19 SEP 2016

Dumfries and Borders Forest District

Dalbeattie

Land Management Plan

(Composite plan including Dalbeattie Forest, Barhill, Buittle and Aucheninnes woodland expansion)

Approval date: ***

Plan Reference No: ****

Plan Approval Date: *****

Plan Expiry Date: ******

FOREST ENTERPRISE - Application for Forest Design Plan Approvals in Scotland

Forest Enterprise – Property

Forest District:	Dumfries & Borders Forest District
Woodland or property name:	Dalbeattie Land Management Plan
Nearest town, village or locality:	Dalbeattie
OS Grid reference:	NX 851584
Local Authority district/unitary	Dumfries and Borders

Areas for approval	Conifer	Broadleaf
Felling	147.3	0
Restocking	112.2	22.3

1. 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/road building*/ quarries*** as detailed in my application.
3. I confirm that the initial scoping of the plan was carried out with FC staff in 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 ..... Signed.....

Forest District Manager PP Conservator

District Dumfries & Borders Conservancy South Scotland

Date 19/9/16 **Date of Approval** 20/9/16

Date approval ends: 20/9/26

UKWAS summary sheet

Description	Percentage of Forest block	Location of data
Restock main conifer species	44	Forester restock layer
Restock other conifers species	22	Forester restock layer
Open space	14	Forester restock layer
Native broadleaves	19	Forester restock layer
Managed for conservation/biodiversity NR, MI	10	Forester management layer
Long Term Retentions	1	Forester management layer
Natural reserve	4	Forester management layer

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

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

FSC®
www.fsc.org
FSC® C011771
The mark of responsible forestry

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

Contents

Support documents: Maps

1. Location map
2. Design Brief and Analysis and Concept map
3. Management map
4. Future habitats and management
5. Scheduled Ancient Monuments
6. Ancient Woodland Inventory
7. Soil map
8. Water Catchments
9. Current Climate data
10. Ancient Woodlands
11. Timber Transport Routes
12. Landscape Characer
13. Tree Species Suitability maps
14. Thinning Rulesets
15. Open Habitats Survey
16. Core Path maps
17. Neighbours Adjacent felling map
18. Evidence of public consultation

Summary of Proposals

10 year programme of felling and restocking – this is becoming a normalised forest and as such a sustainable programme of felling and restocking.

50+ year plan of coupe type and felling years – this plan includes some smaller coupes to better deliver social objectives as well as some larger coupes on the hill tops to be more resilient to wind.

50+ year plan of species for the next rotation – given the climate soils and management objectives there is more focus on broadleaves for hardwood and alternative conifers to Sitka Spruce

Assigning nature conservation management via Long Term Retention, Natural Reserve and Minimal Intervention.

Combining the plans for Dalbeattie Forest, Barhill, Buittle and the recently approved woodland expansion site at Aucheninnes, allows us to create a composite land management plan at a landscape scale.

Incorporated is a thinning plan for the current rotation. This thinning plan builds on the previous thinning recently implemented in the conifers but also extends thinning in the broadleaved areas, typically these areas being managed under CCF management systems.

Much of the merchantable size larch is being proposed for felling given that he forest is sited within the Phytopthora management zone and it is considered that larch will become infected over time and a pre-emptive approach is appropriate, particularly given the public access throughout the forest.

During the 10 year review of the management of the forest it was decided to consolidate the forest road network in terms of management records kept. With the advances in extraction technology some of the first rotation roads are no longer required. Many of these are overgrown and are little more than a well-used footpath. The key forest roads for timber Lorries have been identified on the plans and the other roads are deleted from our records.

1.0 Introduction:

1.1 Setting and context

Mainly a lowland type forest with a few higher elevation ridges and hills.

A traditional forest with many areas now in third rotation.

Part of a wider matrix of forests known as the Solway.

Rural area where tourism development is important to the economy.

There is high demand for informal access by locals around the towns and villages.

One of the 7stanes destinations for mountain biking

The land creates a backdrop landscape and recreation place for tourists and locals alike.

Timber transport is an issue but this relates more to timber travelling to and from BSW Kenmuir sawmill than from the forest itself.

Significant area of Ancient Woodland sites (and many PAWS)

All operations will be carried out to the internationally recognised forestry standards as set out in the UK Forest Standard (UKFS) and as required under UK Woodland Assurance Scheme (UKWAS) and Forest Stewardship Council (FSC).

This woodland is part of Dumfries and Borders Forest District and is certified by the Forest Stewardship Council (FSC). Certified woodlands are subject to regular audit by an independent audit body against the requirements of UK Woodland Assurance Standard (UKWAS). UKWAS is the independent certification standard for verifying sustainable woodland management in the UK.

1.2 History of the site

Rough grazing up to the 1920's and 30's.

One of the earliest FC plantations following the establishment of the FC in 1919

The felling of the first rotation was largely a "role up of the carpet" but much restructuring work has been done on the second rotation.

The species in the first rotation had large proportions of Scots Pine and Norway Spruce and Douglas Fir as well as Sitka Spruce however on replanting the second rotation the species selected for timber production was largely Sitka Spruce and today we are seeing the results of this. The third rotation has more species diversity including Douglas Fir and Western Red Cedar.

For 50+ years the woodland has been an important access opportunity for people of Dalbeattie.

1.3 Planning Context

The UK Forest Standard
The Scottish Forestry Strategy
Strategic Directions – Scotlands National Forest Estate 2013 -2016
Dumfries and Borders Forest District Strategic Plan 2014-2017

All available on the internet via search engine

The Strategic Directions and the FD Strategic Plan focus the planning context on six aspirations

- Healthy
- Productive
- Treasured
- Accessible
- Cared For
- Good Value

2.0 Analysis of previous plan

The previous plans have been followed during the past 10 years delivering multiple benefits

1. Was previous plan implemented properly?

   In general terms, yes. In addition a number of phase 3 coupes were brought forward to help restructuring and these were all approved for felling and restocking by the regulator.

2. Did implementation of plan meet stated objectives?

   Yes.

3. Are the Aims & Objectives of the plan still appropriate?

   These were Economic, Sustainability, Biodiversity, Recreation and Landscape sympathy. The new plan will very much still have economic aims but as well as SS, other fast growing and high value timber species will be included in the mix.

   Biodiversity is still very important and there will be greater focus on the ancient woodlands and their restoration in the new plan

   Recreation has grown and this will have greater importance in the new plan

   Landscape is still very important and evidence from the public consultation suggests there should be more effort in establishing viewpoints.

3.0 Background information

3.1 Physical site factors

3.1.1 Geology Soils and landform

See maps in appendix for geology, soils and landscape type.

There is an very interesting mix of soils as one travels across the land there is an immediate change from wet peats to brown earths and as such design needs to be detailed.

Very rocky, making access and establishment difficult in places.

3.1.2 Water

See www.sepa.org.uk/water/river_basin_planning.aspx
For full information.

To help improve water quality and reduce peak flow of these water courses the forest will be structured and designed with permanent riparian buffers often exceeding that specified in the Forest and Water Guidelines.

Important wetland habitats exist at Dry Loch

Water flows mainly Southwards from the forest to the Solway Estuary, Fairgirth Lane is a key watercourse taking water from the forest.

There are minor downstream flooding issues. As the forest is becoming normalised and sustained in terms of felling and restructuring, this is the best scenario for using forests to retain water during heavy rain and as such there are no specific actions included in this management plan other than as per the standard specified in the Forest and Water Guidelines.

3.1.3 Climate

The current climate maps can be found in the appendix.

The climate in this area is very favourable compared to other areas in the Forest District. Large proportions of the forest are "warm and moist". Some

parts are moderately exposed and other parts are sheltered. The conclusion is that the site offers huge potential for tree growth.

3.2 Biodiversity and environmental designations

There are no formal environmental designations in Dalbeattie forest but there are a number of interesting and very important factors that need to be taken into account when planning the forest for the future.

Open and Wetland Habitats

Important matrix of bog habitats at Aucheninnes and full description included in the separate Land Management Plan created in 2014.

Important wetland habitats at the dry loch (centre of forest) and Barean and Clonyard loch complex. Dragonflies and many other important wetland species. The plan must acknowledge these and plan for the long-term. It is noted that most of these areas are just off FCS land but they are immediately adjacent and as such have influence on landuse.

Native Woodlands

See Ancient woodland inventory (AWI) maps in the appendix.

c. 20% of the forest is recorded on the AWI (some LEPO and some ASNW) and typically these has been planted with exotic conifers at some stage in the past (Plantations on Ancient Woodland Sites – PAWS).

Some ASNW have been restored to native broadleaves and others will be restored as part of this plan. The LEPO will remain as mixed woodland.

In addition new native woodlands have been established in riparian zones and these will act as permanent biodiversity networks into the future. As the second rotation is cleared there is opportunity to expand this.

Potential for Natural Reserve.

There is great potential for Natural Reserve on the ancient woodland sites where there will be opportunity to designate large areas as NR.

There are stands of older conifer trees tucked away from public access e.g. by Barean Loch and these can be designated as NR

Species

Red Squirrels are treasured by many people and it is critical that the forest is managed to retain this species. This is one of the FCS priority action species and during the development of the plan habitats and future tree species will be considered. Conifers including Scots Pine and Norway Spruce will be a key component. There are many large seeded broadleaves in this area (and all around the coast) including oak, beech and hazel and therefor excluding the large seeded variety from Dalbeattie Forest with so many in the surrounding area will do little to exclude the greys. Grey Squirrel monitoring and trapping will be undertaken as required.

Nightjars were breeding in the forest around 10 years ago but none seen recently.

Butterflies - Pearl-bordered Fritillary, Small Pearl-bordered Fritillary and Dingy Skipper. Management of forest roads/rides/open space will be of greatest importance for these species.

Badgers exist in the forest and forest operations will be considerate of their setts.

Schedule 1 birds include Goshawks and forest operations will be planned at locations and timings to avoid disturbing these birds.

Otters exist in the forest and prior to operations survey work is carried out to ensure this species is not disturbed.

3.3 The existing forest:

3.3.1 Current species

Species Dalbeattie Forest	Area_Ha_2016	%
Open or felled awaiting RS	166.8	14.2
DF	52.8	4.5
SP	58.8	5.0
WH	2.1	0.2
JL	19.6	1.7
XWL	0.2	0.0
HL	54.8	4.7
NF	1.2	0.1
LP	10.9	0.9
RC	1.4	0.1
NS	34.3	2.9
EL	2.5	0.2
GF	3.9	0.3
CP	6.7	0.6
MC	5.4	0.5
XCD		
SS	521.7	44.4
SY	0.7	0.1
BE	5.1	0.4
SOK		
MB	98.2	8.4
OK	16.8	1.4
PBI	6.8	0.6
HAZ	1.8	0.2
AR	1.7	0.1
XB	0.1	0.0
BI	100.6	8.6
	1174.9	

3.3.2 Operational Access

The single timber exit point for all timber from the main block area is at Tinkers Loaning and this leads onto an agreed timber transport route.

From time to time timber will exit at Barhill and Buittle and there are issues with both roads and community consultation and liaison with the council roads officer will take place in advance.

Although we have a number of legal access points around the forest e.g. Corsock, Barronbaroch, Richorn, Barhill and Buittle these are rarely used.

3.3.3 LISS potential

Given the climate and soil conditions there is great potential for CCF and LISS. This management type should only be used to deliver specific management objectives and in Dalbeattie this would manly be social objectives. E.g. walkers would have a better visitor experience in CCF. The extent of CCF will be considered as part of the plan.

3.4 Landscape and landuse

3.4.1 Landscape character and value

The Southern end of Dalbeattie main block is designated as East Stewartry National Scenic Area and as such landscape design is sensitive and should be carefully considered.

All of the blocks in the composite area of this plan sit in the "Coastal Granite Uplands" character type. The characteristic landcover is varied and changes quite dramatically from improved pasture, in more sheltered areas, to rough grassland and gorse in higher or more exposed locations.

Design guidance includes;
-Woodland shapes should relate strongly to the landform, with irregular, interlocking patterns. These shapes should apply both to overall woodland form and to the patterns of species and open ground within them.
-The scale of planting should increase with elevation, with larger elements at higher elevations grading down to smaller scale on lower slopes.

-Diversity should gradually decrease with elevation, with more complex patterns on lower slopes.
-Crags, screes and rocky outcrops should remain visible within woodlands and upper margins should grade out to scrub and gorse on open ground.
- Conserve the distinctive character of the granite hills and open summits, especially those seen from the surrounding area.

3.4.2 Visibility

It is difficult to see all of the forest from one point given the landform but a number of useful viewpoints have been chosen around the forest and these are listed below:

- Drumstinchall
- Fairgirth
- Barend Holiday complex
- Auchensheen
- Richorn
- A711 Quarry Straight x2

Perhaps more important are the views outwards from within the forest, this issue was commonplace at the public consultation and people want permanent specific viewpoints where they can see out into the valleys and beyond.

The trees and forest can also be seen when walking, cycling and horse-riding within the forest and consideration should be given to species, management type, layout and shapes to optimise the visitor experience.

3.4.3 Neighbouring landuse

Rough grazing agriculture set below the forest is the most common neighbouring landuse. Dalbeattie and numerous villages and private residences often back onto the woods.

3.5 Social factors

3.5.1 Recreation

There are formal waymarked trails at Dalbeattie including walking from the townwood and cycling from Richorn - this is one of the 7Stanes cycling destinations. There is toilet and parking facilities at Richorn and a small

charge for carparking is required, and alongside receipts for timber, these funds are used to support the management of the National Forest Estate.

Core paths exist through the forest and these can be seen on the Core Path map in the appendix. Perhaps the most important is the route from Dalbeattie to Colvend and this has recently been signposted.

All of the forest is open for access and visitors are encouraged to follow the Scottish Outdoor Access Code.

Horses riders are common in Dalbeattie forest, particularly at the south end and there is a connection here with tourism.

From time to time motor rallies use the forest and for this short time duration (hours) there will be some restrictions.

3.5.2 Community

Four community Councils cover the woods or have an interest in the area and these include

- Dalbeattie
- Colvend and Southwick
- Buittle
- Kirkgunzeon

Dalbeattie Forest Partnership with FCS has been very effective and on-going for 10 years + and local volunteers get involved in helping set the direction for the forest and get involved in volunteer forestry work e.g. path clearance of vegetation. We will encourage this.

3.5.3 Heritage

There is one scheduled ancient monument on the site located at the Moyle – MOYLE HILL. The designation explains that it is not entirely clear of the history of the settlement site but certainly it is human settlement for many hundreds of years dating back to prehistoric times.

Many other unscheduled sites are located throughout the woods including disused granite quarries near Dalbeattie and some disused settlements and houses further South in the main block.

All of these Archaeology sites are included in our FC GIS systems and they are highlighted when new contracts are created for works. The sites are protected to the standard detailed in the UK forest standard: Forests and Historic Environment.

3.6 Deer, rabbits and feral pigs

Roe deer are a significant threat to tree establishment in Dalbeattie forest, as they are in many of the forests. Populations in Dalbeattie are approx 10 deer per hundred ha.

Professional wildlife officers and managers monitor and manage populations and this has been on-going successfully for 50+ years. Generally Douglas Fir, other conifers and spruces can be successfully established without deer fencing, however, protecting broadleaves is more of a challenge. Broadleaves Larger areas of broadleaves may require fencing to ensure establishment.

Smaller areas of broadleaves can be protected by tubes. Birch species is prolific and protection will not be required for these.

Full detail on the historical and planned Roe deer cull can be found in the Dumfries and Border Deer Management Strategy.

Wild rabbits can be a problem where there are soft species and the rabbits will be managed by professional wildlife officers or through use of rabbit fencing.

Feral pigs – although very rare in Dalbeattie forest at the moment as populations grow appropriate management will be required – see section 5.

4.0 Analysis and Concept

4.1 Analysis

The initial Analysis and Concept map shows the factors that have significantly influenced the development of design and long term vision of this forest. Main factors were identified as:

- Maintaining productive potential of the forest
- Providing recreation

4.2 Concepts of the plan

The issues were presented to stakeholders and at the public drop-in during Feb 2015 and these issues have been developed and worked on during the spring and summer of 2015. Full details can be seen in the design brief.

One of the key dilemmas in developing an agreed concept was the tension between productive broadleaves or "alternative conifer species "e.g. Douglas Fir. Both species type would deliver the management objectives. After much debate and consideration of the options it was agreed that the ambition for productive broadleaves will focus on bringing the existing broadleaves into production. In addition there will be some change from conifers to broadleaves but to avoid an undesirable reduction in softwood production, these PB sites will be carefully chosen in the following situations where they will specifically meet management objectives:

- PAWS restoration areas
- Expansion to PAWS areas and creating biodiversity habitat linkage
- Around recreation points.
- Specific landscape and autumn colour given the removal of larch.

Below is a copy of the design concept taken from the final design brief.

Important factor (including opportunity and constraints)	**The Design Concept**
There is a unique opportunity for "diverse productive forestry" Whilst the soils and climate would suggest a high proportion of productive broadleaves and Douglas Fir, the extent of this forest type will be limited by the rough terrain, in-wood access challenges. The soil, geology and topography are varied with mineral soils being common place amongst rocky areas and wetter soils and peat being common between the rocky outcrops.	The "diverse productive forestry" concept in the next rotation will consist of the following; 1. Identify existing broadleaves that can be brought into production including birch natural regeneration areas c.~10% 2. New productive broadleaves (Oak, sycamore and Beech for hardwood production on better land with excellent access within 200m of forest road) c.~10%. Potentially located on cleared larch sites. Limit productive broadleaves to areas with greatest social and environmental benefits. Deer Fencing and workability are important considerations for selecting sites. 3. "Alternative conifers to Sitka Spruce" for high quality sawlogs e.g. Douglas Fir (better land), Scots Pine, Norway Spruce, Western Red Cedar, Grand Fir. These sites will usually be thinned with good access. C.~30% 4. Sitka Spruce for construction timber (higher elevation and wetter land) Often non thin sites. c.~30% Non timber producing land will include 15% open space including conservation grazing, riparian open and 5% native broadleaves in riparian and ASNW.
Recreation and Access	Increase structural and species diversity

There is high public use of the forest by; • Community • Tourists staying in the surrounding area. The woodland resource is important to these people. Diversity increases public enjoyment. The current road infrastructure / layout and network lends itself to smaller coupe opportunities.	using small /medium clearfell coupes that develop variety along the key access routes (coupe size should be a little smaller than the current coupe layout) – particularly relevant to walking routes where walkers would like many points of interest and views. As one moves away from walking routes and higher up the hill, coupe size can be larger. Forest design for cycling can be larger scale because speed of travel is faster. Identify thinnable areas and assign a little more to CCF, particularly any new productive broadleaved areas. Maintain the formal recreation facilities including walking, cycling including the upgrade of the trailhead in early 2015. The car parking and main entrance to the forest will remain at locations just South of Dalbeattie. Maintain numerous opportunities for informal public access through the woodland including throughout the new acquisition at Aucheninnes Recognise the core path networks across the forest and manage forest operations accordingly. Minimise closures and provide diversions as appropriate. Maintain permanent signage throughout the forest.
The local economy depends on the forest as a visitor attraction and the tourism development it brings.	Design the forest with landscape design as a high priority. Continue to provide recreation and access opportunities.
Landscape and views In terms of landscape the forest is highly visible from public roads and there is potential to design an attractive forest to increase visitor enjoyment. High numbers of people visit the woods	Design woodland as recommended in the SNH landscape category called Coastal Granite Uplands – including importance of granite outcrops and following landform. Use FCS visitor zones to help identify those

and therefor small scale landscape and views in the wood is important	areas in the forest most visited and those areas that may benefit from management under continuous cover forestry systems or special design considerations. Mark permanent viewpoints on the management maps and maintain throughout the period of the plan. Potentially increase broadleaved component where landscape is important.
Climate change is predicted and this brings uncertainty to the forest. There is potential for Phytopthora disease in Larch trees given its proximity to Galloway.	Increase tree species to improve the resilience of forest. In addition, increase the structural diversity through increased use of continuous cover forestry systems. Use shelterwood systems for productive broadleaves and alternative conifers where thinning is possible. Restocking of most deep peats with either productive conifers or NBL. Deep peats on Aucheninnes area left open. Continue to monitor and manage forest for threat of Phytopthora Ramorum disease as a priority. Undertake Pre-emptive felling of Larch in 2016 where produce is merchantable. Avoid Larch planting in next 10 years but plan for planting thereafter assuming no threat from disease.
Carbon Sequestration. The exiting forest stores large amounts of carbon and the new woodland at Aucheninnes will increase the areas capacity of carbon storage.	Continue to manage the area as forestry and maximise tree cover albeit clear felling will take place and the carbon will transfer from trees to wood products (often used in construction)
There are many areas of semi-natural woodland and many are identified in the SNH Ancient Woodland Inventory. Some of the Ancient Woodland Sites (AWS) have been restored and others are awaiting restoration. Those awaiting restoration are known as Plantations on Ancient Woodland sites (PAWS).	Many areas of Ancient (of semi natural origin) can be restored over time to NBL species. E.g. Fairgirth wood. These sites can be buffered on the edges by new broadleaved planting. The best examples of semi natural woodland should be categorised as Natural Reserve in perpetuity. Many areas of Long Established (of

	plantation origin) near to Dalbeattie Town wood and these areas will continue to be managed under Continuous Cover Forestry Systems and species diversity will be a long-term key aim in this area. ASNW can be bolstered by productive native broadleaves.
Support important wildlife species through management for conservation	Plan for Long-term retention where older trees will help species e.g. Red Squirrel, Raptors. Assign areas of Natural Reserve (semi natural and old conifer stands) where biodiversity is the highest priority. Identify future candidates for Natural Reserves as management under Minimal Intervention e.g. riparian zones, recently planted native woodlands, glades, roadside verges etc helping butterfly species, otters, badgers. Engage with RSPB and other wildlife groups to ensure the woodland habitat is appropriate design for supporting species.
Water As well as important riparian areas including burns and steams there are a number of important water bodies including Plantain Loch, White Loch, Barean Loch and the dryloch. These assets help support wildlife, act as water buffers and store high volumes of water following high rainfall to reduce flooding.	Identify features and create permanent buffer areas around the water features using native broadleaved / open space and in places use the non-intervention management type of Natural Reserve to protect for ever. Where appropriate develop areas with capacity to carry water following high rainfall – slow the flow to reduce flooding.
Archaeology There are upwards of 12 sites of interest one of which is a Scheduled and protected site.	Identify and record the sites to ensure they are protected by forest managers and enjoyed by people. Add new data recently collected at Aucheninnes. During operations protect these sites from

	damage by identifying appropriate buffers. Ensure the sites are maintained as per the scheduled ancient monument management plan or to best practice as per the UK Forestry Standard Guidelines
Working with partners	Throughout the duration of the plan engage with groups who have an interest in the forest/woodlands

5.0 Forest Design Plan Proposals

5.1 Management types

Continuous Cover Forestry (CCF) systems. This forest structure is being used to manage both conifers and broadleaves in a variety of locations throughout the forest – producing both softwood and hardwood timber. CCF management is a preferred management approach in areas where there are multiple benefits on top of timber – typically used in recreational areas to improve small scale landscape and also in broadleaved management where there are benefits to adopting a permanent tree cover structure e.g. strengthening or bolstering an ancient semi-natural site, or on the edge of the town where permanent tree cover is preferred to clear-fell systems. This permanent tree cover next to built up areas does however bring with it the added responsibility of managing the risk of trees falling over the boundary fence and this will be managed with inspections and selective felling and thinning as appropriate. A CCF Management Plan can be found in the appendix.

Clearfell management approach is adopted in locations of the forest where timber production is a priority. Sizes of the clear-fells vary: Larger on the hilltops and smaller on the valley bottom to help fit and support the landscape characteristics. Typically the larger clear-fells on the covering the larger hills are more resilient to wind and are more financially lucrative given the economies of scale.

Some areas of older plantation have been identified as areas of **Long Term Retention (LTR).** These are clearfell coupes that can be retained for a little longer than the typical rotation length. Long Term Retention is a very useful tool to increase structural diversity where there are fewer older trees. An example of LTR is in the West of the forest by the "Woodies" where there is a mature stand of Western Hemlock. Also some larch retained in the key recreation areas is managed on a Long Term Retention basis provided it does not become infected with Phytopthora.

Natural reserves (NR's) have been identified in areas where nature conservation and biodiversity is the priority. These areas will be left to nature in perpetuity; operations will be excluded from these sites. There are areas of conifer forest Natural Reserve and also areas of semi natural. Key areas are the Dry loch edges, Barean loch and also in the area adjacent to Moyle Hill.

Areas of **Minimal Intervention (MI)** are candidates for future natural reserves. Typically in forest plans these areas run the entire length of water courses identifying areas that have been recently felled of conifer crops and changed to riparian broadleaves and open space. In Dalbeattie there are some areas like this but there are fewer key watercourses running through the forest and as such the areas of minimal intervention are limited in comparison with other traditional forests.

Open space (OS) is a key component of the forest delivering nature conservation and landscaping objectives as well as agriculture. There is a substantial area of open land for conservation grazing at Aucheninnes, this low intensity agricultural activity will help deliver open habitat protection and enhancement.

5.2 Future Habitats and Species

There are abundant opportunities for tree species diversity in Dalbeattie given the favourable climate and soil conditions. The key to a good design in Dalbeattie Forest is identifying which species will best deliver the management objectives.

The key conservation habitats in Dalbeattie forest are focussed around the native woodlands on the ancient woodland sites. Water habitats exist near the southern lochs, the Plantain loch and the "dry loch" which is surrounded by Natural Reserve status.

Broadleaves of Conifers? Both will deliver the management objectives set in the design brief:

- But to deliver the wider benefits of broadleaves (biodiversity and social) the main focus of productive broadleaves will be on bringing the existing broadleaves into production (~10% of the forest) although some small areas of conifers will be changed from conifers to broadleaves over time e.g. Woodies
- Large areas of the forest will remain as productive conifers but there will be more focus on alternatives to SS, in this area where the soils and climate is favourable.

Broadleaves for biodiversity or production of timber? On the land with better access, broadleaves will be managed and will produce hardwood. On rougher ground where there is more biodiversity value (e.g. Natural reserves or water) these broadleaves will not produce hardwood timber products, they will be left to nature.

Native broadleaves or non-native broadleaves? Where nature conservation, biodiversity and the environment (e.g. water) are a high priority native species will be the choice. In other locations, timber takes higher priority and non-native species including beech and sycamore will be included, albeit there will be a component of native including birch and Aspen etc.

Species Table (Proposed species in the next rotation)

Oak	A key species that will be included by planting and natural regeneration in both productive and biodiversity areas. There are specific oak areas identified on the species map and these areas intend over time to be oak standards and broadleaved matrix managed on a CCF approach. These oak areas are carefully selected where the soils and climate are very suitable

	for this species and importantly operational access is very good for tending, maintenance and hardwood harvesting. The recommended design of the planting is 100 oak nests per ha with infill of other species.
Ash	A favoured species across all areas of the broadleaved future forest. Given the restrictions in planting due to Ash die back this species can only be established via natural regeneration or by transplanting of natural regeneration within the forest.
Birch	Birch is already a common species in the forest and this will be encouraged mainly through natural regeneration. It will be a useful secondary or infill species in the key productive areas. It is a key component of the biodiversity native woodland areas.
Aspen	A native species that seems to grow well in Dalbeattie, its expansion is encouraged in the productive areas especially where it will require planting following felling.
Willow	Encouraged on the wetter areas where timber production is not expected
Norway Maple	To be used as part of the infill species for the productive broadleaved areas – not on PAWS sites
Alder	Useful species in riparian zones and also as part of the infill matric of productive broadleaves
Hawthorn/Black thorn	On the drier areas where timber production is less important
Sycamore	Highly productive timber species that can be planted as part of the change of some areas from conifers to productive broadleaves. Natural regeneration should be encouraged in the productive broadleaved areas that are >500m of ASNW sites. A possible replacement for larch on the visible slopes.
Beech	Similar to Beech but grown initially as an understory on more sheltered sites
Douglas Fir	This is the favoured productive conifer given its productivity and end value, and it is highly desirable in the bespoke construction market especially for beams. This species will be limited to the brown earths and usually south facing slopes. As shown on the species plan, large areas are planned.
Norway Spruce	Typically this species sits just above the climate and soil limitations of DF in that it can tolerate more wind and wetter soils. A useful species on the lower wetter soils and mid/lower slope. Red squirrels thrive on the cones.
Other Firs including Noble Fir and Grand Fir	Carefully chosen for reasons of species diversity and resilience. Neither is desirable in terms of timber quality and as such their extent in the plan is limited in area.

Western red cedar	A highly desirable species for wood cladding and will thrive well in wetter soils. Some already planted in 2014 in the centre of the forest.
Scots Pine	This species is very suitable on some of the rocky areas of Dalbeattie and it will produce high quality timber, albeit slowly. Given the visual benefits of Scots pine in this populous forest, this is a significant component species in the future forest, as it was in the first rotation, but chosen then mainly due to its sute suitability rather than landscape benefits.
Western Hemlock	Prolific natural regeneration should be cleared except in the area of the LTR at the Woodies where the benefits of the older trees outweigh the threat of infestation. Regen from this stand should be controlled in a buffer ~100-300m from the stand.
Larch	Larch is a useful species for more limiting soils and climate and there are landscaping benefits to planting on visible slopes. A traditional species in the forest but given the imminent threats of Phytopthra the intention is to clear most of the older larch in the next two years and retain only the young stands where there is currently no economic advantage in clearing. For the future forest, plan to plant larch from 2025 (giving a 10 year reprieve, whilst we discover the extent of phytopthora).
Sitka Spruce	This is a very important economic species but other species listed above are more than viable in Dalbeattie (and offer the species diversity benefits) and as such SS is limited only to those more exposed and nutrient low locations. Although these areas are significant in Dalbeattie particularly on sites e.g. Ironhash hill.
Mixed Conifers	Will include a mix of all conifers but SS will be limited to 20 % of the area.

The open habitats at Aucheninnes include conservation grazing to help protect and enhance the priority open habitats.

Analysis of the current and future forest components can be seen in the table below

Species Dalbeattie Forest	Area_Ha_2016	%	Area_Ha_2035	%
Open or felled awaiting RS	166.8	14.2	185.5	15.8
DF	52.8	4.5	180.6	15.3
SP	58.8	5.0	56.9	4.8
WH	2.1	0.2	1.6	0.1
JL	19.6	1.7	33.6	2.9
XWL	0.2	0.0	0.2	0.0
HL	54.8	4.7	16.4	1.4
NF	1.2	0.1	20.9	1.8
LP	10.9	0.9	0.6	0.1
RC	1.4	0.1	1.4	0.1
NS	34.3	2.9	51.7	4.4
EL	2.5	0.2	0	0.0
GF	3.9	0.3	0	0.0
CP	6.7	0.6	5	0.4
MC	5.4	0.5	18.5	1.6
XCD			3.7	0.3
SS	521.7	44.4	324.5	27.6
SY	0.7	0.1	11.6	1.0
BE	5.1	0.4	10.1	0.9
SOK			18.3	1.6
MB	98.2	8.4	136.2	11.6
OK	16.8	1.4	18.4	1.6
PBI	6.8	0.6	4.1	0.3
HAZ	1.8	0.2	1.4	0.1
AR	1.7	0.1	0.2	0.0
XB	0.1	0.0	0.5	0.0
BI	100.6	8.6	72.6	6.2
	1174.9		1174.5	

The data above shows a significant change away from SS towards a much more diverse productive conifer.

Native broadleaves increases to 19.8% of the forest much of which is becoming productive. 2% of the forest will be made up of non-native productive broadleaves in the form of beech and sycamore.

The challenges of Birch natural regeneration on key conifer areas

Natural regeneration has been a challenge to establishing productive conifers in Dalbeattie Forest for a number of decades and probably since the woodland was first planted in the 1930's. The first rotation of conifers in the forest in the 1930's was well established however the second rotation in the 70's and 80's was less successful mainly due to the challenges of brash, the lack of effective ground preparation and lack of focus on the then standard FMM4. Birch rapidly invades sites following felling and it can engulf and take over, if not kept in check and removed from newly established conifer sites.

A few sites have already been established in the third rotation which has been more successful than the second; this includes Douglas Fir at the "Dry Loch". During the review of this plan we did consider using birch as a key species in the productive areas given its ease of establishment and our current financial limitations (this would be a relatively cheap option) but was considered by many FES staff (at all levels) to be a missed opportunity in terms of productive potential. The idea was ruled out for the time being and focus and resources would be in place to produce high quality productive conifers and broadleaves.

It is considered appropriate to make this investment given the sites proximity to the countries sawmills and wood processing centres. If the site had been further from these sites it may have been appropriate to grow low quality birch rather than high quality fast growing conifers and productive broadleaves.

It should be noted that the future forest design does already include around 25% of broadleaves and this includes many areas of birch, mainly on the edges of the forest where there are other environmental and social benefits and where there are physical site challenges in harvesting.

The sites presented in this management plan review will be carefully tended and managed to avoid the challenge of birch take over.

The specific operations to achieve establishment (given threats from Birch)

- Fallow periods between felling and establishment are reduced to avoid aggressive weed competition and chances of birch take over.
- Ground preparation is carefully considered on a site by site basis with mainly scratch excavator mounding or brash raking on the harder ground and trench mounding on the softer and wet ground. Scarifer may be deployed on the smoother and drier land if longer runs are possible. We aim to minimise

ground disturbance whilst ensuring successful establishment. The ground preparation operation is closely scrutinised to ensure 2800 to 2900 planting positions per ha. Depending on the harvesting techniques used there is potentially the opportunity to straight plant but this would only be in situations where total brash and lop and top are removed from the site at the harvesting operations.

- Planting commences soon after ground preparation, we shall call this year 0.
- Years 1-3 are a critical stage and will typically include the following:
    - 2 weeding's per year
    - Beat up year 1 and 3.
    - Cleaning unwanted natural regeneration years 2 or 3.
- Where birch is persistent, an additional cleaning will be carried out between years 3 and 5.

The actual management structure and regime to achieve establishment.

Changing structures and staff changes has contributed to birch take over and has meant that operations have not always been seen through to conclusion. Over the past 10 years or so this has settled down and now with a very focussed operations structure and OGB4 requirements target, we are confident that we can establish high quality broadleaves and alternative conifers despite the threat from birch regen.

The management set up and resource allocation:

- Formal OGB4 surveys at year 1 and 5. The year 1 survey is especially important to provide information on reason for tree loss or damage and allows the team to take the appropriate action whether weeding, deer control, early birch cleaning, hylobius etc. Year 5 is more about assessing whether the density is achieved, or not.
- Forest works Supervisors (FWS) visit the operational at least once a week to check standards and during ground prep this is typically once daily to check spacing. Between operations the target is to check the site at least once per month to make observations and decisions change the maintenance plan if required.
- The forester's target is to visit the site 3 times per year, often with the FWS to agree the required maintenance plan.
- Site workplan/diary/coupe diary is used for clarifying objectives, contract management monitoring and coupe management monitoring.
- The Operations team are committed to delivery and focussed on the delivery of OGB4 targets.
- In terms of resources, the Forest District operates a 2 year rolling business plan and these sites are included in that business plan along with the

maintenance operations. Management will continue to justify expenditure in the significant maintenance operations to establish high quality conifer and broadleaves.

5.3 Restructuring

This forest is now into its third rotation, only a few small areas of the first rotation remain, and larger areas of second rotation remain. The main focus of restocking in the seventies and eighties was Sitka Spruce planting after large fellings which started at the "dry loch" and in an area just to the West of Corsock in around 1974. These felling areas were extended like "rolling up the carpet" and met each other a few years later. SS planting continued to predominate and this leaves us today with large areas of SS. In the last 10 years some restructuring has been started and the intention is to continue with this over the next period of the plan, felling some coupes to diversify structure but again this is limited with the large areas of second rotation now reaching their terminal height.

A key part of the next felling plan for restructuring will be felling most of the Larch for pre-emptive Phytopthora reasons – this will create some smaller coupes for restocking.

A larger coupe is planned in the South which will take in a large part of the first second rotation felling West of Corsock – this area is beginning to blow down and so the plan is to take the affected area and retain what we can on the edges – this does require reshaping of the coupes in this area in comparison to the last plan. There is potential for an adjacency issue here but early felling in the red period (2017) should allow the remainder to be felled in the next orange period, creating a 2m height difference between the coupes coloured red and orange.

Generally we are proposing some smaller coupes in the lower lying areas to create diversity around road junctions and areas of interest and larger coupes are proposed over larger hill areas including Ironhash and Cloak Hills.

In the South, a large area of younger crop is changed to management under CCF to better deliver the public access and social objectives around Colvend and Sandyhills. The large area of CCF at Dalbeattie town wood remains.

Large areas of existing broadleaves are being changed from minimal intervention to managed under a CCF system, these areas are being classed as productive broadleaves. Most of these are low productivity broadleaves with firewood as the main market.

10 year felling proposal from production forecast and Management map

Management Coupe	Type	Area (ha)	Year	Volume	7 to 14	14-16	16-18	18+
42126	fell	1.3	2016	302.71	15.38	9.26	18.07	260
42156	fell	0.64	2016	165.03	60.04	27.18	24.6	53.2
42244	fell	2.09	2016	650.83	310.34	114.78	87.62	138.09
42440	fell	5.85	2016	1,706.93	436.07	232.83	241.39	796.64
42511	fell	3.34	2016	977.88	36.16	23.44	26.6	891.68
42620	fell	0.69	2016	164.13	32.19	17.3	21.32	93.32
42793	fell	1.65	2016	614.45	115.28	63.18	79.6	356.38
42794	fell	1.14	2016	313.61	74.82	21.22	21.15	196.43
42854	fell	2.33	2016	473.05	51.85	35.21	39.98	346.02
42862	fell	2.29	2016	114.18	100.75	8.18	3.64	1.61
42916	fell	0.14	2016	11.95	7.94	1.24	0.71	2.06
42005	fell	1.95	2018	630.89	36.26	24.92	36.26	533.45
42061	fell	5.1	2018	2,577.22	200.39	133.83	200.17	2,042.83
42062	fell	11.39	2018	6,235.17	719.79	481.07	719.74	4,314.57
42063	fell	11.97	2018	5,719.49	201.19	135.92	203.01	5,179.37
42452	fell	8.87	2018	2,724.97	799.86	375.25	362.17	1,187.69
42937	fell	3	2020	1,857.99	226.62	141.16	178.29	1,311.92
42449	fell	13.87	2023	7,274.05	260.41	136.06	249.05	6,628.53
42748	fell	15.72	2023	7,739.96	192.65	60.02	146.66	7,340.63
42865	fell	16.77	2023	10,161.07	589.36	420.43	552.17	8,599.11
42963	fell	9.47	2023	5,253.04	302.81	193.53	253.2	4,503.51

This table shows the coupes planned for felling the first 10 years of the plan.

The smaller coupes in 2016 are generally the larch coupes being proposed as pre-emptive phytopthora felling

Production Forecast comparison

	Average annual production of clearfelling (Dalbeattie)	
	Current plan	Proposed plan
2016-2016	5054	5496
2017-2021	3358	3949
2022-2026	10472	8916
2027-2031	8971	11938
2032-2036	14835	16250

The table above shows how changing the coupe type and felling date has changed the clearfell average annual production over the production forecast periods.

Overall there is only minor change compared to the previous plan.

Age class

Age Class of Dalbeattie forest	Area_Ha_2016	Area_Ha_2035
Age 0-10	66.4	361.8
Age 11-20	124.3	229.6
Age 21-40	632.1	156.7
Age 41-60	58.6	137.6
60+	126.6	102.6
Open land or awaiting restock	166.8	185.9
Total ha	1174.8	1174.2

The data above shows and increase in young plantation and a decrease in area of age 21 to 40 years. This is expected as the second rotation is currently nearing maturity and by 2035 these areas will be felled and replanted.

The increase in the 41 to 60 bracket is pleasing in that we are able to retain some of the older trees for longer to provide age diversity.

The large area of open land includes the conservation grazing at Aucheninnes as well as areas felled awaiting restock

5.4 Operational Access

There is good operational access with the extensive layout of forest roads from the first rotation. This plan consolidates existing roads into two categories, plus planned roads:

1. Roads for arctic lorries
2. Existing old and narrow roads that are not required for timber wagons in the future forest. These will be declassified and may continue to be used by light vehicles, quads, horses and walkers – they will not be maintained.
3. Planned roads

5.5 Thinning plans

The proposed thinning is typically in the coupes being managed for clearfell or CCF. As the plan has been drawn up consideration of thinning in this current rotation has been marked on the Thinning rule set map which can be viewed in the appendix. This map gives programme managers and operations teams a starting point for the potentially thinning areas dependant on basal areas, markets, and importantly on the feasibility of marketing hardwood thinnings. It's focus on continuing to thin the forest but there are a few changes to the previous plan:

- Area of first and second phase felling in the south of the block should not be thinned as it is blowing down and will be clearfelled in the next 10 years
- Large areas of existing broadleaves to be thinned and managed under a CCF management system, although not highly lucrative in the economic sense, thinning of these existing broadleaves is the right thing for the wood and the wider rural development objectives. Initial site visits would suggest an ongoing thinning programme of 100 to 200 tonnes per annum. These areas are highlighted as pink in the management map (CCF). This initial thinning will be more difficult as permanent access rack will need to be identified and created at the felling stage in the next couple of years. Once created, these racks will be used for all future thinnings.
- Thinning planned for the areas near to the domestic dwellings, in association with regular tree inspection to ensure that these nearby trees are monitored for risk of falling onto properties.

5.6 Deer Management and feral Pig

Although a lovely woodland animal, roe deer populations can increase quickly in these ideal conditions and to control populations, some animals are culled by FCS professional deer officers. Control of populations has been an on-going activity

since the forest was planted in the 1930's. This management plan increases the diversity of the tree species in the future forest and this in itself will bring further challenges to the deer management team as the softer species are more palatable by roe deer. To protect the trees from the roe deer the Dumfries and Borders deer management plan aims to slightly reduce the current population levels (~5% reduction on current populations) to try and protect the softer tree species during the susceptible establishment years.

The aim is to continue to establish softer species including DF, SP and other firs without the use of deer fencing.

The high investment required to establish the areas of oak identified on the map may require deer fencing to protect the young trees. As seen on the map, these areas are small and typically the deer fence design will be small exclosures of 2 or 3 hectares around the young oak plantations. Once established the fences will be removed.

Hot spots of high rabbit populations may also require rabbit fencing or control where there is high initial investment of planting.

Feral pigs are likely to extend and increase and will have an indirect negative effect on our ability to protect the young plantations and a direct effect on neighbouring farming land. As this develops the focus will be on maintaining/improving forest design/infrastructure to enable professional officers to manage the resident feral pig populations to achieve Scottish Government objectives/responsibilities as a landowner.

From SNH. "... Scottish Government's interim policy is to limit the further spread of feral pigs and establishment of new wild populations. This will be done by:

- *Ensuring those with collections/wild boar farms do not allow animals to escape.*

- *Where new escapes/releases occur every effort should be made to catch up or kill the escaped animals. Where required, the relevant statutory bodies will use their powers to prevent new populations becoming established."*

5.7 Communities and neighbours

This plan recognises the many different communities around the forest and woods and aims to support and those communities in a variety of different ways.

Public access to the forest is in high demand and there are numerous informal access points which can continue to be used provided forest operations are not underway at that time. Typically these access routes are not formal waymarked facilities, they are used informally and guided by the Scottish Outdoor Access Code.

Some groups and individuals in the community (including the Dalbeattie Forest Partnership) like to get involved in the management and the care and maintenance of the forest. This will continue to be encouraged throughout the duration of this plan and FES will actively support these initiatives where resources allow. This sometimes involves volunteer groups tending and maintaining the forest.

As this management plan is implemented FES will continue to engage with communities (where resources allow) to seek feedback and to better understand the community needs and aspirations .

Numerous domestic properties adjoin onto the forest and there is risk of trees falling onto properties. This management plan will include regular monitoring of trees that may cause damage and this may lead to action being taken to remove individual or groups or blocks of trees where there is higher risk to neighbouring properties.

5.8 Management of open land

There are a number of areas of open land:

- The largest area of open land is located on Aucheninnes. This typically boggy land is of high biodiversity value with a mosaic of different priority open habitats. The proposal for this land is to retain it open and include conservation grazing as a key action to maintain openness and the biodiversity benefits. This will involve some field fencing which is currently being designed planned for and built as part of the current approved land management plan for that area. For the avoidance of doubt, Aucheninnes is included in this composite land management plan.
- Open land will be maintained around important archaeology sites e.g. The Moyle Scheduled ancient monument.

- There are a number of lochs within the plan and these will remain as open water and a component of open space around the loch, typically open space within the existing native woodland, usually being managed as a Natural Reserve.
- In the numerous native woodlands, typically on the edges and along water courses there is typically an open space component of 50%. The open space allows sunlight into the water for water ecology and also on the edges of the forest the open space and native woodlands acts as a transition between the forest and the open farm land on the outside.
- A number of viewpoints have been identified and included on the management maps and provided resources allow, these will be kept open to allow views outwards from the forest.

5.9 Public Access and Core Paths

As discovered over the past couple of decades high demand for public public access and recreation is a key driver for the design of this forest.

The current Visitor Experience & Interpretation plan recognises Dalbeattie as a forest characterised by its distinctive granite landscape, home to world class mountain biking trails as well as walking routes developed and valued by the local community. Traces of the area's unique industrial history can be found within the mixed woodland planting, pretty lochs, intimate views and plenty of wildlife.

The Plan's vision is that Dalbeattie will be widely regarded as a forest for all, highly valued by the local community, well promoted to visitors and with good connections to the town and within the forest – the natural first choice for forest adventure, whatever your ability or activity

The forest is one of the 7Stanes destinations, a purpose built mountainbiking facility accessed at Richorn. Full details can be found at http://www.7stanesmountainbiking.com/Dalbeattie. " The site has a coastal setting and the lack of any big hills, Dalbeattie has a relaxed feel.
However the riding is far from dull - the outcrops of rock and fine views make sure of that. Dalbeattie is world famous for its granite and it's the rock that defines the riding at Dalbeattie. With a broad range of trails on offer you can look forward to a great experience. A skills area with differently-graded loops gives a taste of Dalbeattie riding for those new to the area or to mountain biking".

Other trails for walking start at the town wood car park. Currently three waymarked walks start and finish at this point and they offer the visitor a guided walk around the "town woods" and Plantain loch. The Town wood car park was refurbished in 2015 as part of the "Healthy Dalbeattie" project. Some standing stones some with metal art work and a small natural play area were installed as part of the refurbishments. Further details can be found at http://scotland.forestry.gov.uk/visit/dalbeattie

Dumfries and Galloway Council take the lead maintaining and signing the core paths including a loop at Barhill, a key route between Colvend and Dalbeattie and a few links other links including a through route to Kippford and Rockliffe via Baronbarroch. Access has been improved recently as part of the Healthy Dalbeattie project including new signage in the forest pointing to the nearest village or town and also new path infrastructure at Baronbarroch.

Informal public access is taken across large areas of the forest typically at locations where there are neighbouring properties, villages or indeed Dalbeattie itself. This access is guided through the Scottish Outdoor Access Code.

5.10 Heritage Features

As described in section 3 there is one Scheduled site at Moyle and this will be kept open as per the agreed management plan with Historic Scotland.

The numerous unscheduled sites including old quarries near Dalbeattie and old dwelling ruins further south in the forest including Barscarig, Tarlillyan, Smithlands and Newbarns. These sites are recorded on FES GIS records system and will be flagged up before operations and protected throughout. As operations are planned, sites are checked on the ground by FES staff and any new and undiscovered sites will be flagged up and protected before operations start. Any new sites will be notified to the Dumfries and Galloway Council Archaeologist who will also add the features to his permanent data set.

Details of these sites can be found on the heritage map attached to this plan.

5.11 PAWS restoration

As shown on SNH's native woodland inventory there is extensive records of both Ancient (of semi natural origin) and Long established (of plantation origin). It is FES's intention to restore these areas as the plan develops.

Restoration started some 25-30 years ago on the west facing flanks beside Woodend where there is a large area of previous Douglas Fir and larch plantation removed and restored to native woodland. This is perhaps one of the best examples of PAWS restoration in the area or indeed Scotland. This site now includes a range of well-established 20-30 year old oak, birch, rowan and older specimens of hazel which were an understory in the previous rotation. This site is proposed to be managed as CCF to allow future thinning and intervention to work the woodland for hardwood as well as deliver on biodiversity benefits.

At Gallowleck (Baronbarroch) and Fairgirth there are reasonably large areas of Ancient (of semi natural origin) and these are gradually being reverted to native broadleaved species and managed for hardwood production and biodiversity benefits.

There is a very steep and inaccessible area at Buittle of Ancient (of semi natural origin). This area was cleared of conifers some 20 years ago and is naturally regenerating very well, it is being managed as a Natural Reserve.

The largest area of Long Established (of plantation origin) is around Dalbeattie town wood. The proposal for this area is to continue CCF management and encourage a wide range of broadleaved (native and non-native) and conifer species including Scots Pine and Norway Spruce. The vision to pretty much retain the wide diversity of species that is currently on the site and has been that way for some 100 + years. The exception to this rule is to increase the broadleaves particularly around water or public access areas.

5.12 Viewpoints plan

Views out from the forest was identified as an important issue at the scoping meetings and these viewpoints (vp's) are marked on the management map. Over the next 10 years of the plan these areas will be cleared and kept open so that views are maintained. Although these small areas are not hatched for felling the intention is to fell a view cone out from the viewpoint and keep it clear with the exception of shrubs. Typically the felling area will be <0.1ha and authorisation for this felling will be covered as part of this Land Management Plan.

5.13 Red Squirrels

Native Red squirrels are common in the forest and are often viewed whilst walking through the forest. Neighbours often encourage red squirrels by feeding them. Future forest species including scots pine and Norway spruce will help to support the red squirrels as they have done for many decades. Maintaining even structural proportions of old and young trees is important to retain a good habitat for the red squirrels. Management of trees through CCF is ideal for permanent cover.

There are some non-native grey Squirrels in the wood and in the surrounding area and these are monitored and trapped by the grey squirrel control officers on an on-going basis.

A well-established design option is to exclude the use of large seeded broadleaves from forests as this tree species encourages grey squirrels and thereby introduces pox disease to reds. However as there are already large numbers and extents of large seeded broadleaves (oak and hazel etc) in the forest and indeed in the hedgerows and scattered woods along the Solway coast then this design option is not practical.

5.14 Critical success factors

Main critical success factors for plan development are:

- ***Intensive management of the newly established conifer areas to ensure Bi regen does not take over.***
- ***Packaging, selling and working the hardwood thinnings in the CCF areas***
- ***Monitoring of edge trees near neighbouring properties where there is a H&S risk***
- ***Resources to clear and maintain vp's marked on the management map***
- ***Timely intervention of first thinning in conifer stands to allow transition into CCF***
- ***Rationalise the forest road network in FES core data***

Appendix 1 Design Plan Brief

Appendix I Appendix II Land Management Plan Consultation Record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Public drop-in held at Dalbeattie on Tuesday 17th Feb. Advertised on www, local radio, gatepost signage.	Late January and early Feb.			

Topic Area	Total count of those expressing interest	
Dog Walking	17	
Walking	16	
People enjoy the forest as it is and do not want it changed significantly	12	Maintain character of Markhill and DBT
Wildlife and conservation	10	Pond required at Barrhill. Red Squirrels
More informal parking required	9	This is not about parking charges, this is getting access into quieter places more in the South of the forest
Interest in tree species	8	SP Mixed species. beech, Beech. Less mono culture. Less Conifer more blvs
More seating required	8	
Better Signage required	8	With fingerposts to help orintate
Promote 7 stanes more and an interest in cycling	7	
Horse access very important and opportunities appreciated.	7	
Too much litter	7	
Design for orinteering/running	7	Incl Beech and mixed conifer very important
Views are important	7	From prominent points and Heartstone
Rural development for small businesses including tourism.	5	
Timber Production important	5	
Keep tidy after thinnings and clearfell and windblow	5	

			Road surface too rough for walking and horses	5
			People miss the platform at Plantain loch	4
			Disabled access	2
			Negativity about carpark charging	2
			Overnight parking required	2
			Dog dirt	1
			Motorcycle off road track required	1
			Need play area	1
			Firewood	1
			Some useful comments:	
			"Fabulous forest and great resource"	1
			"Loving the proposals - just super"	1
			"We are very lucky in this area to have som many options of where to go and what to do in the forests"	1
Anton Watson Deer Officer SNH	10th Feb 2015			
Jonathan Hudson SNH	10th Feb 2015			
Richard Masters DUMGAL Access officer	10th Feb 2015			
Graeme Alison DUMGAL Roads officer	10th Feb 2015			
Adrian Pringle DUMGAL Landscape	10th Feb 2015			
Peter Norman DUMGAL Biodiversity	10th Feb 2015	11/2/15	Flagged up 1. Ancient woodland sites and need to restore and buffer.	Noted and included in plan

			2. Wetland sites identified and in particular dragonfly and other biodiversity 3. LBAP Red Squiirels 4. LBAP Nightjar 5. LBAP Butterflies Butterflies - Pearl-bordered Fritillary, Small Pearl-bordered Fritillary and Dingy Skipper.	Noted and included and to be included as the plan develops
Andrew Nicholson DUMGAL Archaeology	10th Feb 2015			
Julia Gallagher RSPB	10th Feb 2015	18/2/15	Potential for nightjar.	Site meeting with Julia and Ron Carson of FCS to explore potential. There were old records of nightjar c.10 years ago and there is hope that they will return if the habitat is correct. FCS committed to exploring whether some of the open areas can be connected near to the Tinkers Loaning area.
David McNay SEPA	10th Feb 2015	10/2/15	Simon Watt responded with general planning advice.	Noted.
John Malcolm Historic Scotland	10th Feb 2015			
Karen Ramoo Red Squirrels	10th Feb 2015			
Alasdair Hendry FCS	10th Feb 2015			
Jamie Ribbens Galloway Fisheries Trust	10th Feb 2015			

Jamie Farquhar CONFOR	10th Feb 2015			
Community Councils at Dalbeattie, Kirkgunzeon, Colvend and Southwick, Buittle	10th Feb 2015			
Internal Consultation.	Spring and Summer 2015		Productive broadleaves versus alternative conifers. Consultation with Recreation team to explore how the forest can be better designed for recreation	Site meeting held in 2015 with internal staff concluded that the forest should focus on diverse productive forestry. Rec team thought that the current CCF area near the town wood is appropriate and clearfelling in the majority of the wood to the South

Appendix IV Tolerance table

	Adjustment to felling period*	Adjustment to felling coupe boundaries	Timing of Restocking	Change to Species	Change to road lines	Windthrow response
FC Approval not normally required	Fell date can be moved within a 5 year period. Where separation or other constraints are met	1.0ha or 10% of coupe area – whichever is less	2 planting seasons after felling. Restocking within 2 years +/- of year 2 . For Shelterwood area stocking assessment by year 4 and beat up in 5th growing season	Change within species groups e.g. evergreen conifers or broadleaves. Underplanting of CCF areas with species indicated on the FDP.		Up to 0.5ha
Approval by exchange of letters and maps		1.0ha to 5ha or 10% of coupe area- whichever is less			Additional felling of trees not agreed in plan. Departures of >60m in either direction from centre line of road	
Approval by formal plan amendment may be required	Advance felling into current or 2nd 5 year period	>5ha or 10% of coupe area	If timing of restocking is out with the period detailed above	Change from specified native species. Change between species groups	As above depending on sensitivity	>5ha