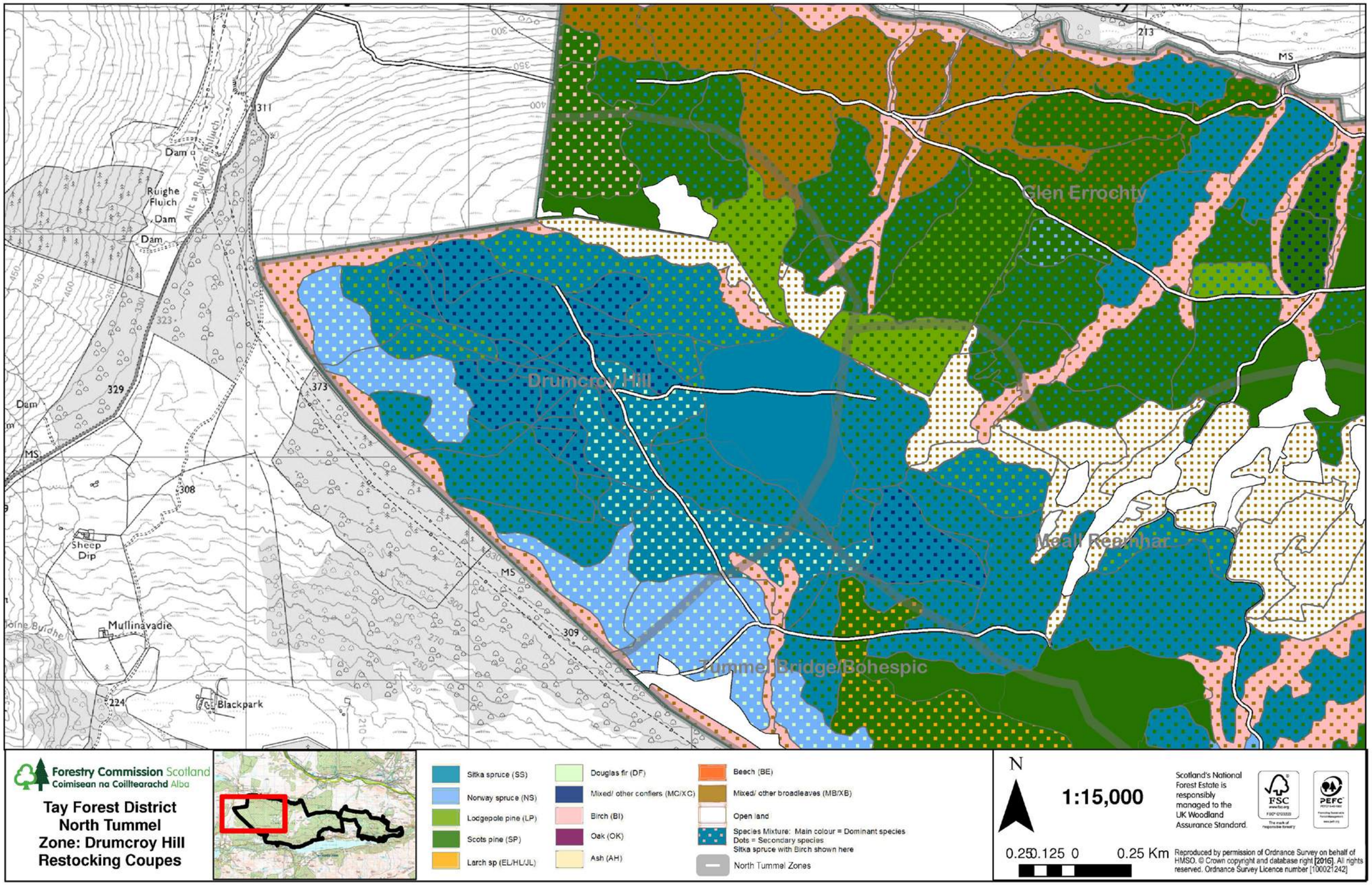
Glen Errochty
Drumcroy Hill
Meall Reamhar
Tummel Bridge/Bohespic
Dam
Ruighe Fluich
Dam
Dam
Allt an Ruighe Fluich
Dam
Sheep Dip
Mullinavadie
Blackpark
MS
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373
308
309
213
224
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Zone: Drumcroy Hill
Restocking Coupes
Sitka spruce (SS)
Norway spruce (NS)
Lodgepole pine (LP)
Scots pine (SP)
Larch sp (EL/HL/JL)
Douglas fir (DF)
Mixed/ other conifers (MC/XC)
Birch (BI)
Oak (OK)
Ash (AH)
Beech (BE)
Mixed/ other broadleaves (MB/XB)
Open land
Species Mixture: Main colour = Dominant species
Dots = Secondary species
Sitka spruce with Birch shown here
North Tummel Zones
N
1:15,000
0.25 0.125 0 0.25 Km
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4.0 Zone Information - Glen Errochty

- This is a medium scale landscape with some complexity in the landform of the lower slopes of Glen Errochty.
- Slopes are north facing, quite sheltered, steep, but becoming shallower lower down.
- There are a number of watercourses flowing North into Errochty Water, some to the East of this zone are quite incised, and can be difficult to cross.
- The River Errochty is North of the plan boundary, winding sinuously through Glen Errochty. It has a flood plain 100-400 m wide and occasionally extending into the forested areas. In the East of this zone, Errochty Water is about 400m away from the forest edge. In the West of the zone, there is neighbouring woodland between Errochty Water and the forest. Between, the conifer crop is adjacent to the Errochty Water with no buffer for run off. As Errochty Water is part of the Tay SAC, this is an important environmental issue. Options to find the most pragmatic way of dealing with this are needed, and the sequence and timing will be related to the water run-off.
- The crop is quite even-aged, however, the Scots pine is mid-rotation, and the Sitka spruce towards the end of its rotation, providing more options for phasing coupes. Some spruce has blown over and needs to be cleared. The pine is Rannoch provenance, has had no ground preparation, is slow growing and has a more natural form. Most of the spruce has been thinned but some of the pine has not.
- There are native broadleaves scattered throughout this area, mainly along Errochty Water, providing a base on which to protect and expand the riparian broadleaf habitat. Retaining and expanding broadleaves on water courses is a high PAWS priority. In order to do this it is important that it is protected from deer.
- Harvesting coupe access requires extension of the road network or greater use of forwarder tracks.
- There is no utilities infrastructure passing through this zone. The B847 passes North of it along the glen floor.
- There are a couple of farms and some grazing land bordering the boundary. Shelter and an appropriate scale and shape of coupes in the vicinity will need to be considered.
- There is no formal recreation in this zone.
- There is a view of this zone from the minor road running North from Trinafour, however this is a minor viewpoint.

	connectivity. • The SP could create a native SP woodland as a long term aspiration	for broadleaves. • A switch to broadleaves would reduce conifer productivity in the local area.	• Establishing more of a seed source in the PAWS area, and protecting what is already there, could help to reduce costs by working with natural regeneration in the future.
Improve and extend the short section of road to the East of this zone to allow access to unmaintained crop.	• A completed road would allow for the crop along the riparian zone to be removed and planted with broadleaves, and for larch to be removed if necessary.	• The current section of road is in poor condition, and two burns are hampering the extension of this road. • There is a risk of pollution into the Errochty Water SAC during the building of the road.	• Road will need upgrading, but not the full length. Put back thinning coupe and clearfells to allow more time to business plan road upgrade and infrastructure (such as ramps and culverts). • Ensure all water quality guidelines are adhered to, during the road construction phase.
Complete the deer fence along the Eastern and Northern boundary round the neighbouring forest.	• A large section of the fence has already been completed. A complete deer fence would protect the broadleaves planned along Errochty Water	• There is still a large section of fence to complete to secure from the North which will need budgeting	• Within this plan, this is the joint first priority for deer fence

4.1 Zone specific issues

- Coniferous species overhanging the Errochty Water SAC with no broadleaf riparian buffer.
- Coniferous species that are currently growing on the PAWS areas and which suppress native broadleaf regeneration,
- Presence of multiple watercourses that make the forest operations and civil engineering work a challenge,
- Poor condition deer fence on the eastern boundary, corresponding high deer numbers inside the zone, and poor natural regeneration success. This poor section negates the good fence on the northern boundary,
- Long term management decision needed as to which species are kept in mixtures of Scots pine and Sitka spruce.

4.2 Management Objectives, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Improve the quality of water exiting the forest into the SAC of Errochty Water	• Removing conifers by the river benefits the PAWS area and riparian habitat too. The more sheltered slopes and fertile soils offer an opportunity to plant broadleaves.	• Access to the coupes closest to the river is hampered by steep ground: a new access track may be required to access parts of this slope during harvesting.	• Prioritise the felling of conifers that are close to the river. Replacement will be with broadleaves on the mainly PAW sites.
Restore the PAWS areas to predominantly native species, and extend broadleaves up the riparian zones.	• Removing non-native conifer and changing to broadleaf and Scots pine will benefit the adjacent SAC through improved water quality and will increase habitat	• Steep ground above the SAC is a constraint in some places. • Browsing pressure may make establishment more expensive due to the increased protection needed	• Spread the rate of change over a longer period of time to reduce cost implications in any particular year. • Convert to broadleaves only when there is a robust deer fence in place locally.

4.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located on this zone currently consists of mainly Scots pine, Sitka spruce, and larch planted within the 1960s (late 50s to early 70s), or since 2010 for second rotation crops. The aim over the next 10 years is to diversify the age structure of this zone and where possible manage the forest through CCF. Priorities are to clear the conifers from within the Errochty Water SAC riparian zone, and replace with broadleaves as part of the PAWS restoration. The proposed clearfelling phase I and II management coupes are to be worked towards the wind, although at the western end of this zone this is not possible because of adjacency guidelines and the age-uniformity of the crop.

Phase 2 and 3 coupes in the west of the zone and straddling into Drumcroy Hill are adjacent. Felling will occur in early phase 2 and felling will only occur late in phase 3 when restocking has achieved 2m height to avoid adjacency issues.

Thinning:

The thinning proposals or this zone over this plan consist of a mixture of first thinnings and subsequent thinnings. Currently much of the zone consists of non-thin clearfell coupes which should not be thinned as a part of the on-going rotation. These coupes are viable for thinning after a clearfell in the next rotation, but thinning as a part of the on-going rotation should be avoided. This is because of the lack of timely thinnings in the past and as a result these coupes are now past their ideal first thinning age. The zone can grow very good quality timber and it's important that the first thinnings take place appropriately. Wind can be a problem, particularly at the western end which highlights further the importance of timely first thinning operations.

As a part of the future first thinning operations wide rides will be added around coupe perimeters to stabilise the crop in the thinned and adjacent coupes.

Infrastructure:

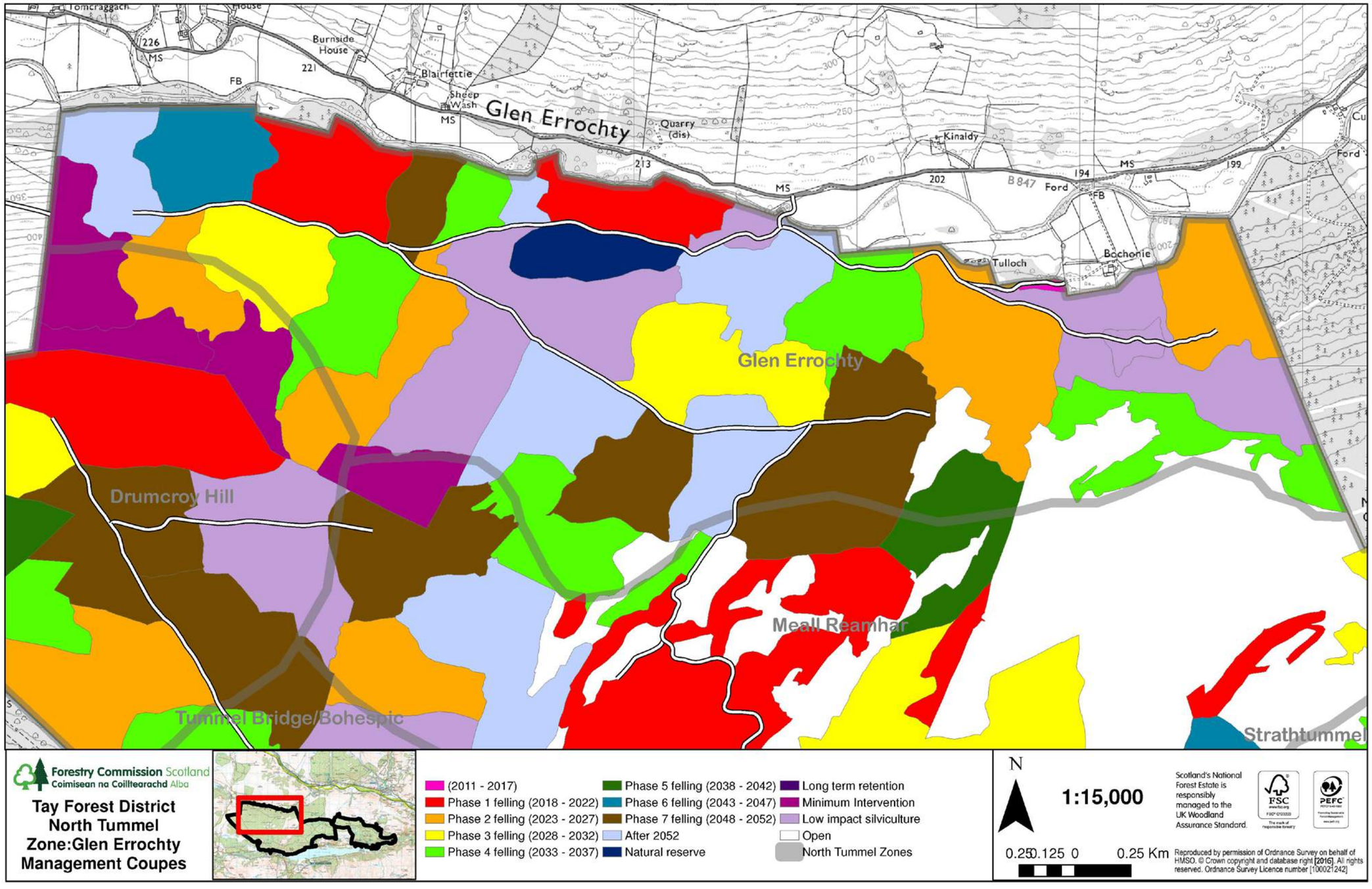
Overall the internal infrastructure of this zone is good and roads are in good condition to allow planned management operations in the future.

During the period of this plan the felling coupes and CCF management in the eastern part of the zone require upgrade of a road section to support timber lorries and the volume that will be extracted from these sites. The successful implementation of this section of the LMP is reliant on this upgrade but the application will be submitted closer to the operation so that the approval period does not expire.

4.4 Future habitats and species proposals for the plan period

Although there is good species diversity in this zone, some of the species do not fit in with the wider management aims. The lower elevations run adjacent to the water and the western half of the zone is mainly PAWS.

As the aspect is north facing it is proposed that the main species on this zone is Scots pine, in a mixture with Sitka spruce, Norway spruce and European silver fir. The PAWS sites are proposed to be restored, and restocked by a variety of mixtures of species such as birch, Scots pine and mixed native broadleaves.


Tomcraggach
House
226
MS
FB
Burnside
House
221
Blairfettie
Sheep
Wash
MS
Glen Errochty
Quarry
(dis)
213
MS
330
300
250
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Kinaldy
202
B 847
Ford
194
FB
MS
199
Ford
Tulloch
Bochonie
Glen Errochty
Drumcroy Hill
Meall Reamhar
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Strathtummel
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0.250.125 0
0.25 Km
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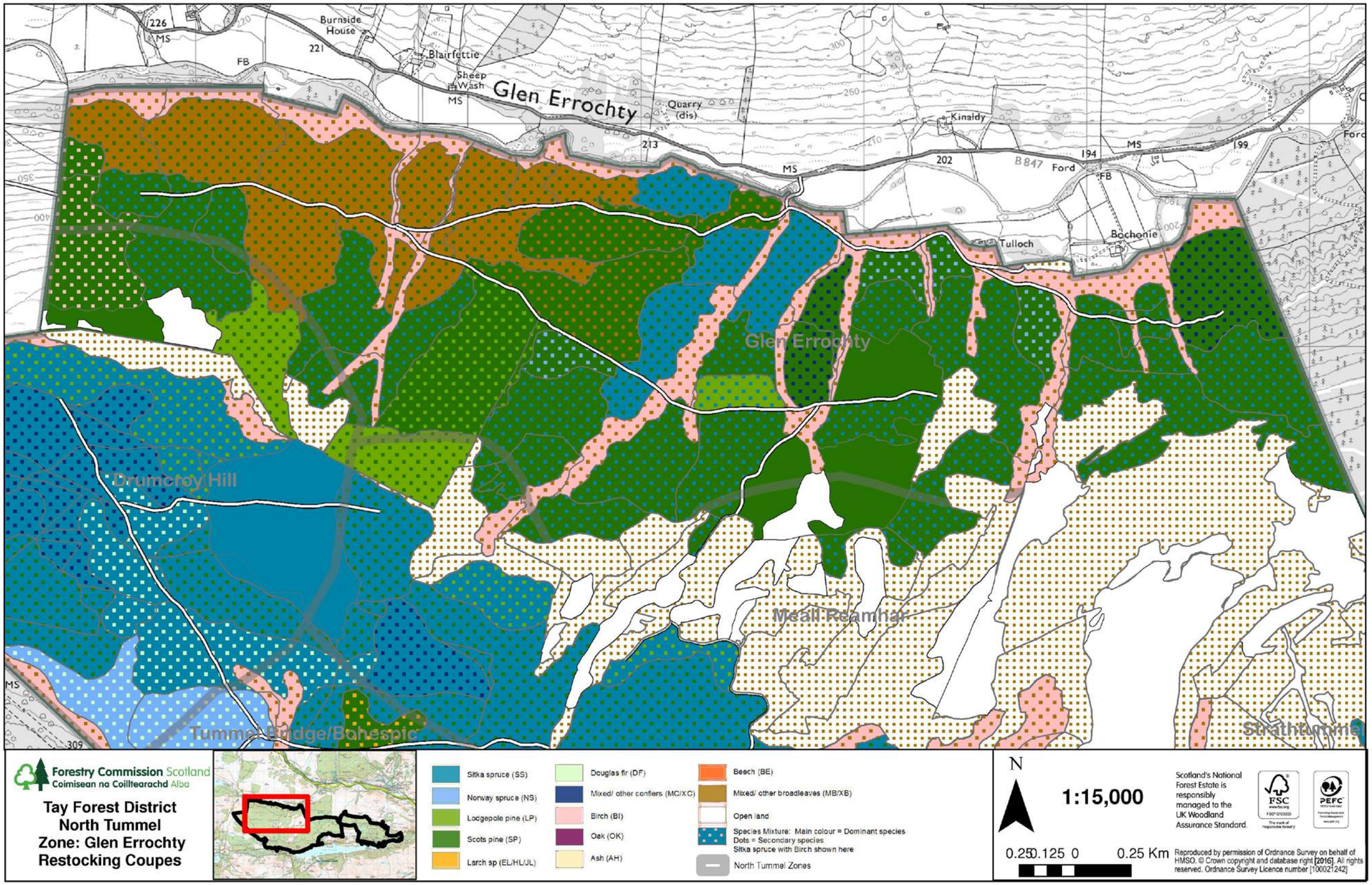
226
MS
FB
Burnside House
221
Blairfettie
Sheep Wash
MS
Glen Errochty
Quarry (dis)
213
MS
Kinaldy
202
B847
Ford
194
MS
199
FB
Tulloch
Bochonie
Glen Errochty
Drumcroy Hill
Meall Reamhar
Tummel Bridge/Bohespic
Strathtummel
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Zone: Glen Errochty
Restocking Coupes
Sitka spruce (SS)
Norway spruce (NS)
Lodgepole pine (LP)
Scots pine (SP)
Larch sp (EL/HL/JL)
Douglas fir (DF)
Mixed/ other conifers (MC/XC)
Birch (BI)
Oak (OK)
Ash (AH)
Beech (BE)
Mixed/ other broadleaves (MB/XB)
Open land
Species Mixture: Main colour = Dominant species
Dots = Secondary species
Sitka spruce with Birch shown here
North Tummel Zones
N
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5.0 Zone Information - Meall Reamhar

- This is the top part of a large landscape. It is generally a high, cold, wet, flat boggy plateau. The landform is very diverse, with small summit rock outcrops forming the SSSI for geology within the peat land.
- The Sitka spruce is often checked and it has a mixed range of sizes for the same age. Some of the Sitka spruce lower down the slopes has been harvested leaving the lodgepole pine above it which may have an adverse visual effect in the NSA. The pine has generally poor growth.
- The boundary of the SSSI does not adequately reflect the interest on site as some of the better rock formations fall within non-designated forestry areas.
- The SSSI and its management may have an effect on the NSA as the SSSI is a large area. The SSSI needs management to maintain sight lines from one fold of rocks to the next to keep the continuity, but outside this, it could have scattered trees and scrub on it. Some of the SSSI could be grazed to maintain the sightlines and stop vegetation from obscuring the features of interest. This could also make the overall grazing package available within the plan area more attractive to the agricultural community.
- This is an important Black Grouse area due to the mosaic of open space and trees and helps support a small percentage of the nationally important population of Tummel and Rannoch. The area is occasionally used byCapercaillie, and there are opportunities to improve the habitat for this priority species.
- The flat boggy ground is the source of the burns running North into the Errochty Water, and South into River Tummel.
- There is little infrastructure apart from a forest road running over the top, and the large surge shaft South of the SSSI, for the Errochty Power Station below.
- There is little current recreation, apart from longer distance walkers, cyclists and horse riders.

5.1 Zone specific issues

- Zone is poor in terms of the commercial, timber focused, forest management.
- Contains large SSSI area, with qualifying features out-with the designated area
- Management of SSSI and black grouse habitat on top of the hill may have an effect on the NSA not due to its overall size but scale of planting within
- Poor access and road infrastructure

5.2 Management Objectives, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Ensure that the plateau habitat is maximised especially for black grouse	• Black grouse are already well established within the landscape, although there are no leks on our ground at present. • Current failed plantation provides suitable habitat for birds and the land is too poor for a quality tree crop. • There is an opportunity to expand native woodland and scrub.	• The balance between open land needed and tree cover will be constantly changing. • Access to maintain priority habitats is very restricted with poor roading. • It may be difficult to establish native woodland in a remote area with current deer pressure and lack of a seed source.	• Bog restoration and expansion of, primarily, native woodland and scrub to increase suitable habitat for this priority species. • Use failed plantation as shelter for broadleaf planting. • Accept an element of non-native regeneration and work with it to provide structure that will change to native woodland over time. • Some planting will be required to increase the native seed source and kick start natural processes.
Maintain and enhance the SSSI	• FES is already working with SNH on clarifying the best areas of the SSSI, concentrating maintenance on these areas and extending the maintenance regime to relevant areas outside the SSSI boundary. • There is an opportunity to maintain some of the area with grazing.	• SSSI requires active maintenance of tree removal, which is time consuming and costly. • In order to manage the area by grazing a stock fence will be necessary.	• Identify the relevant areas to maintain, rather than sticking exactly to the SSSI boundary shown. • Investigate grazing to help keep open important areas of SSSI.
Ensure that the size and scale of management on the SSSI is in keeping with the scale of the NSA	• On the whole, the geological SSSI that needs to be kept free of tree cover to provide sight lines is of a large enough scale to sit comfortably within this section of the NSA where the landscape scale is already large. • The open/regeneration habitat may have small elements, but if it is treated as one large habitat type it is of an overall size that it should be in keeping with the scale of landscape.	• There is a possibility that the open/ regeneration habitat could look too small and fussy for the landscape if it has small clearfells and retentions of trees.	• Allow an element, up to 10% in permanent open and grazing areas, 40% within upland habitats mosaic area, of scattered tree cover across this area to help it sit better in the landscape. • Overall habitat will be patchy with mixed density woodland and scrub, blanket bog and open heath. This should tie in with other similar woodland in Strath Tummel
Ensure that removal of failed Sitka spruce to benefit black grouse is achieved despite the lack of access infrastructure	• Remove what Sitka spruce is commercially viable. The rest will be left to develop and used as shelter for new broadleaf planting.	• Some of the failed trees to be removed are up to 1km from a road, and the ground is boggy. • The ground is too wet for road infrastructure, and the trees of too poor a quality to justify the cost	• Costs to remove Sitka spruce will need to be met by other means, as the failed crop to be removed will not pay for itself. • Where this is not possible, this woodland will be left to develop with interventions for native woodland planting amongst the Sitka spruce where deemed necessary.
Establish felling proposals that take into account the limited access and low yield class	• Poor growth and lack of access mean that there are no silvicultural reasons for the trees to be felled in this design plan period.	• Access will be required at some point unless additional funding is found to deal with this issue.	• Ensure coupes are of suitable scale and have connectivity to forest road network to allow effective marketing. • Spread these across the plan period to decrease the risk.
Ensure those areas of deep peat with tree cover	• Through removal of poorly growing trees and	• Areas are difficult and expensive to work using	• Ensure areas of poor growing trees on deep peat

are restored back to functioning blanket bog where possible.	bog restoration there is the potential to see a positive benefit for carbon sequestration and biodiversity. • Restoration will enhance habitat for black grouse.	normal forestry machinery. • Past modification for establishment may have damaged sites beyond what can be restored.	are identified within plan, and wherever possible included as red coupes to allow early tree clearance and restoration.

5.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located on this zone currently consists mainly of Sitka spruce-lodgepole pine mixtures planted over the late 60s and early 70s, or since early 2000 in second rotation crops. The aim over the next 10 years is to carry on with clearfelling coupes to diversify the age structure of this zone. CCF practice on this zone is minimal because of the poor growing conditions and high wind risk. The proposed clearfelling phase I and II management coupes are to be worked towards the wind and a fragmented structure of the coupes helps to do this in this zone. There are also a number of areas where deep peat restoration will take place over the plan period.

Thinning:

The thinning proposals in this zone over this plan consist of subsequential thinnings, but these interventions are minimal compared to the other zones. Currently much of the zone consists of non-thin clearfell coupes which should not be thinned as a part of the on-going rotation. Because of poor growth conditions and wind vulnerability, 2nd rotation crops are also likely to be unsuitable for thinning.

Most of the zone is difficult terrain to work with forest machinery and there are high risks of soil disturbance. Most of this zone won't be restocked by commercial conifer crop after the current rotation which will further limit the possibilities to thin in the future.

Infrastructure:

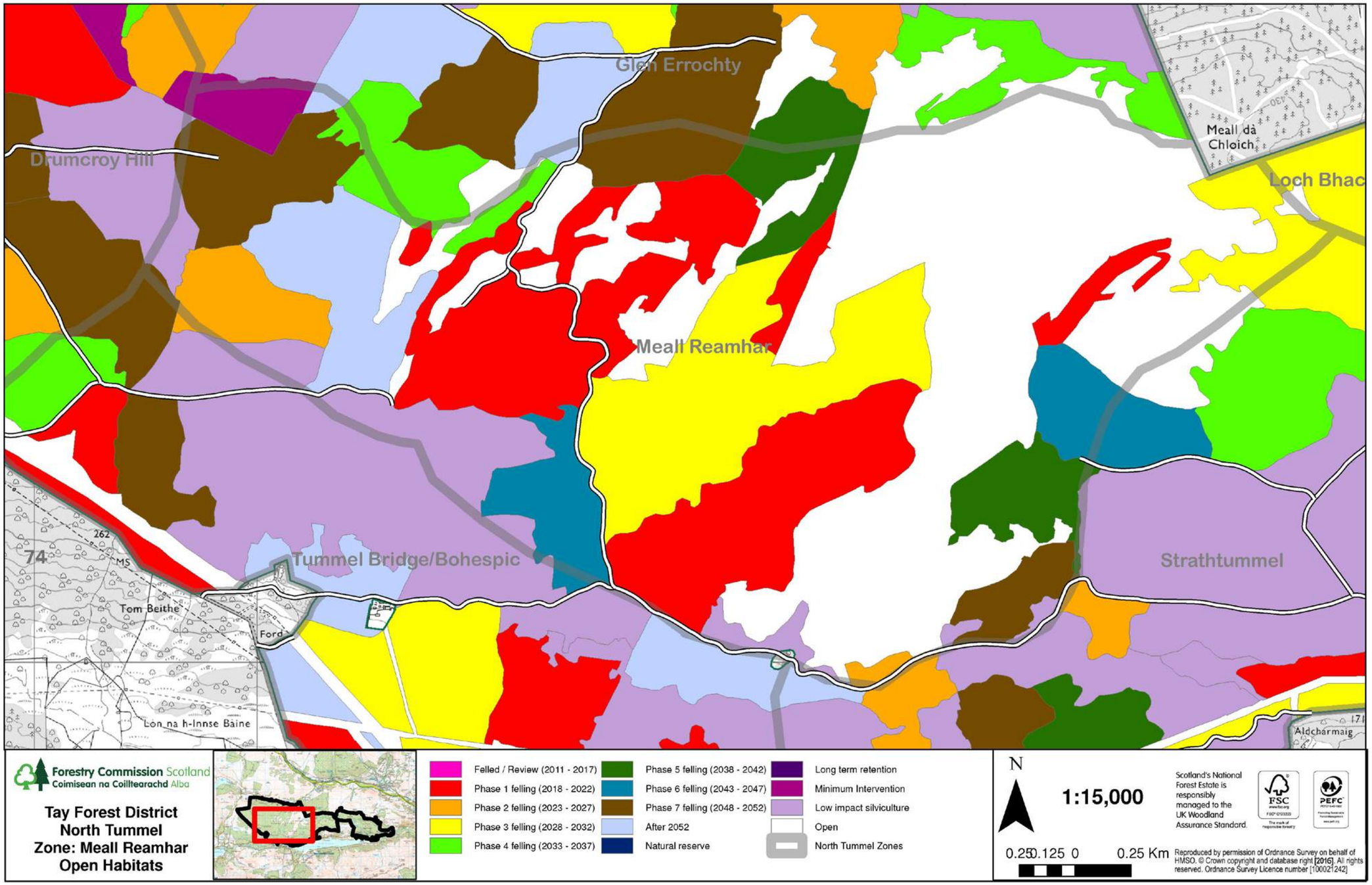
Overall the internal infrastructure of this zone is poor. The roads are limited but are currently in a good working order and are maintained to allow the management operations in the future. In terms of the new infrastructure, none is planned in this zone over this LMP.

Although the roads are limited, they still offer access to the coupes and management operations proposed over this plan. The volume hauled from this zone will be high over the first half of the plan so it is important that the roads are maintained in a good working order to allow access through the block, and for future timber extraction.

5.4 Future habitats and species proposals for the plan period

Approximately half of the proposed felled area is to be kept open or successional after the on-going first rotation. Some of the felled area will be restored to deep peat bog. Where commercial crop is planned for the second rotation the species are Sitka spruce, mixed with a variety of Macedonian and Scots pine.

There are a number of watercourses which run down from this zone and these areas are proposed to be restocked with birch and mixed broadleaves creating habitat links between the successional areas and the PAWS on lower slopes. On the lower elevations (mid-slopes) of this zone there are possibilities to restock some areas with Norway spruce and this should be done to diversify the species structure.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Drumcroy Hill
Meall Reamhar
Meall dà Chloich
Loch Bhac
Tummel Bridge/Bohespic
Strathtummel
Tom Beithe
Ford
Lon na h-Innse Baine
Aldcharmaig
74
262
MS
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Zone: Meall Reamhar
Open Habitats
Felled / Review (2011 - 2017)
Phase 1 felling (2018 - 2022)
Phase 2 felling (2023 - 2027)
Phase 3 felling (2028 - 2032)
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Phase 6 felling (2043 - 2047)
Phase 7 felling (2048 - 2052)
After 2052
Natural reserve
Long term retention
Minimum Intervention
Low impact silviculture
Open
North Tummel Zones
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1:15,000
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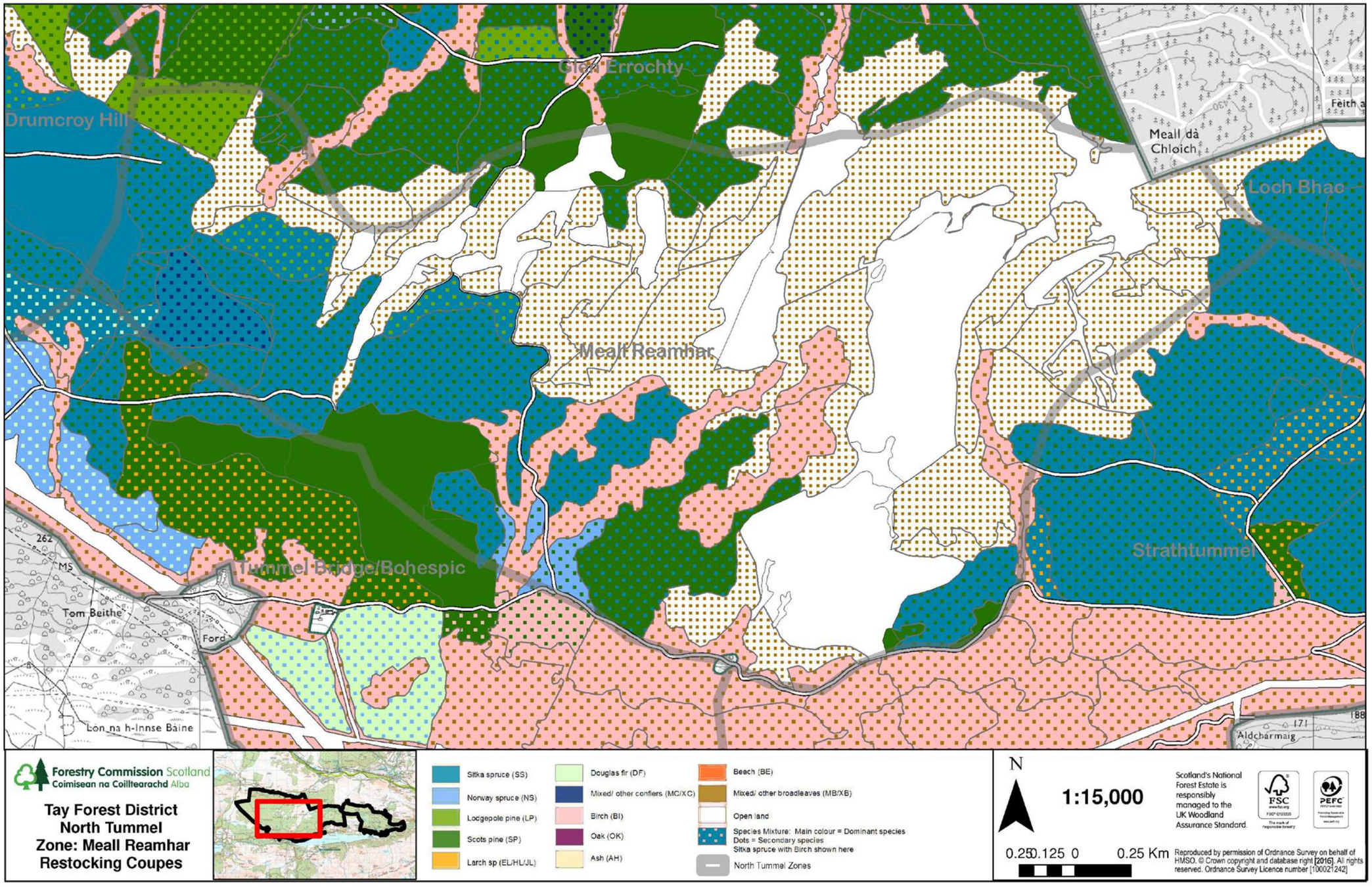
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6.0 Zone Information - Tummel Bridge

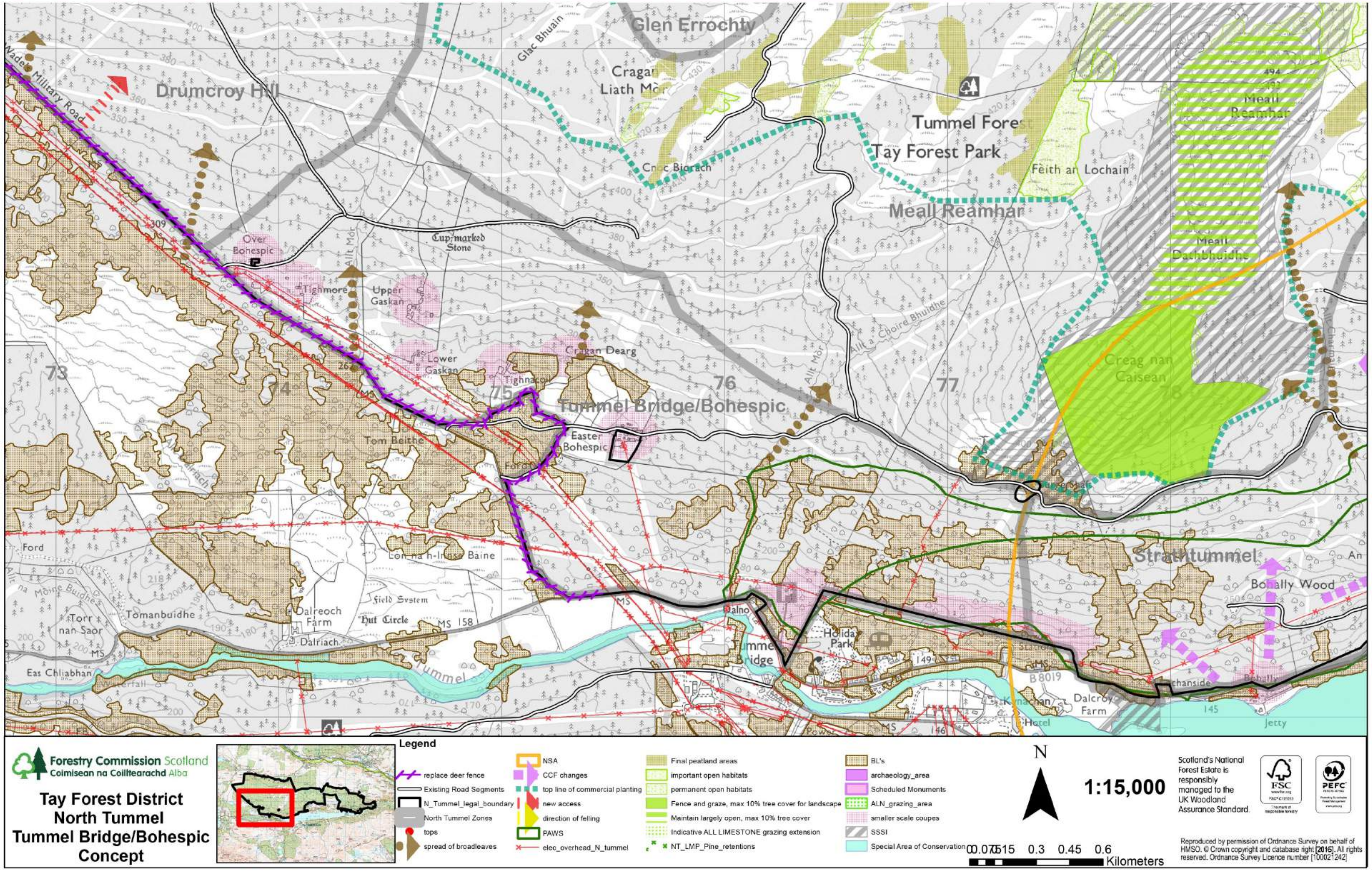
- This zone is South to Southwest facing, fertile, with a warmer microclimate.
- The slopes are varied, with steeper upper slopes changing to gentler lower slopes.
- A few fairly sinuous water courses, sometimes incised, drain into the River Tummel.
- There is already a diverse mixture of species, and the trees grow well on the fertile soils. A good proportion of this zone is PAWS. There is likely to be a slow timescale to convert the highly productive conifers to PAWS.
- Birch with good form grows here. Spruce can be thinned to the favour the birch.
- This zone has some open ground, mainly related to way leaves or farms.
- Adjacency to Tummel Bridge and neighbouring properties will affect the scale, shape and timing of adjacent felling and restock coupes.
- Local access crossing FC land will need to be considered. Likewise FC access across non-FC land needs consideration.
- Archaeology is scattered through the zone
- A major power line (Beauly-Denny) crosses this area, with a substantial way leave causing access, landscape and management issues
- This zone is quite isolated. The forest is well roaded but not well connected with some of the roads being dead ends.
- The public road carries many tourists, and is important as an interactive visitor zone. Consideration will be needed of the scale of coupes, diversity, views into the forest, and effects of features like the wayleaves and forest edges.

6.1 Zone specific issues

- Scale of coupes, diversity of tree species and landscape views critical because of the expanding caravan park activity located adjacent to this zone,
- Access, landscape, and forest management challenges related to the Beauly-Denny powerline.

6.2 Management Objectives, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Maximise the fertile South-West facing accessible slopes.	• The soils and aspect and accessibility provide an opportunity to plant a wide choice of species productively • Birch has good form and could be a viable timber producer	• The Beauly-Denny power line hampers access in some areas. It has a visual and operational impact	• Use the opportunity to plant a wide diversity of productive species, and to develop LISS.
Establish a diverse forest next to the settlements of Tummel Bridge, Bohespic, and within visitor zones. Allow for informal recreation opportunities. Consider the effects of the expansion of the caravan park on the forest.	• Phase 1 felling coupe is along the boundary of the caravan park, allowing for more diversity in the restocking. • There is a car park and informal routes already in place. The South facing rich soils have allowed for a rich diversity of species in LISS, providing opportunities for recreation. • The coupes on the lower slopes are already well scaled and shaped.	• Phase 1 felling coupe is large compared to the caravan park, and will open up the caravans to the Westerly wind. • Most of the community in Tummel Bridge are seasonal occupiers of the caravan park. Other than a link path into the woodland, there are no recreation facilities associated with Tummel bridge. • There are currently no resources to expand any recreation facilities.	• Ensure the felling coupes are of a human scale close to any settlements, and that restocking is also of smaller scale coupes of diverse species. • Encourage informal recreation, particularly allowing access through any deer fences without negating its effectiveness.
Identify accessible felling and LISS coupes to form the long term commercially productive core of the forest Ensure all coupes are accessible round the Beauly-Denny power line.	• Once felled, some more difficult coupes could be left to regenerate with birch from the seed of neighbouring trees.	• Access is limited.	• Increase the opportunities for management by LISS, ensuring there is adequate access.



Glen Errochty
Drumcroy Hill
Tummel Forest
Tay Forest Park
Meall Reamhar
Fèith an Lochain
Over Bohespic
Cup-marked Stone
Tighmore
Upper Gaskan
Lower Gaskan
Cragan Dearg
Tummel Bridge/Bohespic
Easter Bohespic
Tom Beithe
Creag nan Caisean
Strathtummel
Bohally Wood
Dalreoch Farm
Tomanbuidhe
Field System
Hut Circle
Dalriach
Eas Chliabhan
Holiday Park
Dalcroy Farm
Forestry Commission Scotland
Coimisean na Coillteachd Alba
Tay Forest District
North Tummel
Tummel Bridge/Bohespic
Concept
Legend
replace deer fence
Existing Road Segments
N_Tummel_legal_boundary
North Tummel Zones
tops
spread of broadleaves
NSA
CCF changes
top line of commercial planting
new access
direction of felling
PAWS
elec_overhead_N_tummel
Final peatland areas
important open habitats
permanent open habitats
Fence and graze, max 10% tree cover for landscape
Maintain largely open, max 10% tree cover
Indicative ALL LIMESTONE grazing extension
NT_LMP_Pine_retentions
BL's
archaeology_area
Scheduled Monuments
ALN_grazing_area
smaller scale coupes
SSSI
Special Area of Conservation
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Kilometers
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6.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located on this zone is a variety of first rotation and second rotation crops. The first rotation, which mainly consists of Sitka spruce, Scots pine and larch, was mainly planted over the late 60s.

A key aim over the next 10 years is to begin the gradual process of converting some of the current coniferous PAWS crops to broadleaves. Clearfelling will begin in the eastern end of the zone, working into the prevailing southwest wind to minimise losses from windblow. Careful operational planning needs to take place because of operational constraints such as powerlines and the caravan park that are in a close proximity to the management coupes.

Half of the zone is classified as CCF and there is a good thinning history to carry this type of management forward. The trees are mostly Scots pine and larch, planted in the mid to late 60s, and as such at least one more thinning is likely to occur before the trees start to produce seed in significant quantities to initiate regeneration.

Thinning:

Thinning proposals for this zone over this plan consist of a mixture of first thinnings and subsequential thinnings. Most of the thinning concentrates on the mid and top-sections of this zone, to areas which are under the CCF prescriptions. As these CCF management coupes have previous thinning history, subsequent thinning will drive the overall long term forest management towards regeneration fellings which are likely to take place over 20-30 years.

First thinnings are found at the western end of the zone and should be carried out towards the end of the LMP period. Lower sections of this zone haven't been appropriately thinned in the past and are now past the first thinning stage. These areas should go through a non-thin rotation, and be thinned as a part of the second rotation.

Because of the favourable aspect and elevation the zone can grow very good quality timber and it's important that the first thinnings take place appropriately. A large area of the zone will be managed as PAWS in the future and as a result there will be an increased amount of broadleaved thinnings and the coupe sizes reflect this to make these areas feasible for the thinnings in the next rotation.

As a part of the future first thinning operations add wide enough rides around the perimeter of the coupe to stabilise the crop in the thinned, and adjacent felling coupes.

Infrastructure:

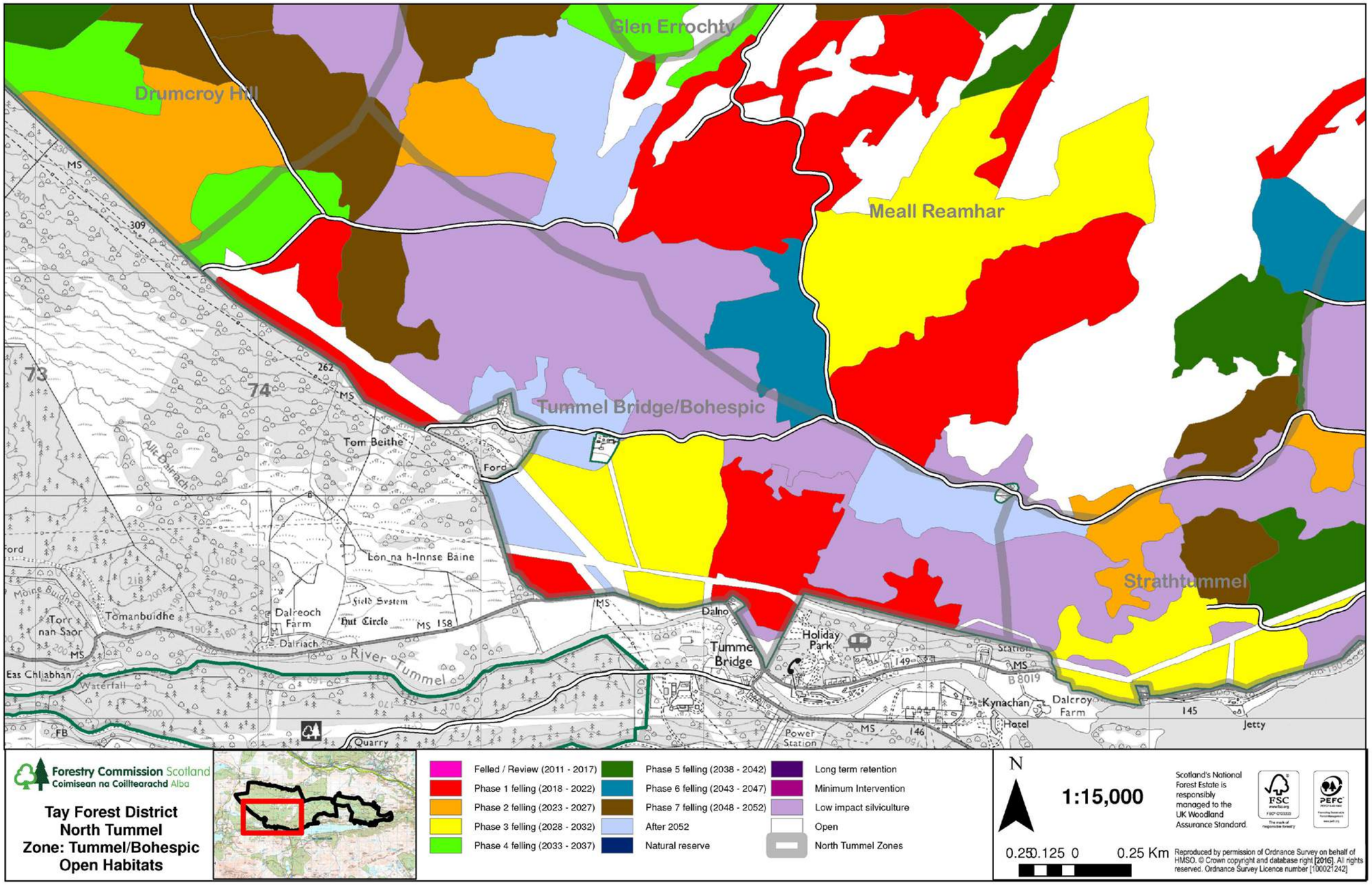
Overall the internal infrastructure of this zone is good. The roads are currently in a good working order and are maintained to allow the management operations in the future.

A new access point has already gained approval for access into the eastern clearfell coupe, located adjacent to the Tummel Bridge Holiday Park. Although some of the timber can be extracted to the forest road at the northern side of the coupe it is seen that the proposed access point is necessary. This will give additional stacking and turning areas over the forest management operation. As the operation is planned to be done early in phase I, this has been completed ahead of plan submission.

6.4 Habitats and species proposals for the plan period

This plan will start the gradual process of converting some of the more productive lower slopes, low elevation PAWS areas from the current coniferous crop to broadleaved crop. Birch will be the main restock species, but other broadleaves are also planted to provide additional variety in terms of biodiversity, resilience and autumn colours. The western end of the coupe does not fall under PAWS and here Norway spruce and Douglas fir are proposed to diversify the zone forest structure which currently is heavily biased towards Sitka spruce.

The wayleave through this area provides suitable habitat for a number of priority insect species, for example pearl-bordered fritillary and Kentish glory. Proposals will ensure that these species will have continuity of habitat through restructuring around the core powerline area.



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone: Tummel/Bohespic
Open Habitats

- Felled / Review (2011 - 2017)
- Phase 1 felling (2018 - 2022)
- Phase 2 felling (2023 - 2027)
- Phase 3 felling (2028 - 2032)
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- Phase 5 felling (2038 - 2042)
- Phase 6 felling (2043 - 2047)
- Phase 7 felling (2048 - 2052)
- After 2052
- Natural reserve
- Long term retention
- Minimum Intervention
- Low impact silviculture
- Open
- North Tummel Zones

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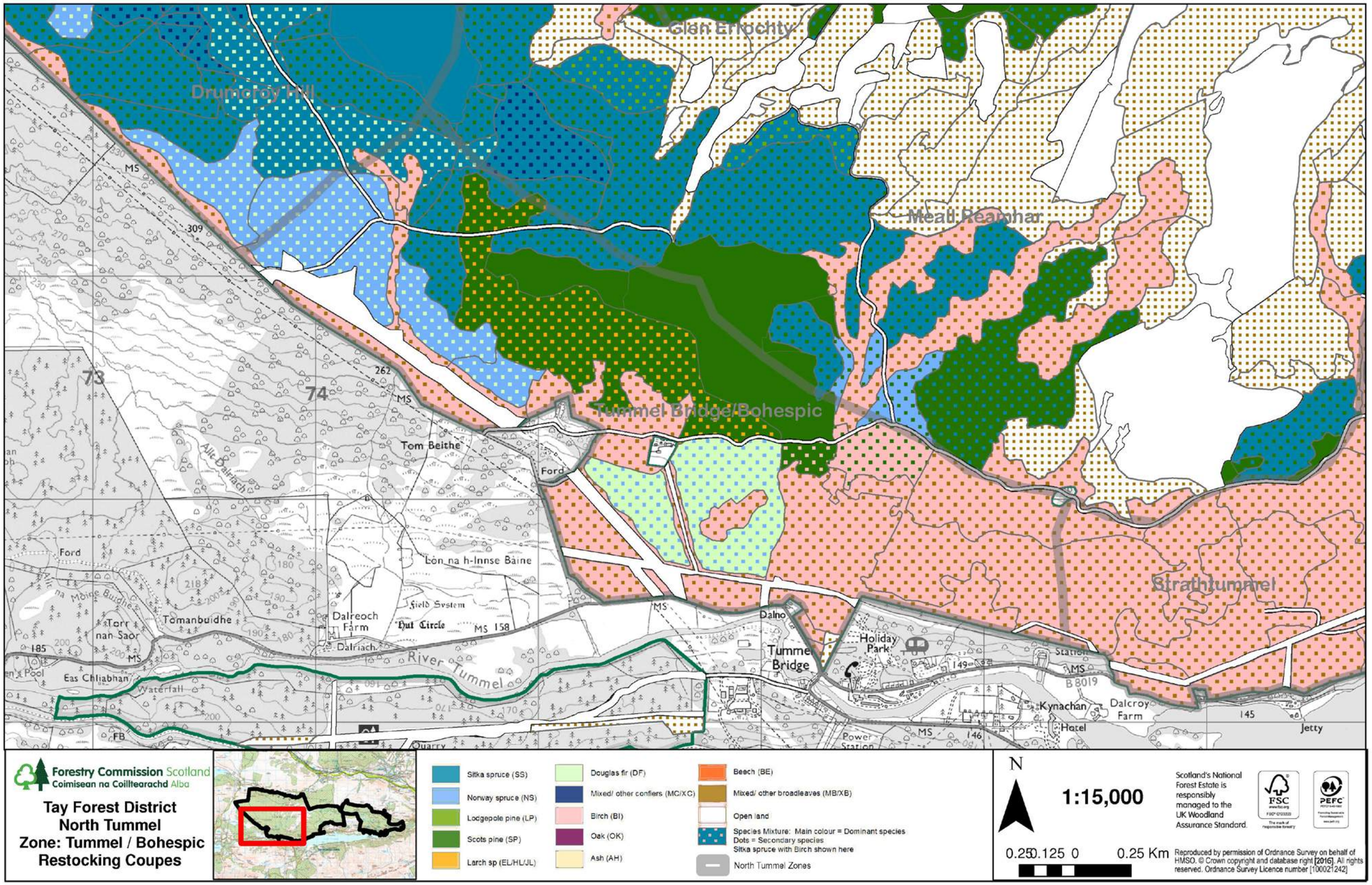

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone: Tummel / Bohespic
Restocking Coupes

- Sitka spruce (SS)
- Norway spruce (NS)
- Lodgepole pine (LP)
- Scots pine (SP)
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- Mixed/ other conifers (MC/XC)
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- Mixed/ other broadleaves (MB/XB)
- Open land
- Species Mixture: Main colour = Dominant species
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  Sitka spruce with Birch shown here
- North Tummel Zones

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7.0 Zone Information - Strath Tummel

- This zone is fairly large scale with views running up and down the loch.
- This zone is generally south facing, but has a diverse mix of slope steepness and aspect. The soils are rich and the microclimate favourable for growing highly productive timber.
- There are various sinuous water courses draining into Loch Tummel. Two of them pass through neighbouring farmland. Allt Charmain is on FC land and is within a deep gully on the lower slopes which may cause access issues.
- The range of tree species is diverse due to the rich soils and microclimate. Most of the lower slopes are PAWS. Some thinning has been done along the watercourses to favour the alder present.
- Native broadleaves within PAWS areas have been halo thinned, removing Western hemlock to prevent them being swamped before the end of the conifer rotation. The area is ultimately being converted to PAWS, a coupe structure is not needed.
- This zone forms a large proportion of the NSA for Loch Tummel. Visually, this is one of the most important zones. There is currently horizontal striping between the mixed broadleaves below the road and conifers above. Also, there is not the diversity or colour of the Eastern part of the NSA.
- There is a strong relationship with the agriculture, with interlinking woodland and fields. The farmland and buildings require shelter, which will affect the scale, shape and timing of adjacent felling and restock coupes.
- There is archaeology very close to the boundary, on adjacent ground, and there is likely to be more within FC land.
- The public road carries many tourists, and is important as a welcome or interactive visitor zone. Consideration will be need to be given to the scale of coupes, diversity, views into the forest and effects of features like the way leaves or boundary treatments.

7.1 Zone specific issues

- PAWS restoration to the detriment of high quality Douglas fir tree cover.
- Lack of species diversity decreasing the visual aspect of this zone because of the seasonal tree canopy colour variations,
- Possible presence of unmapped archaeological sites
- Strong relationship to the agricultural land. This must be accounted in the forest management to link the forest and fields,
- Visitor zone located along the public road which needs to be considered.

7.2 Management Objectives, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Ensure that the PAWS areas are converted to broadleaves, but recognise the role that Douglas fir is playing within the PAWS area	• Douglas fir adds diversity and landscape character to the PAWS area.	• Douglas fir regeneration may be costly to remove over time.	• Convert to full PAWS over a long time scale: retain Douglas fir to maturity, converting the rest of the species to broadleaves. • Work with natural processes and accept some conifer regeneration where it does not negatively impact on native woodland interest or regeneration.
Use the rich soils and South facing slopes to introduce some of the qualities of the Eastern end of the NSA, such as seasonal and species diversity	• There are established areas of LISS with existing diversity and age structure. • The conversion to broadleaves in the PAWS areas will bring the opportunity to increase the seasonal and species variety through the broadleaves. • The South facing slopes and excellent soils open up the opportunity to plant a diversity of productive species. • There is an opportunity to plant some 'iconic' species	• Converting to just broadleaves in the PAWS areas would reduce the visual diversity seen at the Eastern end where there is an intimate mix of conifers and broadleaves.	• Continue to maintain and if possible expand the areas of LISS with existing diversity. • Convert to broadleaves in PAWS area with some Douglas fir retained. This will help the visual linking between the PAWS areas and the conifer area as restoration is delivered over a long timescale. Expand the broadleaves up the water courses to help link these PAWS areas into predominantly conifer areas. • Use the rich soils to diversify the conifer species, and consider planting some 'iconic' species.
Ensure any archaeology on the boundary with neighbours is acknowledged in the appropriate way.	• Boundary of existing archaeology on neighbouring land points to its existence on FES land.	• Any archaeology on FES land may have been destroyed during previous tree planting.	• Investigate existence of archaeology, and ensure it has appropriate management. • Restructure forest around Scheduled Monuments, removing Sitka spruce and replacing along buffer zone with site type appropriate native broadleaf woodland.
Ensure that the balance between interlinking woods and fields is not lost and that forestry objectives do not compromise agricultural objectives, for example, by removing shelter.	• The link between forest and open land is important visually. Small scale coupes next to buildings provide an appropriate scaled setting for the buildings.	• Small scale coupes may be difficult to access on the FES boundary.	• Coupes next to farm buildings, dwellings, woodland and fields are to be of an appropriate scale to prevent exposing them to adverse weather, whilst still being accessible.
Identify accessible felling and LISS coupes to form the long term commercially productive core of the forest	• The coupes on the lower slopes are already well scaled and well-shaped with a diversity of species.	• Some of the coupes are on steep ground which may hamper thinning management for LISS.	• Increase the opportunities for management by LISS, ensuring there is adequate access.
Ensure that the forest as seen from the public road, is diverse with open views in.	• There is already diversity of species, and the size of most existing coupes is appropriate for the visitor zone location. • The powerline and its wayleave could be integrated into a network of open space, allowing longer views into the forest from the road.	• In the East of Strathtummel there is horizontal banding in the species, with neighbouring Broadleaves below the public road, and FES conifers above. • The power line directly above the road creates a visible straight line across the hillside, and may hamper access.	• Over time, convert the PAWS area to predominantly broadleaves with good autumn colour and an element of Douglas fir or other iconic conifers. This will link the neighbouring broadleaves with the FES conifers to help break up the banding and expand the qualities of the NSA. • Link the open wayleave to

			views into the forest, to soften the impact of the wayleave, and create more diversity for the visitor zone.

7.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located in this zone is primarily a first rotation, but there are already some second rotation management coupes as a result of past clearfell operations. The first rotation consists of a variety of species. The most common are Sitka spruce, Scots pine, larch and Douglas fir. Some first rotation broadleaves are also present. The first rotation trees were mainly planted through the 1960s, although some of the broadleaved planting can be traced back to 1930s and 40s.

On the clearfelling areas the aim over the next 10 years is to begin the gradual process of converting the lower slope current coniferous crop to broadleaves. This is because the eastern half of the zone is classified as PAWS. A small area of the eastern end of the coupe is proposed to be clearfelled over Phase I to open up the area of the archaeology, and another small area will open up an existing bog area for environmental reasons. There is already a good broadleaved structure located at the western half of the zone, and further clearfelling will continue, and spread, the restoration process. The management coupes in this zone which are proposed for felling over the LMP period are surrounded by CCF areas which have a good thinning history. As a result the proposed Phase I and Phase II felling coupes should not destabilise the surrounding crop as these areas are already relatively windfirm.

There are adjacent phase 3 and 4 coupes in the north of the coupe. Programming will ensure that felling and restocking ensure adjacency rules are met.

The majority of the zone is classified under CCF silviculture. There is a good thinning history to carry this type of management forward. On the higher elevations, above the PAWS zone, the trees are mostly Sitka spruce, lodgepole pine, Scots pine and larch. The coning of Sitka spruce should be monitored as this species is already reaching its maturity. Scots pine and larch are likely to need more time before the cones are produced in bigger numbers.

Thinning:

The thinning proposals for this zone over this plan consist only of sub-sequential thinnings. The zone is generally very well thinned, although some pockets of unthinned crop can be found on the steep terrain located at the lower elevations, and are proposed not to be thinned as a part of this rotation. These areas are illustrated as the clearfell coupes of this LMP. The CCF areas have been thinned in the past, and should continue to be thinned into the future to initiate regeneration.

Because of the favourable aspect and elevation the zone can grow very good quality timber and it's important that the first thinnings take place appropriately. Large areas of the zone will be managed as PAWS in the future and as a result there will be increased amount of broadleaved thinnings and the coupe sizes reflect this to make these areas feasible for the thinnings in the next rotation. Some of the PAWS areas currently grow well thinned Douglas fir. Because of the high quality and good form, the value of these trees within certain areas provides greater benefit than would be achieved through the PAWS restoration. For that reason we will manage some of the CCF area as a seed stand, extending the period of time before PAWS restoration is achieved.

As a part of the future first thinning operations wide rides will be added around the perimeter of the coupes to stabilise the crop in the thinned, and adjacent, felling coupes.

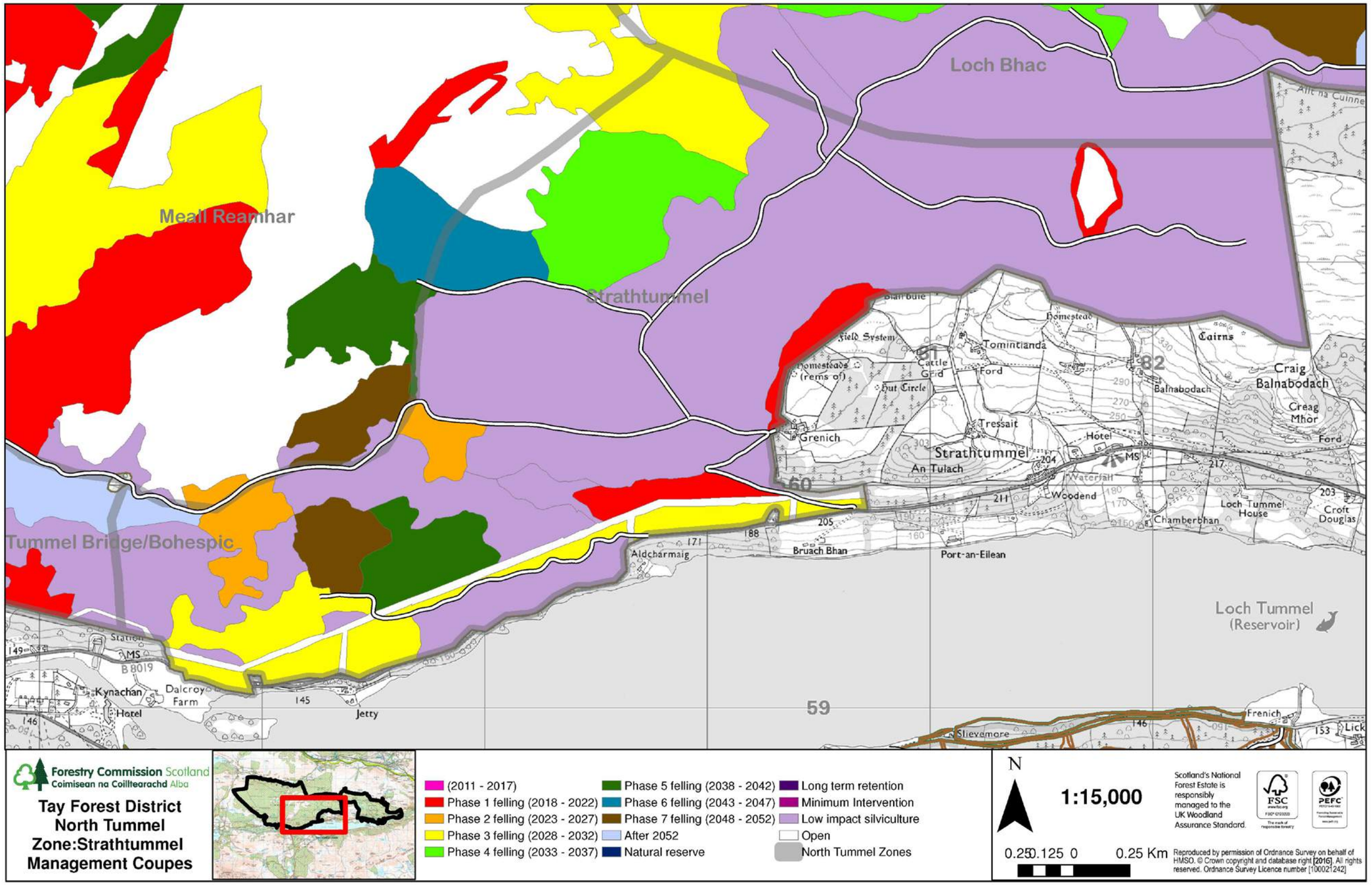
Infrastructure:

The infrastructure of this zone is good. The roads are currently in a good working order and should be maintained on this standard over the LMP period. There is no planned infrastructure to be built over the plan period.

7.4 Habitats and species proposals for the plan period

The next 10 year plan will start the gradual process of restoring some of the more productive lower slopes, low elevation PAWS areas from the current coniferous crop to broadleaved crop. Birch will be the main species, but other broadleaves will also be planted to provide additional variety in terms of biodiversity, resilience and autumn colours to expand the characteristics of the NSA. The species diversity is much needed on this zone as the current species do not offer optimal variety. There is a good potential to underplant some of the CCF areas of this zone with shade tolerant species to introduce additional diversity to these areas.

The wayleave through this area provides suitable habitat for a number of priority insect species, for example pearl-bordered fritillary and Kentish glory. Proposals will ensure that these species will have continuity of habitat through restructuring around the core powerline area.



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone:Strathtummel
Management Coupes

- (2011 - 2017)
- Phase 1 felling (2018 - 2022)
- Phase 2 felling (2023 - 2027)
- Phase 3 felling (2028 - 2032)
- Phase 4 felling (2033 - 2037)
- Phase 5 felling (2038 - 2042)
- Phase 6 felling (2043 - 2047)
- Phase 7 felling (2048 - 2052)
- After 2052
- Natural reserve
- Long term retention
- Minimum Intervention
- Low impact silviculture
- Open
- North Tummel Zones

N

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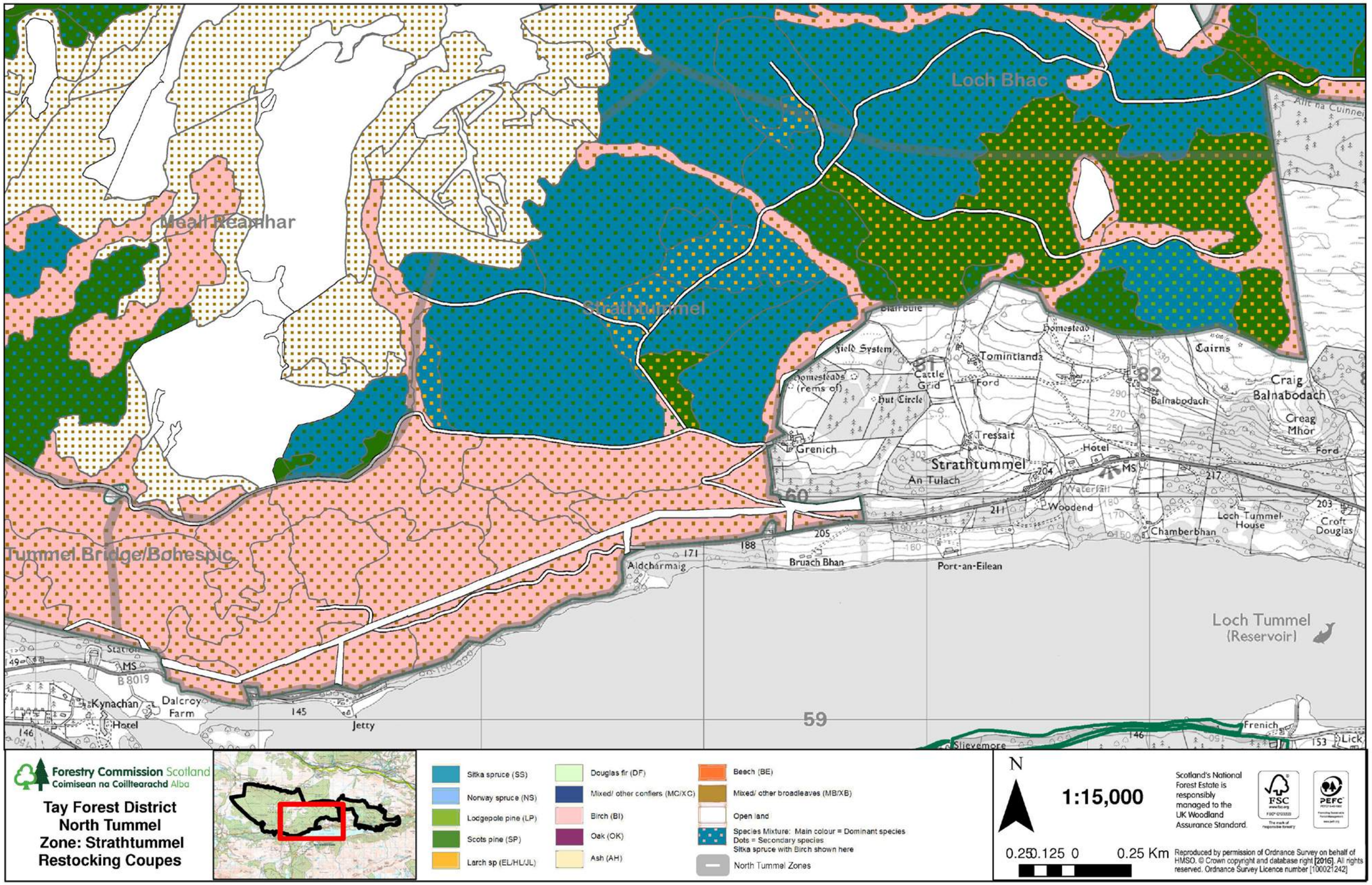

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone: Strathtummel
Restocking Coupes

- Sitka spruce (SS)
- Norway spruce (NS)
- Lodgepole pine (LP)
- Scots pine (SP)
- Larch sp (EL/HL/JL)
- Douglas fir (DF)
- Mixed/ other conifers (MC/XC)
- Birch (BI)
- Oak (OK)
- Ash (AH)
- Beech (BE)
- Mixed/ other broadleaves (MB/XB)
- Open land
- Species Mixture: Main colour = Dominant species Dots = Secondary species Sitka spruce with Birch shown here
- North Tummel Zones

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Scotland's National Forest Estate is responsibly managed to the UK Woodland Assurance Standard.

8.0 Zone Information - Loch Bhac

1. Loch Bhac
   - This zone is elevated, straddling a ridge. It is undulating and complex with minor summits, flat areas and varying gradients and aspects of slope, but mainly North facing.
   - A series of water systems have a relationship with neighbouring land, particularly Loch Bhac draining into the SSSI. Two more minor lochans feed sinuous watercourses, which are deeply incised, potentially causing access restrictions. The burns flow in all directions away from ridge.
   - Soils on this zone are fertile and grow good quality Sitka spruce, Norway spruce (*Picea abies*), lodgepole pine and European larch (*Larix decidua*). There is a larger variety and different mix of species because of the underlying limestone. Not much wind blow is evident.
   - The zone also contains a substantial area of open limestone ridge and calcareous grassland which can be possibly expanded post felling, improving the habitat links. The limestone area is known to provide a habitat to northern brown argus and there is a good opportunity to expand these areas through ongoing grazing. This habitat supports the growth of rock rose (*Helianthemum nummularium*) which provides the ideal niche for this butterfly species to lay its eggs.
   - There is a presence of archaeology, recreational fishing and private water supply which are likely to affect the future land management of this zone.

8.1 Zone specific issues

- Careful forest management needed as the Loch Bhac and multiple watercourses drain into the SAC,
- Limestone area, and the assets related to this, need specific management prescriptions and expertise,
- Possible future difficulties to interlink the bog and loch habitat between Loch Bhac and two lochans because of the unknown soil properties and current tree cover,
- Presence of known archaeology, and the maintenance of these areas.

8.2 Management Objectives, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Ensure that there is the highest quality of water passing into the SAC, by clear felling conifer close to the watercourses, and establishing a restocking proposal that protects the water quality.	• There is already a mosaic of open space and birch between Loch Bhac and the two lochans. • There is already open space between the conifers and Loch Bhac on its eastern edge.	• Loch Bhac is currently planted with conifers right up its Western edge and access is tricky due to the location and direction of watercourses.	• Continue removing conifers from watercourses, Loch Bhac and the lochans. • Replant with a buffer of broadleaves or leave open where appropriate. • Create additional wetland areas and ponds between Loch Bhac and two water bodies to the east.
Manage the limestone and calcareous interest to maximise its diversity.	• The limestone paving area is already grazed as a rich limestone pasture.	• Similar habitats can generally be found outside of the forest, so connectivity is an issue.	• Maximise the area of calcareous habitats restored within the plan, particularly focussing to the south of the current grazing area.
Maximise the habitat links	• The open space links are already partly in place	• The coupes around the two lochans restrict habitat links	• Fell the coupes between the two lochans, and
		between the two areas of water	extend the grazing areas to manage this area. • Increase the broadleaves and open water/wetland between Loch Bhac and the two lochans.
Ensure the Scheduled Ancient Monument of Na Clachan Aoraidh, a four post stone circle, is maintained	• This is already being maintained by grazing.	• Infrastructure requires maintenance.	• Ensure that appropriate funds are in place to maintain the grazing regime.

8.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located in this zone is first rotation, primarily Sitka spruce, lodgepole pine, Scots pine and larch. These trees were planted from the late 1950s, and through the 1960s.

There is one Phase II clearfelling coupe scheduled in the next 10 years. There will be a need to break the even-aged forest structure but because of the greater urgency to work other zones and coupes over the next 10 year period it was seen a best option to leave most of this zone outside the 2017-2026 clearfelling approvals.

The wet site conditions and a lack of thinning history make operations difficult on the western half of this zone, but the current coupe structure takes account of this. Care will be needed to avoid any water related issues.

A large proportion of this zone is classified under CCF silviculture. There is a good thinning history on these CCF areas to carry out this type of management, and it is accompanied by a good access through the internal road network. Overall the CCF crop is not coning to any great degree and is still at least one thinning away from initiation of regeneration. The coning of Sitka spruce should be monitored as this species is already reaching its maturity. Scots pine, lodgepole pine and larch are likely to need more time before the cones are produced in bigger numbers.

Thinning:

The thinning proposals over this plan consist of both first and subsequential thinnings.

Thinable first rotation crops in this zone are now thinned, and what is left should not be thinned over this on-going first rotation. These non-thinnable areas are now past their thinning window for the first thinning, and are also located further away from the present road network. In most cases their soil conditions are very wet resulting in a poor tree growth. These areas can be possibly thinned over the second rotation or can be managed through a non-thin regime.

The proposed CCF areas have been thinned in the past and this should continue to prepare for and achieve regeneration.

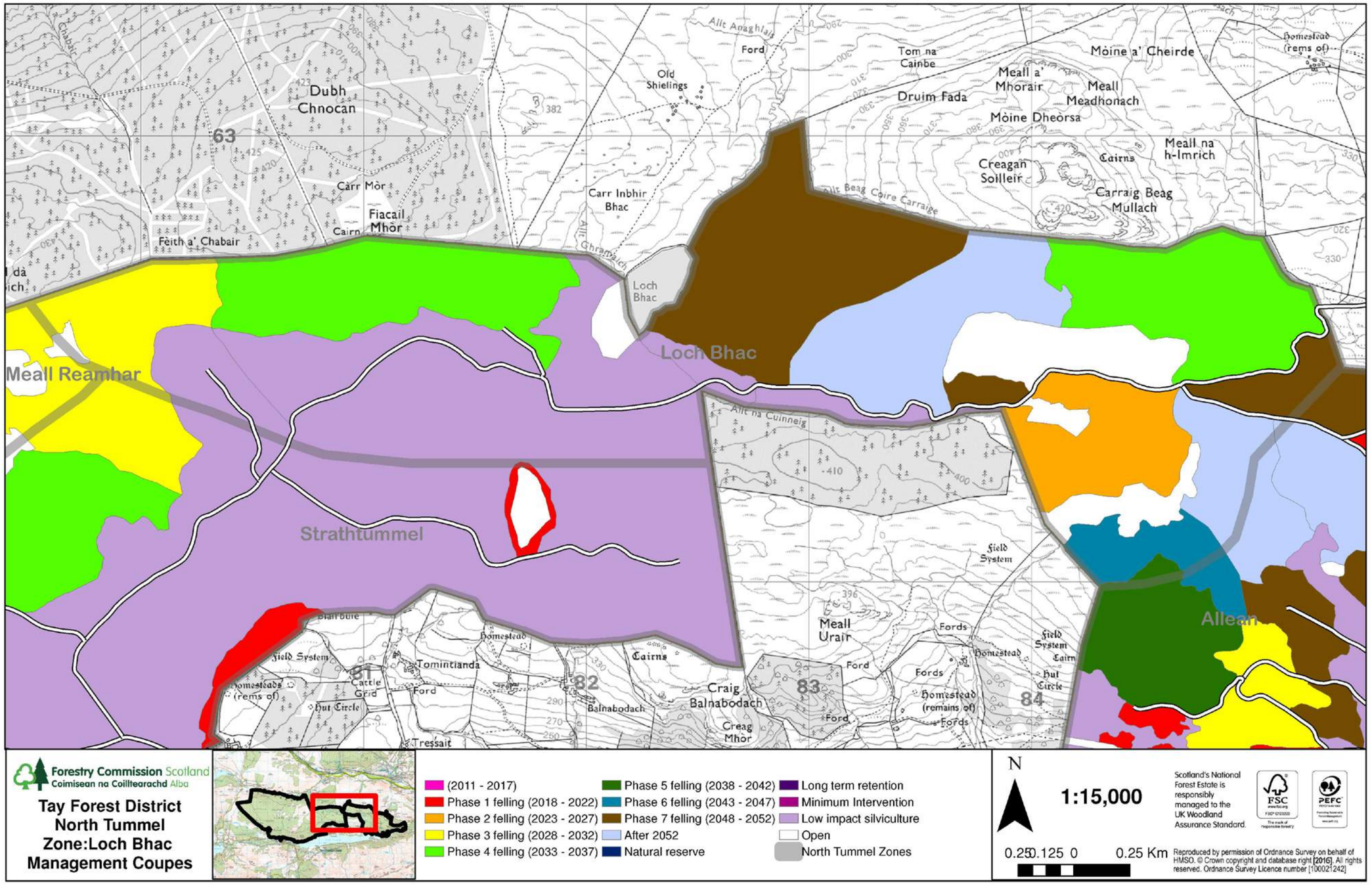
The first thinning areas are found on the eastern half of this zone and should be thinned towards the end of this LMP. As a part of the future first thinning operations add wide enough rides around the perimeter of the coupe to stabilise the crop in the thinned, and adjacent, felling coupes.

Infrastructure:

The overall infrastructure of this zone is good. The roads are currently in a good working order and should be maintained to this standard over the LMP period. There is no planned infrastructure to be built over the plan period 2017-2026.

8.4 Habitats and species proposals for the plan period

There are no planned restock sites in this zone over the next 10 years. In terms of the habitat proposals it is important to monitor the limestone area and make sure that it gets managed appropriately. It is known that the limestone area expands south towards the two lochans but the actual extent and area of this will be confirmed after the Phase II coupe has been felled.



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone:Loch Bhac
Management Coupes

- (2011 - 2017)
- Phase 1 felling (2018 - 2022)
- Phase 2 felling (2023 - 2027)
- Phase 3 felling (2028 - 2032)
- Phase 4 felling (2033 - 2037)
- Phase 5 felling (2038 - 2042)
- Phase 6 felling (2043 - 2047)
- Phase 7 felling (2048 - 2052)
- After 2052
- Natural reserve
- Long term retention
- Minimum Intervention
- Low impact silviculture
- Open
- North Tummel Zones

N

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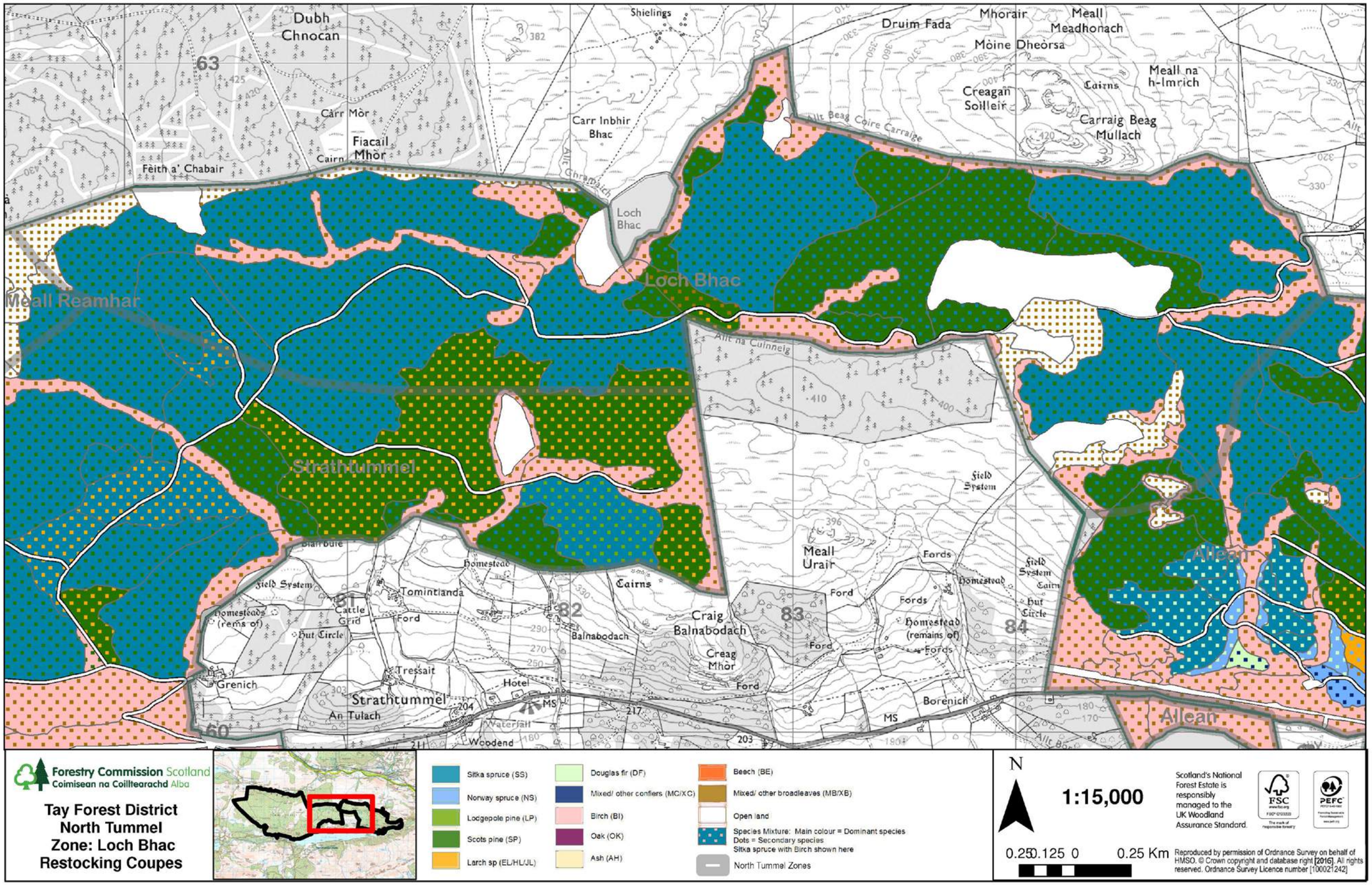
Dubh Chnocan
63
Carr Mòr
Fiacail Mhòr
Cairn
Feith a' Chabair
Shielings
Carr Inbhir Bhac
Allt Chramaich
Loch Bhac
Meall Reamhar
Druim Fada
Mhorair
Meall Meadhonach
Mòine Dheòrsa
Meall na h-Imrich
Cairns
Creagan Soilleir
Allt Beag Coire Carraige
Carraig Beag
Mullach
Allt na Cuinneig
Strathtummel
Blairbuie
Homestead
Field System
Tomintianda
Cattle Grid
Ford
Homesteads (rems of)
Hut Circle
Cairns
Balnabodach
Craig Balnabodach
Creag Mhor
Meall Urair
Fords
Homestead (remains of)
Tressait
Grenich
Hotel
MS
Strathtummel
An Tulach
Waterfall
Woodend
Borenich
Allean
Field System
Hut Circle
82
83
84
60
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Zone: Loch Bhac
Restocking Coupes
Sitka spruce (SS)
Norway spruce (NS)
Lodgepole pine (LP)
Scots pine (SP)
Larch sp (EL/HL/JL)
Douglas fir (DF)
Mixed/ other conifers (MC/XC)
Birch (BI)
Oak (OK)
Ash (AH)
Beech (BE)
Mixed/ other broadleaves (MB/XB)
Open land
Species Mixture: Main colour = Dominant species
Dots = Secondary species
Sitka spruce with Birch shown here
North Tummel Zones
N
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0.25 0.125 0 0.25 Km
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PEFC
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9.0 Zone Information – Allean

- Complex south facing small intimate scale landscape which contains numerous summits, variable and often very steep gradients mainly on the South facing slopes, and undulating ground around the summits and North facing ground.
- A number of watercourses flow away from the summits to the South into Loch Tummel, and North into Glen Fincastle Burn. The ones running South tend to be incised, potentially causing access difficulties, and highlight the importance of careful planning due to the SAC.
- The zone is the main setting for the NSA and is well known because of its variety of colours over the calendar year, although particularly in the autumn.
- The soils of this area are fertile and the species composition is diverse.
- Substantial proportion of the management coupes are managed under a CCF regime, and should be converted to broadleaved species over time as most of this zone is classified as PAWS. The PAWS areas already converted have 7-8 existing native broadleaf species within them, and there is a good seed source scattered across the lower slopes of the zone.
- Management interventions to favour broadleaves are needed over this LMP period as these components are getting overshaded, primarily by valuable DF and SS crops.
- There is high all year round recreational use at Queen's view, the surrounding waymarked paths and on the public road.
- There is some important archaeology (four scheduled monuments) in this zone. Black Castle has the block boundary passing right through it, but also has stunning views.
- There is a fairly good road infrastructure, No infrastructure serves the very steep slopes: power lines and the proximity of the public road will create a challenge for any felling.
- The challenge for the future management is the possible *P.ramorum* infestation and a resulting wider scale felling which would completely change the character of this area.
- Located north of this zone there is an unfinished deer fence which is needed for the successful broadleaved planting of the PAWS areas.

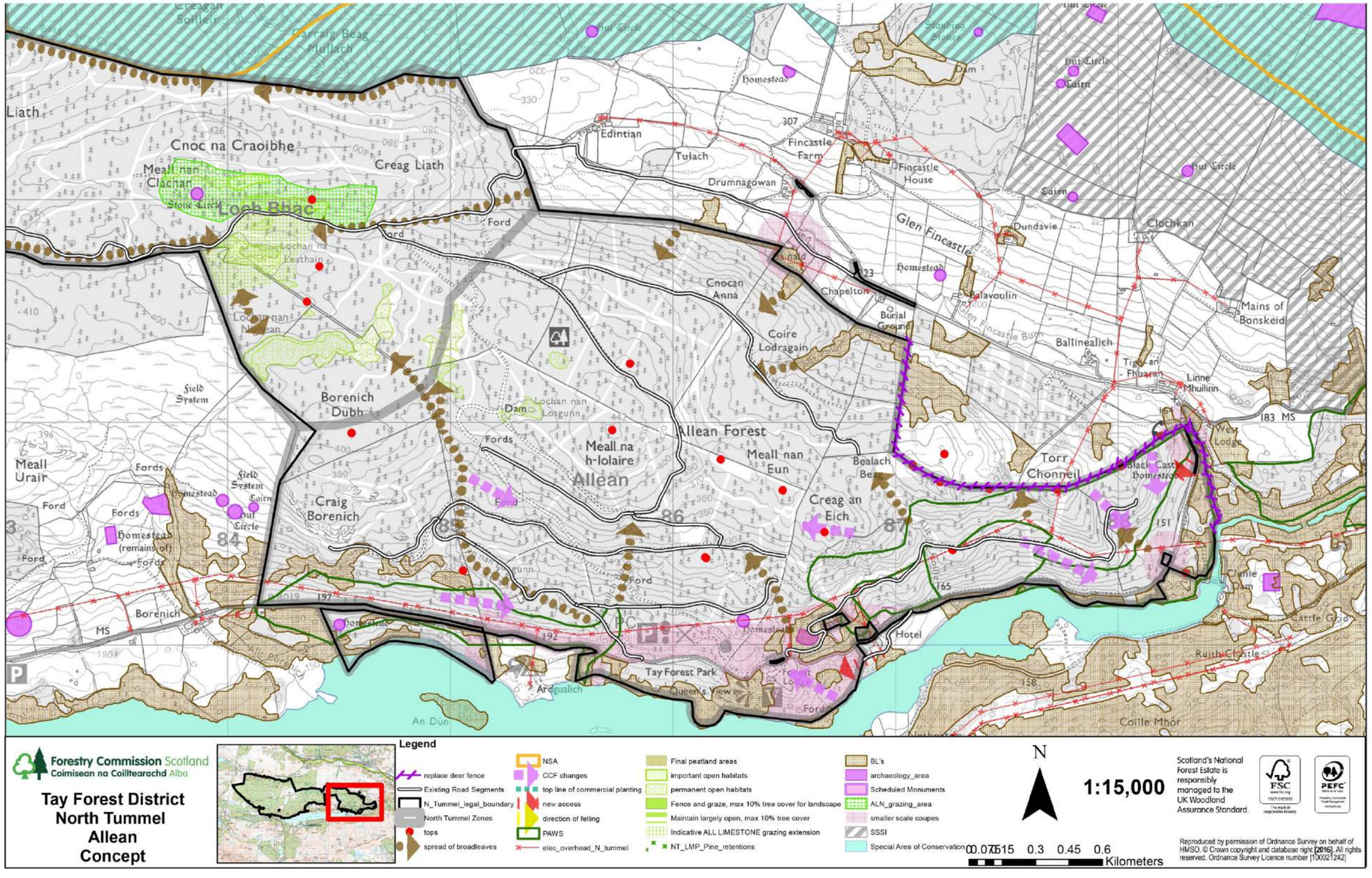
9.1 Zone specific issues

- Possible future problems related to the *Phytophthora ramorum*. Larch very common both as mixtures and monocultures, and young and mature crops,
- Some parts of the zone are very difficult to manage because of access issues; steep ground, powerlines, proximity to recreational facilities, and routes and paths,
- The incomplete deer fence located at the northern periphery of the zone,
- Broadleaved component on PAWS that has benefited from halo thinning in the past but now needs further intervention to prevent suppression by conifers,
- Management must account for the recreational importance of this zone. The public road cuts through the zone, and the visitor numbers are high all year around although they peak over the summer months,
- Presence of four scheduled monuments which need to be managed accordingly.
- There is a boundary anomaly on the Western boundary. This area of neighbouring ground has been planted.

9.2 Management Objectives, Analysis and Concept

Objective	Opportunities	Constraints	Concept
Reduce risk associated with the potential nfectin of Larch crop by *Phytophthora ramorum*.	• Removal of Larch would allow broadleaves to be established in the PAWS areas	• Working constraints to the removal of larch, such as power lines and steep ground working. • Any felling done will be visible to a high number of visitors.	• Plan the removal of Larch from heavily constrained areas. Factors such as shutting off power lines, partial public road closures, steep ground working and creating stacking laybys on the side of the public road require consideration. • Replant immediately after clearfell without fallow period with a mixture of broadleaves that show a variety of seasonal colour. • Consider the retention or planting of small groups or individual, iconic conifers to add texture and colour in the landscape
Complete the deer fence.	• This is a relatively short section of fencing to complete, but would protect a large area of planted broadleaves in an area visible to many people	• The FES boundary passes directly through Black Castle, a Scheduled Monument, so a new fence line will need to keep the archaeological area complete either inside or outside the FES deer fence.	• Complete this deer fence as a priority in a way that keeps out the maximum numbers of deer with the most cost effective fence. • Work with the adjacent landowner and HES to fence the Black Castle in a mutually beneficial manner
Remove the crop around the halo thinned broadleaves over this plan period	• The PAWS area is screened from the larch area and is not visible at the same time. There may be an opportunity to work the site concurrently.	• Leaving the crop around the halo thinned broadleaves will negate the work already carried out and leave them vulnerable to being supressed again. • At least one access point will be needed to reach the crop on very steep ground	• Remove the crop around the halo thinned broadleaves in Phase 1. • Plan access to reach the Phase 1 coupes.
Maintain a seasonally and species diverse forest. Take into account the effect of felling on viewpoints on the South of Loch Tummel, Queens View and the public road passing through Allean.	• Viewpoints from South of Loch Tummel give views of a limited amount of Allean at any one time. Views from the road are limited to the area directly above, and views from Queens View tend to focus towards Schiehallion rather than on Allean	• Felling is likely to have to be larger scale and faster than is usually acceptable in this type of location. This is due to the need to make use of power line closures, and the need to remove larch in a planned manner because of operational constraints.	• Carry out an EIA determination to establish the impact of felling, especially Larch. • In PAWS areas plant replacement broadleaves restocking straight after felling. Outside the PAWS area, a diverse mix of conifers and broadleaves can be planted.

			• Ensure all restocking has seasonally diverse species to replace any larch lost.
Enhance the visitor experience round Queen's View	• Queen's View is a very popular recreation development, with a café and shop, which has recently been upgraded. • At Allean, there is a car park, toilets, picnic site and walks.	• Many of the Queen's View visitors are atypical of usual FC visitors, and are not necessarily looking for walks or picnic areas.	• Review the recent visitor improvements at Queen's View and ensure they are working to the highest quality. • Look at innovative ways to enhance the visitor experience at Queen's View in the future.
Manage the four scheduled monuments	• The four scheduled monuments in this part of the forest are in good condition, with two of these on the formal and informal forest walk network.	• These sites require maintenance to remove scrub and potentially damaging vegetation. • Sightlines could be improved from the Queens View ringfort towards Schiehallion and Loch Tummel.	• Ensure that maintenance and inspections are undertaken annually, unless otherwise agreed. • Sightlines through CCF area could be managed through next thinning operations.
Resolve the boundary anomaly with the neighbouring landowner	• The neighbouring landowner is amenable to finding a solution	• It is not proposed to remove the trees during this plan period	• Consider the anomaly at the same time as discussions about the Black Castle boundary fence as the same neighbour is involved in both.


Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Allean
Concept
Legend
replace deer fence
Existing Road Segments
N_Tummel_legal_boundary
North Tummel Zones
tops
spread of broadleaves
NSA
CCF changes
top line of commercial planting
new access
direction of felling
PAWS
elec_overhead_N_tummel
Final peatland areas
important open habitats
permanent open habitats
Fence and graze, max 10% tree cover for landscape
Maintain largely open, max 10% tree cover
Indicative ALL LIMESTONE grazing extension
NT_LMP_Pine_retentions
BL's
archaeology_area
Scheduled Monuments
ALN_grazing_area
smaller scale coupes
SSSI
Special Area of Conservation
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Kilometers
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Allean Forest
Allean
Cnoc na Craoibhe
Creag Liath
Meall nan Clachan
Loch Bhac
Lochan na Leathain
Lochan nan Nighean
Borenich Dubh
Craig Borenich
Meall Urair
Meall na h-Iolaire
Meall nan Eun
Creag an Eich
Cnocan Anna
Coire Lodragain
Bealach
Torr Chonneil
Glen Fincastle
Fincastle Farm
Fincastle House
Edintian
Tulach
Drumnagowan
Chapelton
Burial Ground
Dundavie
Clochkan
Balavoulin
Ballinealich
Mains of Bonskeid
Tigh-an-Fhuaran
Linne Mhuilinn
West Lodge
Black Castle
Clunie Dam
Ruith Castle
Coille Mhor
Hotel
Tay Forest Park
Queen's View
Ardgualich
An Dùn
Borenich
Field System
Homestead
Hut Circle
Cairn
Standing Stones
Fords
Ford
Dam
Liath
84
85
86
87

9.3 Felling and LISS proposals for the plan period

Clearfelling & CCF:

The crop located in this zone is a mixture of first rotation and second rotation. The species composition is diverse, major species being Sitka spruce, lodgepole and Scots pine, and larch. There are also areas of Douglas fir, Norway spruce and variety of broadleaves found on the lower elevations. The planting of the first rotation started late 1940s and carried through to the late 1970s.

There are four Phase I, and two Phase II felling coupes scheduled for the next 10 years. The lower slopes were identified as CCF or natural reserve in previous plans, and it is recognised that some of these coupes fall within the most sensitive part of the NSA. However, the proposed felling coupes on the lower slopes will deal with the areas of monoculture larch that are more likely to be vulnerable to the possible P.ramorum outbreak, and are identified as the most difficult to fell due to site constraints. The proposed clear felling to the Eastern end will help the halo thinned broadleaves survive and continue to be a seed source for the PAWS area. They will also help diversify the age structure and allow these areas to develop under future productive broadleaf management. The operations of these lower elevation coupes are likely to be difficult, and need careful planning, because of the factors such as powerlines, steep terrain, high recreational visitor numbers use, water related issues and overall health and safety related to these factors, and it is considered prudent to start this planning process as soon as possible so that it is carried out in a controlled way.

The middle section of this zone is classified under CCF silviculture. There is a good thinning history on most of this CCF area to carry out this type of management, although the northern half needs thinning urgently or otherwise it will miss the window for first thinning. Overall the CCF crop is still at least one thinning away from initiating regeneration. Scots pine and larch are likely to need another 10 to 20 years before the cones are produced in bigger numbers and regeneration can be initiated.

Note for the future:

It is important to note that there is a boundary anomaly located at the western boundary of this zone. This area is not owned by FES, but was planted as a part of the 1970s operations. The clearfell of this area is outside the scope of this plan but when felled it should not be planted again and fence should be moved to follow the correct block boundary.

Thinning:

The thinning proposals over this plan consist of both first and subsequent thinnings.

The first rotation thinnable areas of this zone are now thinned, and what is left should not be thinned over this on-going first rotation. These areas are primarily high elevations and further from the present road network and are in most cases very wet. The overall tree growth on these areas is poor. These areas can be possibly thinned over the second rotation or can be managed again through a non-thin regime.

The proposed CCF areas have been thinned in the past, or are waiting for their first thinning. These areas should be thinned in the future to encourage regeneration.

The first thinning areas are spread across this zone and should be thinned over this LMP period. The coupes located at the higher elevations are likely best to be given time until the end of the LMP period because of the lower yield classes and extended time the crop needs to reach the ideal first thinning size. The coupes at the lower elevations should be thinned over the Phase II of this LMP. Depending how P.ramorum spreads it might be beneficial to remove the larch as a part of these operations, but this decision should be made as a part of the work-planning process. As a part of the future first thinning operations wide enough rides should be added around the perimeter of the coupe to stabilise the crop in the thinned, and adjacent, felling coupes.

Infrastructure:

The overall infrastructure of this zone is good. The roads are currently in a good working order and should be maintained on this standard over the LMP period. There is some construction and upgrade required within the plan period.

These consist of an access point with spur stacking and turning area in the eastern phase I coupe, construction of a spur road into the phase I coupe by the Tummel loch-shore, and upgrade of existing western access point. Approval will be sought when more detailed operational planning has determined exact specification.

9.4 Habitats and species proposals for the plan period

There is one felling coupe which is to be felled in 2018, prior to the update of this LMP. Four clearfell coupes will be operated over the Phase I of this 2017-2026 LMP. As a result there are five management coupes which are likely to go through restocking before the next LMP takes place in 2026/2027.

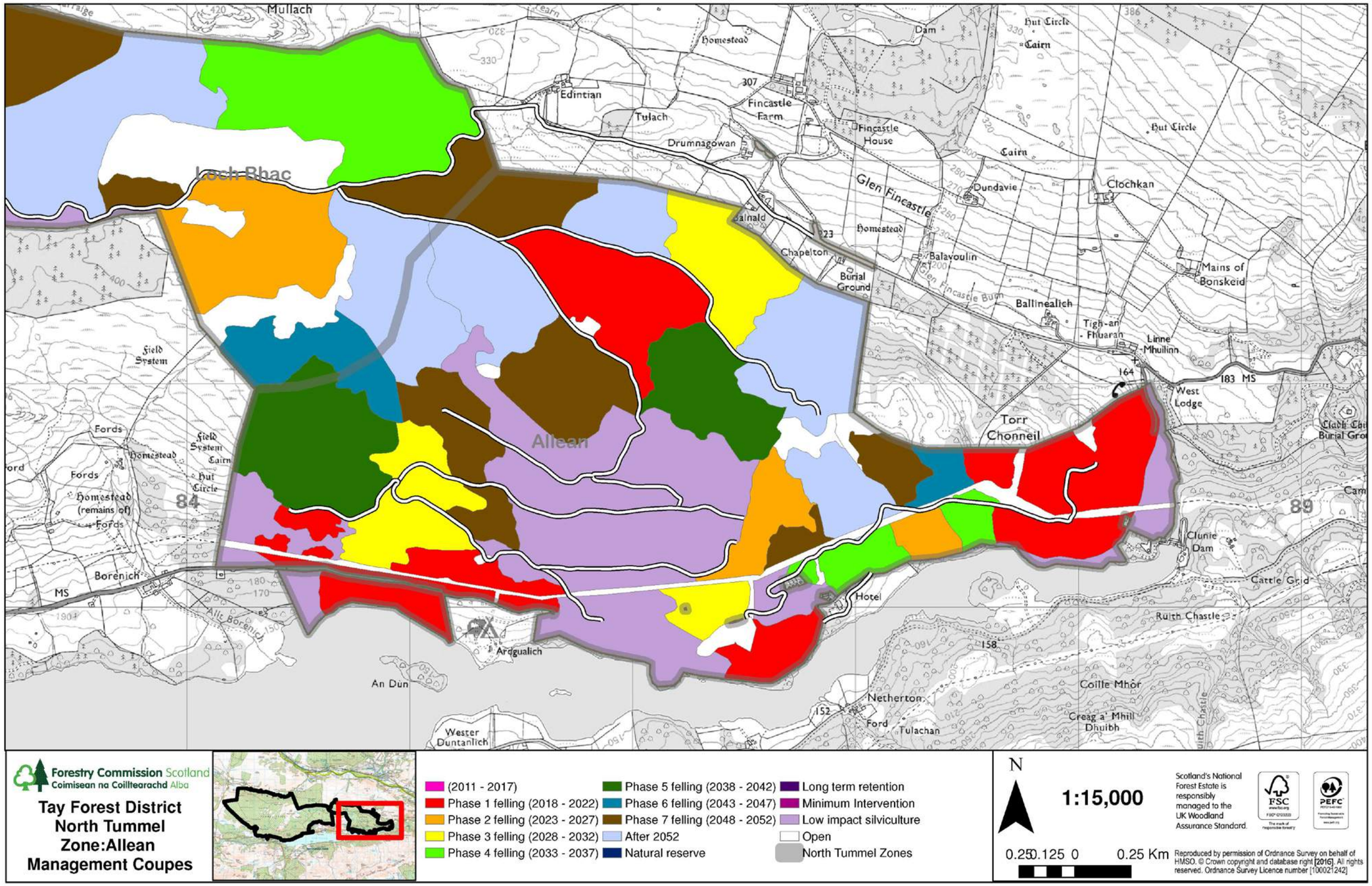
The majority of the felled area located at the lower elevation will be restocked with broadleaves as these areas are classified as PAWS. These will be planted as close to the end of felling as possible to minimise the visual disruption within the NSA. Species will be mainly birch, but a variety of mixed native broadleaves are likely used to provide increased values in terms of resilience and seasonal colour for landscape. Lower elevation coupes outside the PAWS are proposed to be restocked with diverse mixture of conifers such as Douglas fir, Norway spruce, Scots pine and Sitka spruce to provide variety in colours and to enhance the landscape value.

The higher elevation restock species must take account of the site specific conditions which limit the species choice. As a result Sitka spruce will be the dominant restock species but Scots pine is proposed to be planted as a mixture to act as a nursing crop. Over the future thinning operations the decision can be made if the composition is wanted to be driven towards the Scots pine by removing the Sitka spruce.
Broadleaves are proposed to be planted adjacent to the water courses and/or wet areas to also help integrate the PAWS areas and more commercial areas, as well as improving the quality of the water that leaves the forest and enters the SAC.

The wayleave through this area provides suitable habitat for a number of priority insect species, for example pearl-bordered fritillary and Kentish glory. Proposals will ensure that these species will have continuity of habitat through restructuring around the core powerline area.

Note for the future:

It is important to notice that there is a boundary anomaly located at the western boundary of this zone. This area is not owned by FES, but was planted as a part of the 70s operations. The clearfell of this area is outside the scope of this plan but when felled it should not be planted again and fence should be moved to follow the correct block boundary.



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone:Allean
Management Coupes

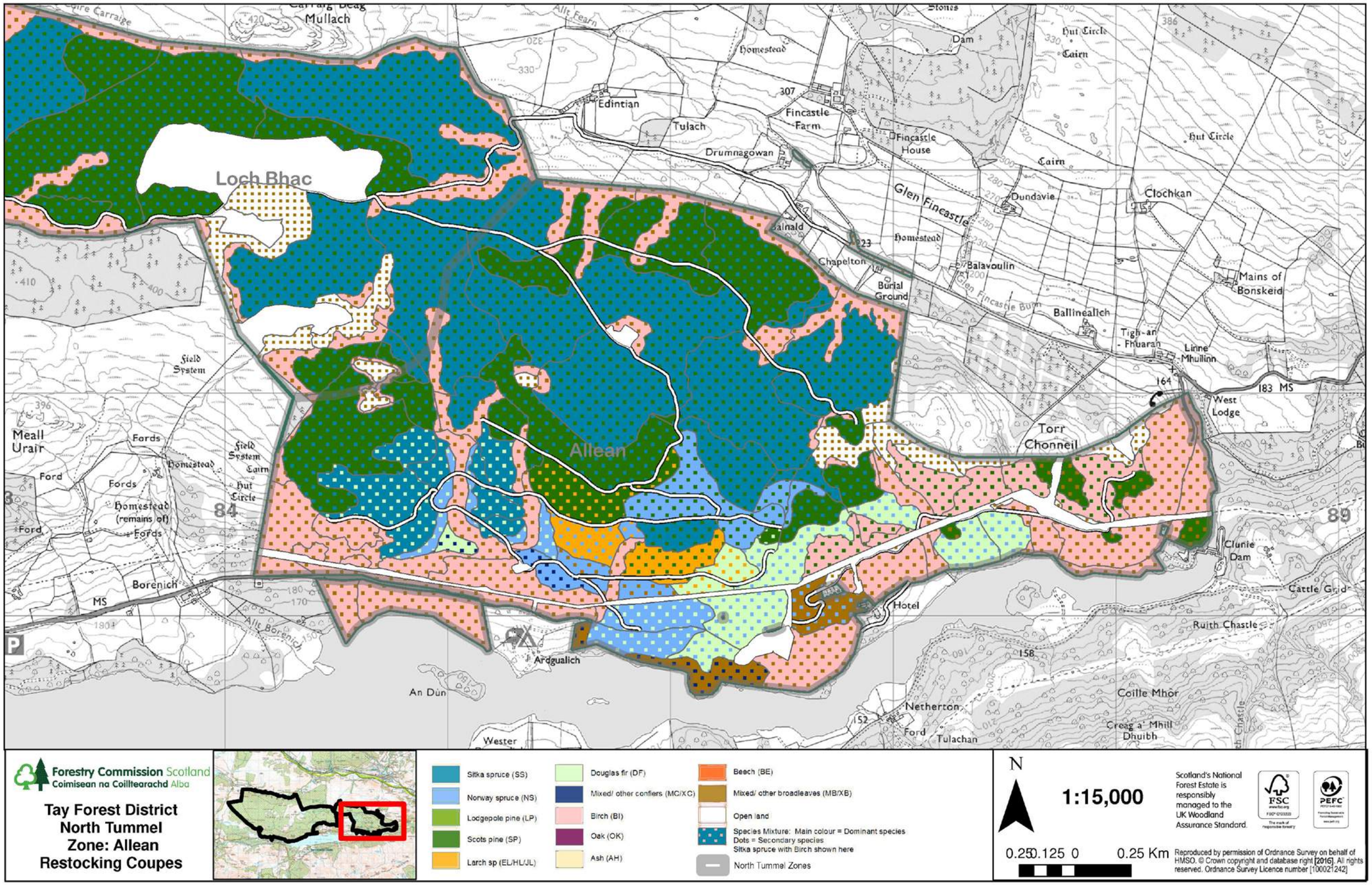
- (2011 - 2017)
- Phase 1 felling (2018 - 2022)
- Phase 2 felling (2023 - 2027)
- Phase 3 felling (2028 - 2032)
- Phase 4 felling (2033 - 2037)
- Phase 5 felling (2038 - 2042)
- Phase 6 felling (2043 - 2047)
- Phase 7 felling (2048 - 2052)
- After 2052
- Natural reserve
- Long term retention
- Minimum Intervention
- Low impact silviculture
- Open
- North Tummel Zones

N

1:15,000

0.25 0.125 0 0.25 Km

Scotland's National Forest Estate is responsibly managed to the UK Woodland Assurance Standard.



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Tay Forest District
North Tummel
Zone: Allean
Restocking Coupes

- Sitka spruce (SS)
- Norway spruce (NS)
- Lodgepole pine (LP)
- Scots pine (SP)
- Larch sp (EL/HL/JL)
- Douglas fir (DF)
- Mixed/ other conifers (MC/XC)
- Birch (BI)
- Oak (OK)
- Ash (AH)
- Beech (BE)
- Mixed/ other broadleaves (MB/XB)
- Open land
- Species Mixture: Main colour = Dominant species
  Dots = Secondary species
  Sitka spruce with Birch shown here
- North Tummel Zones

N

1:15,000

0.250.125 0 0.25 Km

Scotland's National Forest Estate is responsibly managed to the UK Woodland Assurance Standard.

10.0 North Tummel Management Prescriptions 2018-2028

Management of North Tummel is split between zones worked under CCF and clearfell silviculture. Management prescriptions will consider landscape, recreation, biodiversity, and deer management. Key management aims are timber production, PAWS restoration, conservation, and landscape & tourism.

Areas of retention and natural reserves have been updated as a part of this new LMP and now account for the specific areas inside this block appropriately in terms of the environmental condition, current governmental policies, and 2017 FES nationwide management aims, criteria and drivers.

The western portion of North Tummel, is dry, grows good timber, is easy to access and has good roads with good quarries to serve them. There is a long term contract for thinning and felling producing a good quantity and quality timber. There is a good thinning history and success on large portions of this area which makes it possible to alter some of the silvicultural systems from clearfelling to CCF. Because it is easy to access, it can be used as a solid source of the overall production of timber for the district with a variety of coupe sizes to help the operational programming. For the future these western zones demonstrate excellent possibilities in terms of both clearfell and CCF silviculture.

Over the period of this LMP there are further aims to increase PAWS areas located on the lower south facing slopes (Strathtummel) by decreasing the amount of current standing non-native conifer proportion while restocking these areas with native broadleaves. The north facing slopes does not have as favourable conditions for most of the native broadleaves but instead are suitable for native Scots pine. As these areas are felled, or managed through CCF, the proportion of Scots pine will increase, along with birch, which drives them towards their native state while improving the PAWS conditions by the removal of non-native species.

The eastern half of the forest block has good structural variation and as a result this area will continue to be managed through CCF silviculture. Lower slopes are south facing and offer good microclimate and soil conditions for the variety of tree species, both broadleaved and conifers. With increased elevation the microclimate and soil conditions decrease in quality and are more favourable for coniferous species.

The long term drive is to improve the autumn colours and visitor attractiveness along with the commercial forestry. This aims to produce high quality timber through variety of silvicultural systems along with the aim to meet further human and environmental values. During the period of this plan it is important to acknowledge and monitor the condition of larch as the national spread of *Phytophtora ramorum* progresses.

10.1 HM – Clearfelling

Within the block the conventional clearfell regimes are to be worked over an approximate 45 to 70 year rotation subject to site index and species. Where appropriate the rotation includes thinning interventions, but where it is seen impractical, the remaining rotation will be carried through without further thinning interventions. This can be because of factors such as lack of previous thinning interventions, poor crop growth or quality, or unsuitable ground conditions where environmental damage is likely if thinning takes place.

10.2 HM – CCF

There is a long history of CCF practice in North Tummel and this will be carried over into the future. The past FDP had good CCF prescriptions for some of the North Tummel area, particularly Allean. CCF coupes were checked and confirmed in terms of their objectives and suitability and management proposals for this plan.

CCF prescriptions were almost absent within the western half of the forest block, and although some areas have been thinned they were being managed to rotational clearfell. These areas were reviewed and the CCF area increased where appropriate.

CCF is being reduced reduced on the lower slopes of Allean, as discussed in the management prescriptions section, to enable the more rapid and effective shift of species to progress PAWS restoration. In the Strathtummel/Meall Reamhar zones, CCF is expanding to cater for species change and PAWS management.

Within PAWS areas this process of natural regeneration of native broadleaves is both welcomed and encouraged, but it should however be recognised that considerable time will be required to achieve this vision and will take a number of future LMPs to complete.

10.3 HM – Thinning

Thinning will initially build crop stability through crown thinning, gradually changing into low thinning to improve the crop quality towards the end of the rotation. The specific timing of the change is driven by the tree species' specific ability to respond to different thinning types and will be agreed at the workplan stage before the management operation. The rationale for this is that the crops response is usually best during the beginning of the rotation (Kerr & Haufe, 2011). Crown thinning with future final crop tree selection at the beginning of the rotation concentrates the volume production on the best individuals in the stand and develops stability. To confirm the site suitability in terms of crop, soil and wind vulnerability the final thinning prescription must be discussed in terms of each operation at the workplan stage before the work commences.

The most significant aspect of future management will be to develop a programme of thinning on steep ground to fully maximise available volume within the forest resource. As North Tummel is a forest block with multiple values it must be acknowledged that this programme must also meet the management aims in terms of recreational use, visitors and landscape.

The thinning operations are vulnerable to timber price fluctuations, availability of specific machinery, and unforeseen windblow, which all relate to the operational costs and affordability to follow the planned thinning prescriptions. Because of this the proposed thinning programme should be seen as aspirational and liable to assessment and change.

Currently planned thinning operations are aimed be undertaken within the areas highlighted in the Thinning Extent Map.

10.4 FM - Restocking and natural regeneration

The restocking proposals as seen in the restock map aim to select the most suitable species on the specific sites depending on the soil type, moisture, deer pressure elevation and aspect. This is done by the combination of observations from the current forest structure, Ecological Site Classification tool (ESC) and professional opinions of FES foresters.

It is proposed that on the productive areas which don't overlap with broadleaf expansion sites (e.g. PAWS), commercial coniferous restock species such as Sitka spruce, Douglas fir, Scots pine, Norway spruce (*Picea abies*) and western red cedar will be planted. At the higher elevations Sitka spruce and Scots pine are likely to be the best species, but at the lower slopes it is seen possible to diversify the conifer species composition.

Restocking will take place as soon as appropriate after felling, balancing requirements to protect against expected pine weevil (*Hylobius abietis*) pressure, maintain site productive potential, and reduce site inputs to control both weeds and weevils. Fallow periods of up to 5 years may be employed where hot planting is not thought to be appropriate, with crop fully established 5 years after that.

On the more fertile lower slopes, where most of the PAWS areas are found, it is proposed that an additional broadleaf component is planted. This is to drive species composition towards mixed broadleaved-dominated, and to enhance the stocking density to the appropriate level.

Many management coupes located in these areas currently have distinctive areas of mature conifers which have reached, or are about to reach, their rotation age. As some of these management coupes are now planned to be felled and restocked over the 10 year period of this LMP an ambition is to use the surrounding mature broadleaves as a seed source for some of these felled areas.

As a part of using natural regeneration the management coupes will be monitored and re-spaced as required to produce a quality full-stocked young crop. If natural regeneration does not give appropriate stocking densities, or species composition, the areas will be beaten up manually.

The greatest potential in terms of future habitats/species change lies on the more fertile free-draining slopes by the side of Loch Tummel where remnant semi-ancient native broadleaved areas can be found. It is envisaged that over a period of several thinning cycles, broadleaves will become an increasingly dominant proportion of the stands. Some degree of intervention may be required to favour desirable species (birch, oak (*Quercus* spp.)) but this is to be determined prior the operations as a part of the work planning procedure.

10.5 Civil Engineering

Overall North Tummel has good road infrastructure, and most of the roads which are needed for forest management operations have been well maintained. To enable future harvesting operations, and the safe extraction of timber, there are civil engineering work areas that proposed for the 10 year period of this plan:

- Glen Errochty - the internal road which connects the management coupe 02114 (at the end of the internal road) to the public road is in poor condition. A road section close to the coupe has already suffered because of a landslip, and the second half of the road is in very poor condition. Work will take place inside the block, outwith the NSA, further than 25m from a public road, so will not require EIA determination or Planning Permission. Prior Notification will be sought due to culverting and footprint.
- The western Drumcroy Hill management coupes which are to be worked this, and the next LMP - two new access points with stacking and turning areas will be built. The proposed work needs Planning Permission as the work will take place next to the public road. A portion of internal road will also need to be upgraded to service the phase 1 coupe but this will not require permission as footprint will not increase.
- The south-west side of Allean - this area is proposed to be clearfelled over phase 1 of the LMP. Upgrade of existing access from the forest road and creation of a separate access spur are required to allow timber extraction. Work is within the NSA and will require EIA-determination in addition to planning permission.
- The East of Allean - access is required for the Phase 1 coupe. Permissions have been gained already.
- There are six quarries inside the North Tummel plan area. Two quarries are within the NSA and require EIA determination if they are to be worked, and the others require monitoring to ensure that they do not exceed area threshold.

10.6 PAWS restoration

PAWS areas of North Tummel are mainly found on the lower, more fertile slopes and are an important aspect, and management driver of the area and this LMP because of their connections to the environmental, landscape and spiritual values of the forest. PAWS restoration will be a gradual process achieved through thinning and felling over a number of plans. The long term vision for identified PAWS areas is to expand native

woodland to enhance the local and wider environment while giving future managers the option for timber production.

The restocking of the PAWS areas will need careful work planning. The management of deer is closely correlated to the success rate of the broadleaved establishment and this can be particularly difficult in the North section of Allean. There is no current deer fence located round this area, so the felling of the phase 1 coupes needs to be in conjunction with the erection of a deer fence to help the PAWS restoration. The other PAWS restoration priority areas do not have such a high risk of deer damage, so a planned culling and fence upgrading should be enough to suppress the deer numbers for broadleaves to establish.

10.7 Deep peat bog restoration

There are deep peat areas in North Tummel, particularly around Cragan Liath Mor in the western part of the Meal Reamhar zone. These areas have historically been ploughed and planted with lodgepole pine and Sitka spruce. On these areas the tree growth and survival is poor, and the trees that are still living are not likely to give much benefit in terms of timber production, environment, landscape or carbon storage.

As the tree cover of these areas has more negative impacts than positive this LMP proposes that these areas are felled and classified as deep peat restoration. Bog areas will be felled to waste, or harvested where possible, stumps and furrows will be flattened and drains blocked to raise the water table and encourage redevelopment of bog ecosystem. This process should then change these sites from potential carbon sources to carbon sinks.

10.8 Management of open land

Managing open land, particularly in wetland areas, will generally be low intervention over the course of this LMP. The exception is use of grazing to maintain open space on the Meall Reamhar SSSI and the calcareous grassland and limestone outcrops.

Open space is classified as Open or Successional. The emergence of regeneration in open areas should be periodically monitored and if significant stocking of undesirable trees are found to be establishing, particularly in areas of restored open habitat control measures will be deployed.

Most of the open sites are found at the higher elevations, in the central and eastern parts of the block, namely Cragan Liath Mor, south of Glen Errochty, north of Drumcroy Hill and Loch Bhac. Some of these bog areas do not have deep enough peat depth for the meaningful restoration but are too poor, shallow and/or wet to establish a woodland which produces timber, or acts as a better carbon sink when compared to the current situation. In these cases it is better to manage these areas as open successional, which gives additional value in terms of the landscape and the environment.

10.9 Deer management

Management of deer must take into account a variety of factors to achieve sustainable population density. Ultimately a sustainable population will be of a density that it will not impact negatively on floral diversity and allows successful natural regeneration and restock planting.

The FES assessment for population dynamics starts by the assessment of the deer numbers by the periodic dung counts which are carried out as a monitoring tool. Additionally browsing levels are assessed within restock sites and on sites with natural regeneration. From these the final cull numbers can be determined.

Overall the deer pressure around and inside North Tummel is relatively low, although hot spots are known. An increased planting of broadleaves and soft conifers over this LMP period may be a challenge as these are more susceptible to browsing by deer.

There are known weak points in terms of the current perimeter deer fence; specifically the north side of Allean, eastern section of Glen Errochty, northern section of Loch Bhac and western section of Drumcroy Hill.

Control of red and roe deer is undertaken by a dedicated FES wildlife ranger and a deer management contractor. For the next 10 years there are specific sites where the shooting pressure is likely to be focused. There are no immediate plans to fence individual coupes, instead it is proposed that the perimeter fence is made sound and monitored. As the management coupes found at the eastern end of Allean and Glen Errochty are felled and restocked with broadleaved species they are likely to receive high deer pressure and control must be focused ensure successful restock in these areas.

It is proposed that the deer management contractor stays in place to achieve the control required to meet objectives. Out of season and night culling are proposed to achieve continued high culls. Monthly checks will be carried out on restocking sites and in areas of vulnerable crops to inform culling strategy.

The Forest District maintains a Forest Deer Management Strategy for all its forest blocks. This is carried out as a mechanism for identifying deer management issues at both strategic and operational level. Feeding into the strategy is captured data from cull records, boundary fence condition, browsing impacts, and estimated deer population figures within forest blocks and on neighbouring land. This information is collected by local staff and external bodies to give a holistic view of deer dynamics effecting individual forest blocks.

The areas of known larger deer population, major pressure points and fence conditions are illustrated in zone context maps.

10.10 Plant health

Over the last FDP approval period there was a steady increase in plant health issues which now have to be taken into account for this plan. Currently-known plant health issues for the North Tummel are *P.ramorum*, *Dothistroma* Needle Blight (*Dothistroma septosporum)*, and ash dieback (*Hymenoscyphus fraxineus)*.

In addition there are a number of long-standing forest pests and diseases present in the plan area and are dealt with in operational work planning; fomes (*Heterobasidion annosum*), honey fungus (*Armillaria mellea*), great spruce bark beetle (*Dendroctonus micans*), green spruce aphid (*Elatobium abietinum*) and pine weevil (*Hylobius abietis*).

P.ramorum was first found in the UK in 2002, but it was 7 years later when it started to cause large-scale damage, principally in larch crops, and is now widespread in Scotland, England and Wales.

North Tummel is partly within an NSA designated in part for the autumn colour created by larch stands, recreation and tourism benefiting positively from the landscape.

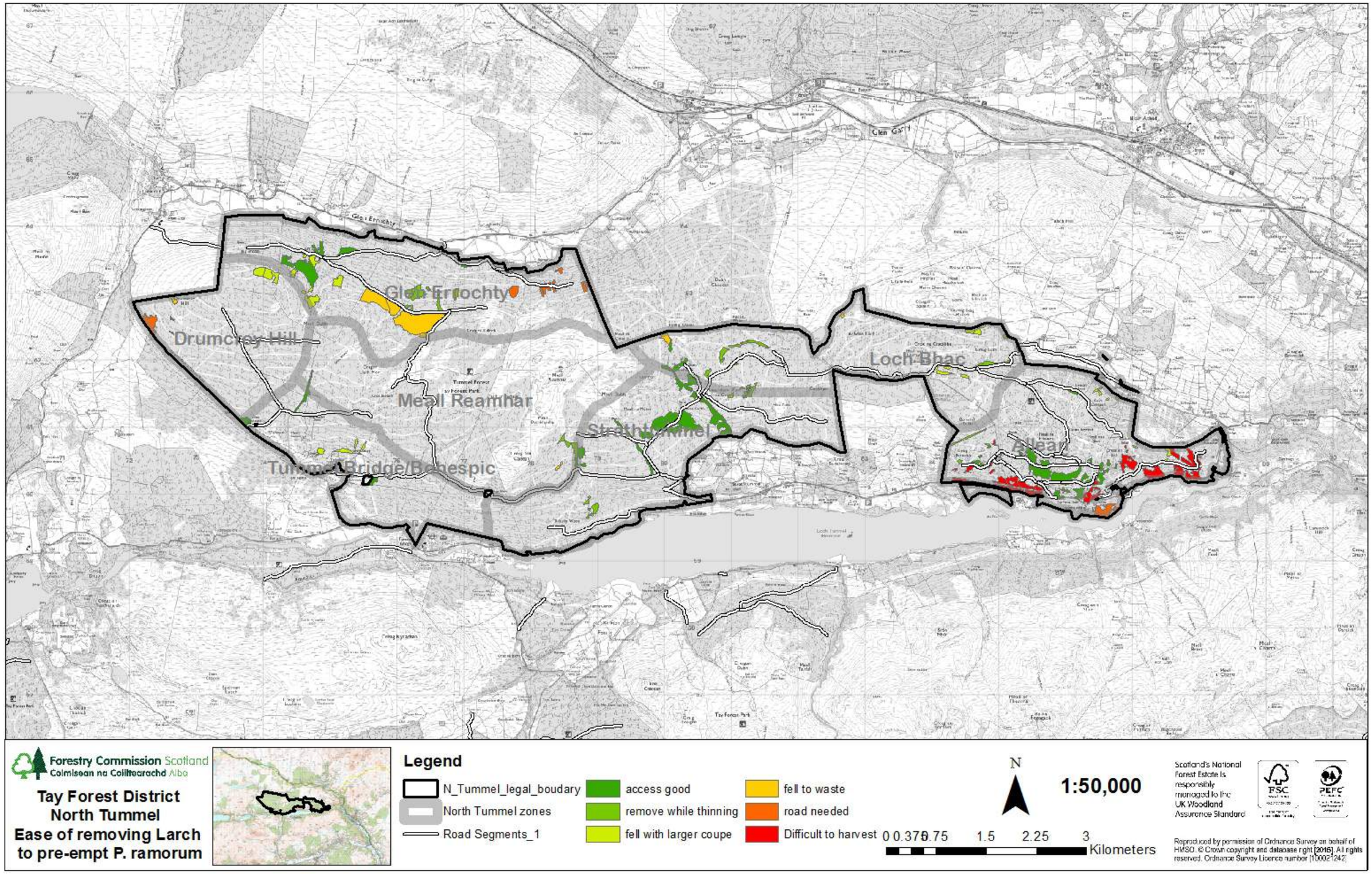
This plan considers the future management of larch in the context of likely *P. ramorum* infection and an assessment of larch crops is provided in the map on page 67. Larch in North Tummel is very important for its multiple values but plans must consider controlled removal and replacement to provide equivalent benefits. Some management coupes have been adjusted, in terms of shape and phase and prescription, from the previous FDPs. This is particularly important for initiating operational planning for some of the more difficult sites in Allean which are likely to need more input than “business as usual”. Additionally larch has also been taken out as a restock species.

Dothistroma Needle Blight, first found in the UK in 1954, is the major threat and damaging agent for pine species. Although the disease is quite well researched, and good updated reviews are produced (Bulman *et al*. 2016), it is up to the forest manager to make the final management prescriptions at the forest block and management coupe level through the workplan process prior the management operations. The current research shows that through thinning interventions the likelihood and damage of this particular agent can be limited, and this is something that the manager must take into account when decisions are made in terms of the future of the pine components inside North Tummel.

There is a fairly high proportion of pine located in North Tummel. Most of these areas have a good thinning history, although the high elevation areas of Cragan Liath Mor, Glen Errochty, Drumcroy Hill and Loch Bhac have been mostly left un-thinned because of the access issues and poor crop quality. The thinned areas are mostly Scots pine which have better resistance to the disease if compared to lodgepole and Corsican pine (*Pinus nigra* ssp. *laricio*) (Fraser *et al*. 2015). At high elevations, poorly growing and stocked areas, where species mostly consist of lodgepole pine it is proposed that the management coupes are felled and where restocked, lodgepole pine is not a component. This is because they do not offer any reasonable value in terms of timber, environment, recreation or carbon storage, and landscape value is minimal. If these areas are to be restocked after this LMP it is proposed that sparse, low-density cover is achieved by using Scots pine and native broadleaves as restock species.

Ash dieback was first found in the UK in 2012 and since then the disease has spread over much of the UK. It can kill young trees quickly, while older tree can usually resist the stress for a longer period of time but usually the extended exposure allows another disease agent or ash dieback itself eventually kills the tree.

Ash is not a major component of North Tummel (*c.*3ha), but it is native broadleaf so is important to some PAWS areas and contributes to autumn colours. As there is not a large area of ash there are no proactive measures proposed in terms of the felling. Infected trees will be left as deadwood source to benefit the environment. The only proposal in terms of the disease is to exclude ash from planted stock and replace with site appropriate broadleaves, removing what would be one of the most productive site-type appropriate broadleaves from our restocking choices.


Glen Errochty
Drumchoy Hill
Meall Reamhar
Strathtummel
Tummel Bridge/Bonespic
Loch Bhac
Glen Garry
Forestry Commission Scotland
Coimisean na Coillearachd Alba
Tay Forest District
North Tummel
Ease of removing Larch
to pre-empt P. ramorum
Legend
N_Tummel_legal_boudary
North Tummel zones
Road Segments_1
access good
remove while thinning
fell with larger coupe
fell to waste
road needed
Difficult to harvest
N
1:50,000
0 0.375 0.75 1.5 2.25 3
Kilometers
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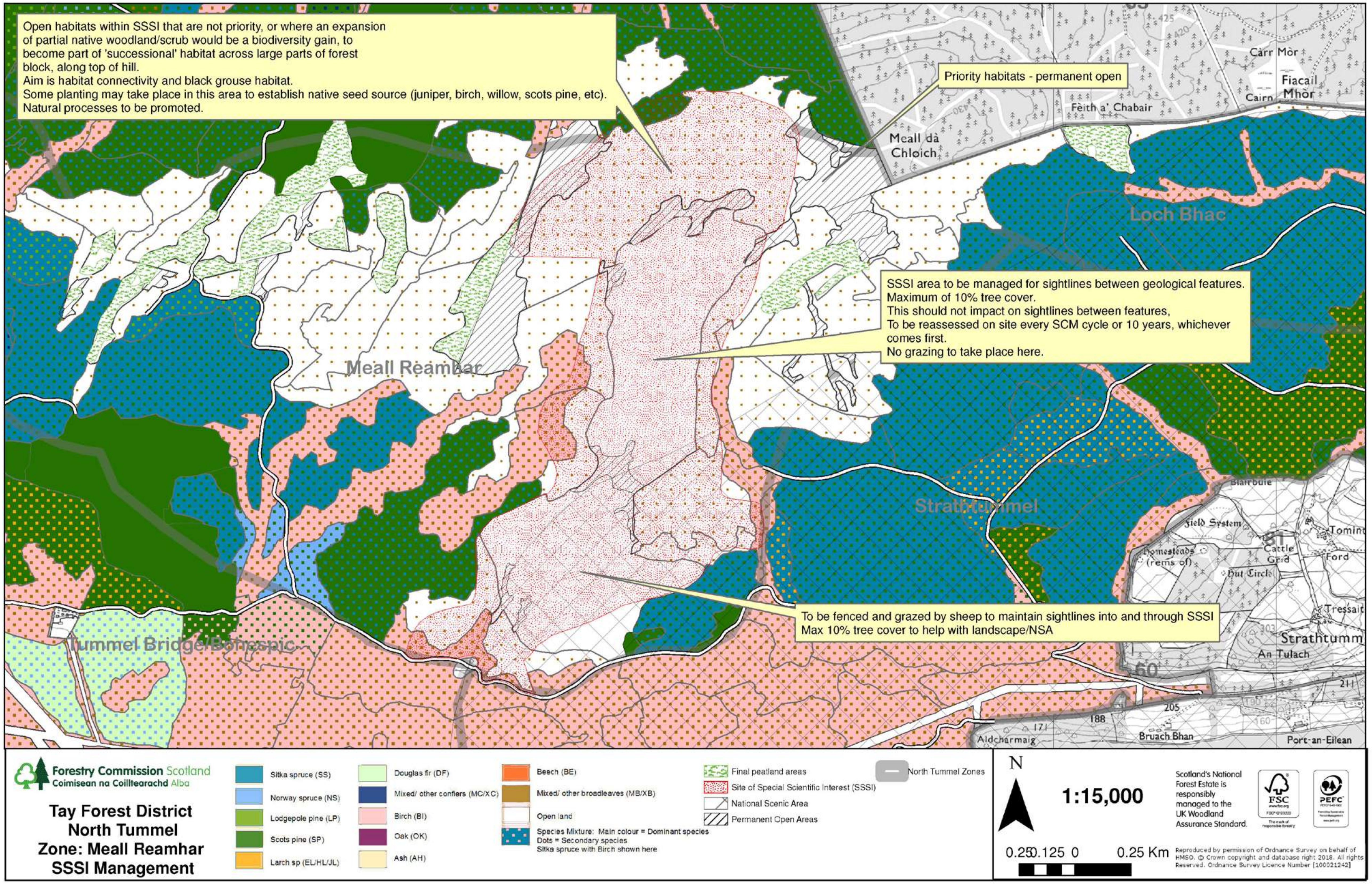
Open habitats within SSSI that are not priority, or where an expansion of partial native woodland/scrub would be a biodiversity gain, to become part of 'successional' habitat across large parts of forest block, along top of hill.
Aim is habitat connectivity and black grouse habitat.
Some planting may take place in this area to establish native seed source (juniper, birch, willow, scots pine, etc).
Natural processes to be promoted.
Priority habitats - permanent open
SSSI area to be managed for sightlines between geological features.
Maximum of 10% tree cover.
This should not impact on sightlines between features,
To be reassessed on site every SCM cycle or 10 years, whichever comes first.
No grazing to take place here.
To be fenced and grazed by sheep to maintain sightlines into and through SSSI
Max 10% tree cover to help with landscape/NSA
Meall Reamhar
Meall dà Chloich
Fèith a' Chabair
Càrr Mòr
Fiacail Mhòr
Cairn
Loch Bhac
Strathtummel
Tummel Bridge/Bohespic
Field System
Homesteads (rems of)
Hut Circle
Cattle Grid
Ford
Tomint
Tressait
Strathtumm
An Tulach
Aldcharmaig
Bruach Bhan
Port-an-Eilean
188
205
171
211
Forestry Commission Scotland
Coimisean na Coilltearachd Alba
Tay Forest District
North Tummel
Zone: Meall Reamhar
SSSI Management
Sitka spruce (SS)
Norway spruce (NS)
Lodgepole pine (LP)
Scots pine (SP)
Larch sp (EL/HL/JL)
Douglas fir (DF)
Mixed/ other conifers (MC/XC)
Birch (BI)
Oak (OK)
Ash (AH)
Beech (BE)
Mixed/ other broadleaves (MB/XB)
Open land
Species Mixture: Main colour = Dominant species
Dots = Secondary species
Sitka spruce with Birch shown here
Final peatland areas
Site of Special Scientific Interest (SSSI)
National Scenic Area
Permanent Open Areas
North Tummel Zones
N
1:15,000
0.250.125 0
0.25 Km
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11.0 UKFS Departures

None

12.0 EIA Screening Determination

12.1 Proposed new planting

None

12.2 Proposed removal of woodland

Phase 1 felling associated with deep peat restoration on Cragan Liath Mor in the western part of the Meal Reamhar zone – c. 35ha

12.3 Proposed new roads and upgrading of roads

- To be applied for separately from this plan

12.4 Quarries

- Proposed quarry working over the next five years is listed below:

Block	Location	Current Area (ha)	Additional Area (ha)	Developed Quarry Area (ha)
Allean	NN858613	0.8	0.5	1.3
Errochty	NN801611	0.9	1.1	2.0
Errochty	NN794603	0.8	0.5	1.4
Errochty	NN756612	0.3	0.2	0.5

13.0 Critical Success Factors & Final Words

The summary of the critical factors is the following:

- **Conifer component and dominance in PAWS areas reduces**
- **Restoration of blanket bogs takes place**
- **On CCF/LISS areas natural regeneration is achieved**
- **The visual aspect of the forest block is improved**
- **The road structure is fit for purpose in time for forest operations.**
- **The deer damage is minimised**
- **The productivity is at least maintained, if not improved, on the areas where the first rotation ends and the long term aim is to grow productive crop over the second rotation**
- **Proposed forest management operations are carried out.**

Success of this plan is very much dependant on the timely delivery of the key management LMP and zone specific objectives, and the associated operations - be it restocking, thinning or provision of habitat.

In terms of the continuous cover areas, the critical factor will be in the level of natural regeneration which develops as an understorey over the regeneration fellings, what the species and stocking density will be and how recordable this data will be for future crop prediction and forecasts. It is likely that local staff will have to upskill with regard to managing natural regeneration for plotting and determining what levels of respacing should be applied to each species – all of which will take more time to manage.

Given the high landscape value of most of the North Tummel, and its surrounding area, coupe design and timing of felling are critical in avoiding any detrimental effect to what is an iconic woodland landscape and key component of the Loch Tummel NSA. Phase 1 felling coupes in Allean may have a short term detrimental effect on the landscape quality, but if hot planted, should soon succeed in satisfying more objectives, such as PAWS restoration. The issue of thinning on the steepest ground is a challenge given the small scale of volume and high costs involved in this particular operation. Under the current forest economic situation of Scotland any use of cable crane extraction is very questionable. If it takes place it must to be carefully targeted to gain the maximum silvicultural and environmental benefits.

A number of interventions for roads are required in order to carry out the forest operations at the required time. If these are delayed, it could have a knock on effect on the operational programme.

Deer management must be critically discussed and proactively planned before any restock of broadleaves. Under the current economic situation the beat-up costs because of the predicted deer damage must be minimised. Further on, the success of PAWS restoration will rely on this: planning and communication which must take place prior to operations being done. If it does not take place it is more than likely that all broadleaved planting will go to waste and some of the objectives of this plan are not appropriately met.

Finally, the forest health issues can suddenly alter the direction of the North Tummel proposals. It is important to follow the spread and progress of the current, and possible future forest pathogens to proactively take account of the issues which may affect the objectives brought forward in this LMP.

Appendices

Appendix I: Assessment of success of previous plan

Main management factors:

- Balance between continuous cover forestry (CCF) / conventional forestry (Clearfelling). Review and identification of areas where prescribed silvicultural systems serve their purpose in long term,
- Priority PAWS restoration areas for this LMP period,
- Sporadic and group wind throw occurrences and their management,
- Nutrient deficient areas on high elevation spruce (*Picea* spp.) restock sites,
- Wetland areas,
- Red band needle blight (DNB) sites and future management,
- Capercaillie population and future trends,
- Forest carpark and woodland trails and
- Linear features on forest boundaries

Success of the management of this area has been, and is, very much dependant on the timely delivery of the key management objectives and their associated operations: clearfelling, restocking, thinning or provision of habitat. In terms of CCF, the critical factor is the level of natural regeneration which develops as an understorey as a result of regeneration fellings, what the species mix and stocking density will be, how deer population is addressed and how recordable this data will be for future crop prediction.

Given the high landscape value of North Tummel and its surrounding area, coupe design and timing of felling have been acknowledged as critical in avoiding any detrimental effect to what is an iconic woodland landscape and key component of the Loch Tummel NSA. The issue of thinning on the steepest ground has been a challenge given the small scale of volume and high costs involved in this type of operation which would most likely be operated by manual chainsaw felling and winch/skyline extraction. There are various sites where thinning operations are now overdue, and these are taken into account in this new LMP. Wherever possible thinning operations should take place, but it is important to acknowledge that there are areas where the risk of windblow is too high and the impact of lost tree cover would lead to wider problems in terms of lost landscape and recreational potential.

As the earlier FDPs acknowledges, most of the higher elevations of North Tummel are wet, peaty, and contain stands suffering from nutrient deficiency. At the same time they offer critically important habitat to some of special Scottish flora and fauna. As a result it is important to highlight their presence and consider the past management drivers of these areas and how to reflect and sustain them in the future plans.

Forest health has been addressed through monitoring of pests and diseases. The main biotic issue of North Tummel was, and is, red band needle blight (*Dothistroma* needle blight/DNB). In terms of abiotic hazards wind is a problem and some late thinning areas have been found to be susceptible to the western winds.

Whilst economic timber production is a major driver for the forest, it must be remembered that recreation is also significant. With high visitor numbers the past and future management needs to take account of the carparks, trails and signs to keep this area attractive to visitors.

The previous plans of Errochty and Allean saw the completion of programmed management and restocking plans covering their representative time periods. The majority of felling operations have followed phases set out in the previous FDPs. Some shifts in terms of the felling timing have been necessary and some coupe shapes have been rationalized, but overall the past plans have been successful.

In terms of thinning there has been a shift away from motor manual harvesting and winch extraction used in the past. The main two reasons for this have been the operational costs and lack of specific expertise on the Tay Forest District (FD) area. Harvester/forwarder operations have formed the majority of working but have been restricted by steep ground.

Due to poor market conditions in the past, prescribed thinning operations have been delayed or not done at all leading to limiting future silvicultural options for thse stands. As a result, some of these areas are now too late for thinning, either as part of rotational management or CCF. These areas are now proposed to be clearfelled when they reach the end of their respective rotation rather than risking catastrophic windblow through late thinnings. Windblow is present on the forest edge and sporadically within the crop, further highlighting the importance of early thinning and the need to appraise late thinning.

Conventional restocking practice has generally followed felling operations. In some management coupes, restocking of native broadleaves through natural regeneration was attempted in order to expand PAWS areas. Because the stocking density of trees achieved was low and patchy these areas are now to be restocked during the period of this 10 year plan.

Red band needle blight is currently under control. Most of the Scots pine areas are now thinned, and the remaining vulnerable management coupes with a pine component are acknowledged in terms of their vulnerability.

Work with recreation and tourism is an on-going process. The visitor experience is hoped to be kept aligned with the past standard set in the earlier plans. Queens View sets a great benchmark for local tourist attraction with 4.5 star rating (out of 5) given by 1052 reviewers (tripadvisor, 2016) which earns it the “Certificate of Excellence”.

Appendix II: Background information

1.0 Physical site factors

1.1 Geology Soils and landform

The underlying geology at Allean is Precambrian (Dalradian) quartzite & quartzose mica schist with limestone. Soil composition is from glacial and boulder clay deposits which have created in conjunction with time, climate and land form, a diverse range of soil types within the forest. Lower areas host brown earths of stony-loam texture. Surface water gleys of stony-sandy texture, peaty-gleys and deep-peats increase with elevation.

1.2 Climate

There is an element of oceanic influence but overall interior conditions in a UK context tend to dominate. On account of the altitudinal variation which ranges from 200 meters to 442 meters ABSL, significant climatic differences occur with the forest area (Table 2).

Table 2. Climatic variability of North Tummel

Elevation (m)	144	250	350	442
Annual rainfall		1000		1050
Accumulated temperature (day – deg C)	1400	1245	1110	990
PWD (mm)	20	10	0	0

1.3 Water

The southern boundary of this Land Management Plan is adjacent to Loch Tummel which is part of the River Tay SAC. To the north runs the River Errochty which is a tributary of the River Garry and also forms part of the River Tay SAC system.

At the eastern end of North Tummel there are two significant areas of standing water; Lochan na Nighean and Lochan na Leathain. There are a number of minor water courses which feed into Loch Tummel, many of which also serve as private water supplies for a number of neighbours and for the Queen's View Visitor Centre.

A number of private water supplies originate within the plan area and are mapped and considered during work planning.

2.0 Current land management

2.1 The existing forest

2.1.1 Species, age structure and yield class

North Tummel was planted over a relatively short period in the 1940's and 50's and the first opportunity to diversify the age-class structure came in the 1990's when these original crops approached the end of their first rotation. Restructuring has been effected through utilising species range and soil types to stagger harvesting over a longer period. This restructuring has been assisted by the designation of a significant proportion of the lower slopes for continuous cover forestry where small-scale fellings and heavy thinning is beginning to enable regeneration without complete removal of the overstorey.

The average yield class (YC) of the forest is 12, however lower-elevation areas of spruce, Douglas fir and grand fir grow at YC 18 – 22 offsetting the slower growing pines and larch. The broadleaved component of the block, and the coniferous crop located at the higher elevations generally have yield classes below 12.

2.1.2 Access and roading

Access can be made via access points leading off the B8019, B847 and C453. Internally North Tummel is well roaded with reasonably robust roads if heavy traffic is avoided during the wettest weather.

2.1.3 LISS/CCF potential

The practise of low impact silvicultural systems (LISS) has become an established practise in the areas highlighted under the previous forest design plan covering the periods 2002-2012 and 2012-2022. During this period thinnings have been undertaken using the LISS approach and has been successful in creating notable increases in natural regeneration, especially in relation to Norway spruce, grand fir and Douglas fir. At present natural regeneration is scattered, a survey of this resource was undertaken in 2011 to allow a structured approach for re-spacing and entry into the Forest District's sub-compartment database.

2.2 Biodiversity and environmental designations

2.2.1 Habitats and species

The Land Management Plan area contains the following designations;

- Loch Tummel National Scenic Area (NSA)
- Meall Reamhar Site of Special Scientific Interest (SSSI)
- Tulach Hill (SSSI)
- River Tay Special Areas of Conservation (SAC)

The forest hosts a variety of priority species; a small population of Capercaillie, pearl bordered fritillary, and red squirrels in varying densities across the plan area. The presence of limestone ridges is significant from a habitat diversity perspective as are a network of peatbogs found in the upper areas of the forest.

The presence of remnant native broadleaves is also an important feature, particularly on the side of Loch Tummel. A large proportion of the lochside face is designated as PAWS with implications for future management.

2.2.2 Riparian habitat

The main North Tummel riparian areas are found at the Northern and Southern sides of the block (River Tay and Loch Tummel), and at the Glen Errochty zone where larger watercourses take water down the hill to the larger waterbodies.

These riparian areas are prescribed to be restocked with native broadleaved species such as birch (*Betula spp*.) , aspen (*Populas tremula*), bird cherry (*Prunus padus*), rowan (*Sorbus aucuparia*), oak (*Quercus spp*.), willow (*Salix* spp.) and common alder (*Alnus glutinosa*).

2.2.3 Invasive species

On the block-scale there are not many invasive species. There is the potential for japanese knotweed and Himalayan balsam in riparian areas where seed and vegetative material may be washed down from higher in the catchment. This is currently a minor issue, with few INNS concerns in the plan area.

2.3 Landscape, landscape designations and land-use

2.3.1 Landscape designations and special qualities

The block is partly located in an area of high scenic value and carries a National Scenic Area designation in acknowledgement of this fact. The forest forms part of an extensive coverage of mixed woodland which runs both sides of Loch Tummel and into Loch Rannoch and comprises of a mix of privately owned woodlands and the national forest estate.

2.3.2 Landscape character

The land-use neighbouring the eastern and southern sides of North Tummel is a combination of established woodland dispersed by agricultural grazing and open moorland used for fishing and game shooting coupled with agricultural grazing.

On the northern, eastern and western sides the surrounding land uses mainly consists of either forestry or open land, although some housing and agriculture is also present.

2.3.3 Visibility and viewpoints

North Tummel has high landscape value in terms of its relationship to Loch Tummel which is afforested for the majority of its northern and southern shorelines. The best view points of Allean are seen from the unclassified public road running to Foss from Pitlochry and high elevation vantage points like Schiehallion and Ben Vrackie which host high visitor numbers. The southern side of the block is particularly visible and important, in terms of the landscape. It can be seen across Loch Tummel and from Schiehallion where locals and tourists travel through the year.

While the whole forest is not visible from any one viewpoint, parts of the woodland can be seen from ten main viewpoints (See Zone Map). These were selected on the basis of amount of visibility and the significance of views in terms of the forest management operations over the approval period of this LMP. The viewpoints have been used to illustrate the felling and restocking proposals in the LMP and are:

- Schiehallion
- The B847
- Trinafour
- Above Quarry
- Bonskeird
- Clunie Cattle Grid
- Netherton
- Lick
- Duntanlich
- Donlellan

2.4 Social factors

2.4.1 Recreation

In terms of recreation North Tummel forms an important part of Tay Forest Park through provision of forest trails and picnic and car parking areas which are used by visitors and local people.

The Allean zone carpark and the surrounding management coupes were used to pioneer the development of improved management of recreation zones on the national forest estate. These recognise welcome (car park and approach road), interactive (along the public road and forest walks) and passive (hinterland seen from recreation routes) zones, and will require careful planning and thoughtful delivery of operational and maintenance programmes.

The popular Queen's View visitor centre is located on the south-eastern edge forest and serves as a forest retail outlet and café facility which operates independently of the Allean area. Captured in the previous plans' brief, a suggestion to link the

Queens View with Pitlochry was raised using existing walks via Bonskeid as a possible route. This proposal has not been taken forward and consequently does not feature as a site issue within this particular design plan.

Tummel Bridge Holiday Park is another site with high annual visitor numbers, with a peak time during the summer and autumn months. The area includes both holiday cottages and a caravan park. Site includes further facilities such as a shop, a restaurant and a cafeteria. There are informal trails around this area and visitors are known to use them regularly. The main trails makes a loop on the northern side of the holiday park, with a possibility to walk further north-east through the PAWS area towards Surge Shaft direction.

2.4.2 Community

There is a small community living within Allean which is composed mainly of individual dwellings such as the Kennels and Allean Cottage. The most significant concentration of houses is Allean Cottages where a row of wooden homes are located within the forest boundary and share a FES road for joint access. Located at the entrance to Glen Fincastle and the B8019, there is a community notice board and a hall which is used periodically.

Additionally to this there are two single private houses located at the western end of the block, at the Drumcroy Hill zone, and another single house located at the northern side of the block at the eastern corner of Glen Errochty zone. All these houses share a FES road for joint access.

2.4.3 Heritage

A rich cultural heritage can be found which is manifested by a Scheduled Ancient Monuments (SAM). This includes a 2000 year old ring fort and pre-improvement settlements. In addition, there are a number of 18th century settlement remains including a partially restored Clachan which gives the visitor a sense of how life in such a settlement might have been. Further on, there are known archaeological features located on the private ground next to the zone of Strathtummel and it is likely that some of these features can also extend into the block.

When felling and restocking are carried out, the Forests and Historic Environment Guidelines (2011) will be strictly adhered to. Site assessment prior to forest operations will identify potential areas of archaeological interest and detail recommended actions to ensure that the Guidelines are implemented. Archaeological sites encountered during forest operations will be built into the network of open spaces defined in the restocking plan, and contribute to the habitat network as open glades. These additional sites are not yet identified and will require amendments to the restocking plan to accommodate the additional open space

2.5 Statutory requirements and key external policies

- NSA: Allean Forest is located within a National Scenic Area,
- SSSI: Meall Reamhar SSSI & Tulach Hill SSSI,
- SAC: River Tay Special Areas of Conservation,
- Archaeology: There are four Scheduled Ancient Monuments

Appendix III: Long-term LMP proposals

The long-term aims for the plan area are:

- To normalise the plan area and so balance the harvesting volume, harvesting area and restocking within 5-year phases.
- Restore areas designated as PAWS to broadleaf-dominated structure
- Maintain landscape and recreation benefits particularly around the NSA
- Maximise area under CCF management
- Increase species and structural diversity
- Improve water quality through increase of broadleaf in riparian zones
- Long-term maintenance of open space for designated SSSI and restored bogs
- Gradual increase of native broadleaf-dominated forest cover in successional areas

Appendix IV: Plan Brief

FOREST PLAN BRIEF - ERROCHTY

The sustainable and efficient management of these forests will be driven by the identification of an appropriate balance between environmental issues, people's interests and economic productivity. The attached draft Strategic Plan identifies a zonation of management priorities for some of the key issues within these broad categories - conservation, landscape, recreation and timber production.

In comparison with other Forestry Commission forests in Scotland, the following classification gives a wider context to the value of these forests:

CATEGORY	RELATIVE VALUE
Conservation and heritage- High status	Resident Capercaillie population, PAWS designated land outwith main productive ground. Good areas of scots pine ground and potential for productive native woodland.
Landscape - High status	There are two NSA's which cover Errochty
Recreation - Low status	Limited public use of forest. There is a ROW and core paths within the forest which is also used for annual motor sport events. At Loch Bhac which is split between Errochty & Allean, fishing is leased annually.
Timber production – Moderate /High status	Good growth and form is present in DF & NS stands.

Conservation and heritage issues

- Butterfly habitat created under powerlines.
- Peatland interest with restoration work planned during 2014.
- Integral part of the highland Perthshire habitat network.
- Deer numbers are generally low (300 culled in 2013), there are plans during 2014 to replace sections of fence (deer) and added resources are being channelled into deer control

Landscape issues

- Powerlines are a dominant feature of the forest. There are some local landscape issues which have arisen following harvesting operations.

Recreation issues

- The co-ordination of motor sport events has a significant impact on harvesting and other forest operations.

Timber production issues

- Areas of wet ground can be limiting and the presence of overhead powerlines present a significant constraint to harvesting.

Consultation

This draft Strategic Plan is being sent to statutory consultees (Perth and Kinross Council, SNH, Historic Scotland, SEPA, FC(S)) and to the community council and key neighbours. Feedback will be incorporated into the development of the detailed Forest Plan.

Recommended that a community drop-in meeting should take place at Tummel Bridge.

Appendix V: Consultation Record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Statutory Consultee Scoping				
Historic Scotland		9/12/14	Raising the presence of 7 features within the plan area.	Archaeological features are recorded on the Forest District GIS Heritage layer and are highlighted in work plans and associated contract documentation. Prior to commencing forest operations reference to Forests & the Historic Environment Guidelines 2011 will be made. The Forestry Commission also has an in-house archaeologist Matthew Ritchie to offer assistance when required.
Perth & Kinross Council		11/12/14	Unable to attend scoping meeting due to focusing on emergency actions resulting from weather conditions.	Re-contact at consultation
RSPB		10/12/14	Unable to attend scoping meeting due to the poor wintry conditions effecting travel	Re-contact at consultation. Environment team maintains good proactive communication as a matter of course
R Worrel		11/12/14	Allean – potential for good lochside path between caravan (ardguish) and queens view, also west from caravan park. Allean – south east – small amounts of roadside BLs to open views of loch. Plan should reflect he more managed Allean side and equally the wilder Errochty end. Aim to roll native broadleave cover up the hillsides to rather than just hunging the lochisides. The scale of broadleaves should be sufficient to promote biological function and wider habitat networks.	Noted Restock adjusted particularly regarding PAWS areas
SEPA		5/11/14	Not able to attend.	Re-contact at consultation
SNH		11/12/14	The Glenfincastle area has a high populations of deer and consideration to this should be made in relation the the new deer fence planned for the northern boundary of Allean. Endorsement of opening up sections of the forest to promote lochside views	Fencing programme adjusted to support restocking plans
Forestry Commission		11/12/14	Each section of forest has to be viewed in terms of what management interventions are being applied. With adjacency, there is always an issue with even aged crops. View points should be agreed with the Conservancy prior to plan submission.	done
Public Scoping meeting Kynachan Hall, Tummel Bridge, 18/12/14				
Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Mason		18/12/14	Please leave more open spaces than in the past, even small windows to the views. Very supportive of mixed woodland. No concerns raised from the information given. The details are important, especially with regard to plantations of more native species. I have suggested developing a pond at the site of an electricity pylon soon to be removed, south of over bohespic. Details supplied to R Coope.	Noted – to be addressed tactically by beat / CVS staff
Carver		18/12/14	Interested to thinning work in the vicinity of Grenich and the possibility of securing temporary access through FC ground to thin private woodland.	Noted
Morison		23/12/14	Overall good impression of what is being proposed with more broadleaves, please include Aspen. I walk in the forest every day but since the felling, getting through paths and rides is now very difficult because of branches, will you be able to clear some of the paths to ensure passage.	Aspen will be part of native BL restocking mix Beat / CVS staff aware of path condition
General comments		18/12/14	Potential for good lochside path between caravan park and queens view, also west of caravan park. Small amounts of felling roadside B/Ls at Allean would open good views of the loch on this stretch.	Noted There will be views opened with planned coupes
Statutory Consultee Plan Response				
CONFOR	22/03/18	23/03/18	Concern that Sitka spruce area was to be reduced and question as to how widely processors were consulted	Response that currently CONFOR represented the wider trade during consultation and that spruce volume production was unlikely to be reduced as spruce planting was to be consolidated on accessible and workable mid-slopes
SNH	19/03/18	26/04/18	• Request to indicate extent of SSSI and NSA with respect to open habitat and restocking. • Support for grazing of SSSI • No issues regarding NSA	New appendix map of SSSI added

			• No likely effect on SAC given proposals and best practice • Peat restoration supported	
HES	19/03/18	30/04/18	6 sites highlighted as occurring in the plan area. Presumption to remove crops and clear vegetation as required	Sites cross-referenced with Forester data and recommendations noted as standard best practice
PKC	19/03/18	03/05/18	Highlighted sensitivities and requirement for management within best practice for : • NSA • SAC • SSSI • PAWS • SAMs & archaeology • Core paths & RoW • Various species	Noted – no further action needed
Consultee Plan Response				
June Bennett		04/05/18	have had drainage water seeping out of the bank above allean house and flowing across the drive. Concerned that when more trees are felled that volume will increase	a site visit scheduled as part of other Allean ops planning
James Belton		04/05/18	slo worms prolific around allean forestry cottage. How are up to date operations to be flagged to residents	Environment team made aware. Ops team reminded to contact residents before work

Appendix VI: Tolerance Table

	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Windthrow response
FC Approval not normally required	0.5ha or 5% of coupe – whichever is less	Planting up to 5 seasons after felling (allowing for fallow periods for Hylobius). For natural regeneration up to 10 planting seasons after felling.	Change within species group, e.g. conifers: native broadleaves	Up to 1.0ha
Approval by exchange of letters and map	0.5ha to 2.0ha or 10% of coupe – which ever is first		Greater than 15% species change	1.0ha to 5.0ha – if mainly windblown trees between 5.0ha to 10ha in areas of low sensitivity.
Approval by formal plan amendment	Greater than 2.0ha or 10% of coupe	Delay in excess of that described above.	Increased native woodland component. Increase in native broadleaves and open/bog restoration	Greater than 5.0ha in areas of medium to high sensitivity

Appendix VII: References and Bibliography

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Appendix VIII: Landscape Visualisations