Dumfries and Borders Forest District

Criffel

Land Management Plan

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:	Criffel Land Management Plan
Nearest town, village or locality:	New Abbey
OS Grid reference:	NX96316358
Local Authority district/unitary	Dumfries and Borders

Areas for approval	Conifer	Broadleaf
Felling	27.8ha	
Restocking	23.9	3.9

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 2016
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 Conservator

District Dumfries & Borders Conservancy South Scotland

Date 12/6/17 Date 31/5/17

Date of Approval 31-5-17

Date approval ends: 31-5-27

UKWAS summary sheet

Description	Percentage of Forest block	Location of data
Restock main conifer species	SS 24.7 %	Forester restock layer
Restock other conifers species	29.1%	Forester restock layer
Open space	21.1%	Forester restock layer
Native broadleaves	15%	Forester restock layer
Managed for conservation/biodiversity NR, MI	25.9ha including transition above tree line	Forester management layer
Long Term Retentions	0%	Forester management layer
Natural reserve	2.3%	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.

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Contents

Support documents: Maps

1. Location map
2. Design Brief and Analysis and Concept map
3. Management map
4. Future habitats and management
5. Current tree species
6. Core Path maps
7. Landscape Character
8. Scheduled Ancient Monuments
9. Ancient Woodland Inventory
10. Soil map
11. Water Catchments
12. Current Climate data
13. Heritage features
14. Tree Species Suitability maps
15. Thinning Rulesets
16. Designations
17. Flood Risk Map
18. Wind risk map

Summary of Proposals

10 year programme of felling and restocking

50+ year plan of coupe type and felling years

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

Focus on Landscape given the designation of NSA.

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.

1.0 Introduction:

1.1 Setting and context

Criffel is part of the National Forest Estate. The area, which extends to 210 ha, is located on the east side of Criffel with an easterly aspect and predominantly with medium to steep slopes. The woodland shares some of the best climates in Scotland along with excellent soil for growing trees with potential for a wide range of tree species.

Criffel forest was originally planted in the 1950's and although large areas of the first rotation are felled, the second rotation is growing well and the whole area is progressing well towards a fully restructured forest.

Landscape has been an important aspect of this area for many decades. Given Criffel's high levels of visibility, landscaping is highly sensitive and is an important driver for the woodland design and particularly given that the woodland sits within the Nith estuary NSA (designated by SNH).

As outdoor access has grown over the past 50 to 100 years there has been demand for the hill access route. This is now an established path which has Core Path status designated and maintained by Dumfries and Galloway council.

The woodland adjoins private sector woodland to the North and South. To the east is fertile agricultural land and loch kinder, to the West is the Criffel massif

Surface water quality is important; Loch Kindar is located at the foot of the forest, there is considerable fishing interest. Flooding risk downstream in "Sheep burn" is not considered to be significant, given the latest SEPA flood data.

The land is rough given the underlying Granite rock and this roughness has caused timber extraction challenges over the past 50 years. Good forest planning is essential.

Tourism development in the area is supported with landscape and public access.

First and second rotations have included a high Sitka Spruce component but the next rotation should include more species diversity, given threats of

climate change and the favourable climate and soils there is opportunity to grow productive broad leaves.

Community involvement in the management of the forest is low but involvement is encouraged this will be explored in the development of this land management plan.

Ancient woodland sites on the edge of the forest by Loch Kindar have high biodiversity potential.

There are historical records of Black Grouse but current populations are unknown. Red squirrels are present in the forest.
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

There are records of Ancient woodland on the lower slopes near Loch Kindar, some of which remain today (See map)

First rotation plantation was established in the 1950's some of which remains today on the lower slopes.

This first acquisition created a rather awkward straight edge in a sensitive landscape and this was resolved by a second acquisition to the North and early felling of the adjacent first rotation.

In the last 20 years restructuring has progressed well with the forest progressing well towards a normalised forest.

There is a long history and tradition of the Criffel hill path, recenetly been upgraded to Core path status (see map)

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 but following the clearfelling of coupe 10 there has been significant windblow which has been cleared.
   Coupe 24 is being taken a little earlier than ideal due to the high larch content and pre-emptive Phytopthora felling.
   The Larch content was removed from coupe 14, again for pre-emptive reasons.

2. Did implementation of plan meet stated objectives?

   Yes.

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

   Species diversity has moved on since the last plan 10 years ago and there should be more alternatives to SS in this proposed plan.

   It is understood that the rare aquatic plant Slender Niad is no longer in the Loch.

   Public access to Criffel and within the block is encouraged via Core path status.

   The landscape objectives set 10 years ago are still very relevant. Landform will be the key driver for design.

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.

Soils are generally brown earth at lower levels rising to peaty gleys and surface water gleys (see map).

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. Loch Kindar is currently recorded as Moderate overall condition with a long term aim of good. Diffuse pollution is responsible and public bodies and land managers are working together to improve.

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

Recreational fishing is important activity in the adjacent Loch Kindar and therefor maintaining water quality is important.

There are no known downstream flooding issues.

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, moist and sheltered".

3.2 Biodiversity and environmental designations

Designations

The whole forest is within a National Scenic Area (NithEstury NSA) for landscape importance.

Open and Wetland Habitats

There are some wet woodland habitats by Loch Kindar

There are no known priority open habitats on Criffel. However between the top fence and the revised upper tree line (following restructuring) there is an area of natural regeneration (spruce and birch predominantly) and the future management of this will be considered during the plan but at this early stage it is considered best to remove the conifers and retain the broadleaves (including scrub) and let this act as a transition woodland between the high forest and the open hill above.

Native Woodlands

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

A small area 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 small area of LEPO will be treated as ASNW.

Recent pre-emptive larch felling in this area has created an opportunity to expand and strengthen the native woodland between the loch and the lower forest road.

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 especially along the loch side.

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 Criffel 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.

There are old records of Black Grouse on the upper hill but these have not been sighted for 10+ years? The planned transition woodland will act as a potential BG habitat if they were to return.

The rare aquatic plant Slender Niad esisted in the loch at the last review 10 years ago but it is understood that this is no longer present.

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

See section 5 for further details and the current species map. Sitka Spruce is the predominate species with secondary species being larch and douglas fir. Native broadleaves are predominate near to Loch Kindar and a fine stand of Beech at the entrance gate. To the North of the block, a new acquisition of land was purchased c 1990 and this is predominantly Sitka Spruce and a key element of this plan is diversifying the species here and the shapes in the next rotation.

3.3.2 Operational Access

There is a single access road to the forest via Ardwell farm. This includes a right of access across the farm road and via a minor public road to A710. There are no timber transport restrictions on these roads.
http://timbertransportforum.gaist.co.uk/#/PublicMainPage
Please note road is shared with farm traffic, neighbours, fisherman and those taking access to the Criffel hill path.

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.

3.4 Landscape and landuse

3.4.1 Landscape character and value

Criffel is located in the Nith Estuary National Scenic Area and as such landscape design is highly sensitive and should be carefully considered.

All of the forest sits in the "Coastal Granite Uplands" character type. The characteristic land cover 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

The forest and hill are high visible from short and long distances and indeed the hill is easily seen looking across from England.

In terms of proposed and preferred viewpoints:

- Viewpoint 1 Overton NX97936413 (Bust stop on A710)
- Viewpoint 2 Auchenfad NX96206865 (Looking across Newabbey to Criffel)

Photographs (panoramic) and visualisations can be seen within the plan, some of these are working copies of the visualisations being used in the iterative design process.

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

- Intensive dairy agriculture and beef to the East.
- Open hill land to the West.
- Forestry to the South

3.5 Social factors

3.5.1 Recreation

There are no formal FES recreation facilities in Criffel block.

The existing hill path leading from Ardwell farm is well used with a foot fall of approx. 3000 per annum. This is traditional walk which is locally important.

More recently the hill path and the lower forest road have been categorised as Core Paths by Dumfries and Galloway Council (See Core Path map). There are links to the village of New Abbey and there is an opportunity to take a circular walk from New Abbey via the forest and via the summit of Criffel.

FES will continue to facilitate access of the Council's core path. This starts from a car park on private land, leading to and through FES Criffel Forest and back onto private land on the open hill to the summit.

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

Walkers are the main users but from time to time horses and cyclists use the forest.

Recreational fishing is important activity in the adjacent Loch Kindar and therefor maintaining water quality is important.

3.5.2 Community

Two community Councils are located close to the woods or have an interest in the area:

- New Abbey
- Kirkbean

There are a number of people and houses on the minor public road leading to Ardwell farm.

3.5.3 Heritage

There are no scheduled ancient monuments on the National Forest Estate at Criffel.

There are two unscheduled sites shown on the Archaeology map

- Area to the North of the block - Medieval/Post-medieval Settlement and Agriculture.
- Area at Lochwood to the East of the block. FARMSTEAD, FIELD SYSTEM, HEAD DYKE. A farmstead annotated 'Ruins of', comprising

three unroofed buildings and three enclosures, a field-system annotated 'Old Fences' and a head-dyke to SE are depicted on the 1st edition of the OS 6-inch map (Kirkcudbrightshire 1854, sheet xli).

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.

Detail of sites can also be found on www.pastmap.org.uk

3.6 Deer and feral pigs

Roe deer can pose a significant threat to tree establishment in Criffel forest, if their populations are not managed. Criffel forms part of the Solway Deer Management Unit (DMU)with the main objective of enabling re-stocking to take place without the need for deer fencing whilst maintaining a sustainable deer population. Populations in Criffel are approx. 10 deer per hundred ha.

Qualified Wildlife Rangers and contractors have been monitoring and managing the deer following industry best practice with regard to deer welfare and health & Safety 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. Larger areas of broadleaves will probably 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 Borders Forest District Deer Management Strategy.

Feral pigs – are present in and around the Criffel area and indeed there are many signs of feral pigs on the lower slopes near Loch Kindar. These animals can damage young woodland trees, agricultural fields and on rare occasions there can be conflict between members of the public and dogs.

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:

- Landscape and NSA
- Resilience to Climate change
- Productivity and diverse timber products

4.2 Concepts of the plan

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 consideration including workability and affordability we have decided that productive broadleaves should be included in the lower, better land which will have the greatest positive impact on strengthening the native woodland and the social objectives around the core paths and loch Kindar.

Important factor (including opportunity and constraints)	**The Design Concept**
1. Landscape value	Carefully design appropriate shapes and scales of future woodland. On-going restructuring of landscape shapes following the geometric shapes of the first rotation. Choice of appropriate conifer and broadleaves species.
2. Hill access including core paths.	Design the coupes to keep the hill path free in the future forest and indeed enhanced in terms of the small scale visual landscape including appropriate species choice and allocation of open space.
3. Water including Loch Kindar	Consider drainage and appropriate riparian buffering to ensure quality of surface water is maintained or improved. Open space in the riparian zones will be important component.
4. Tourism development	Ensure public access arrangements and

	landscape design continue to support tourism in the area.
5. Excellent climate and soil conditions and the opportunity to maximise diverse productive forestry	The soils and climate give the opportunity to maximise diversity of species and structure to help ensure resilience to climate change as well as providing significant economic advantage in terms of the timber production and marketing. Including alternatives to Sitka Spruce and productive broadleaves. Aim to increase the broadleaved proportion in the future forest. Maximise structural diversity including the management of forest under Continuous Cover Forestry Systems particularly on the lower more wind firm slopes near the ancient woodland sites.
6. Rough terrain	Consider future extraction techniques and ensure coupe size is appropriate to using ropes where necessary.
7. New Abbey and the local community	As well as supporting communities with provision of excellent landscapes and public access opportunities, during the consultation period for the land management plan review (and beyond) ensure active engagement to check that plan continue to deliver in line with community aspirations.
8. Ancient Woodland Sites	Identify sites where there are Plantations on Ancient Woodland Sites (PAWS). Plan to restore to native broadleaved species within the timeframe of this management plan. Where sites are already restored manage to improve biodiversity condition and maximise the advantages to the biodiversity. Create new native woodland buffers adjacent to these AW sites. Treat areas of Long Established woodland as Ancient Woodland sites. Open space will be an important component. Utilise open space recently created by pre-emptive larch felling.

9. FCS Priority species – Red Squirrel and Black Grouse.	Ensure appropriate proportions of Norway Spruce and Scots Pine are planned for the long term to provide food source for the red squirrels. Identify any important Black Grouse sites and prioritise the management of that land for BG.
10. Priority Open habitats	Identify sites of importance (perhaps on the transition between upper forest and the open hill land) and manage appropriately including exclusion of trees as appropriate.
11. Feral Pig	As populations increase, monitor and plan control to protect the woodland regeneration and planting as well as protection for neighbouring farm land. This will include creation of open space for feral pig control.
12. Roe Deer	Continue to manage deer populations on a landscape scale and avoid deer fencing on all areas but those of the highest investment e.g. productive broadleaves.
13. Timber Transport	Plan extraction routes and roads in the forest for long terms sustainable timber extraction. Work with the timber transport forum to ensure that timber transport impact is minimised.
14. Archaeology	Although there are no scheduled sites aim to identify record and protect the unscheduled sites on a permanent basis. Open space will be an important component.

5.0 Forest Design Plan Proposals

5.1 Management types

Continuous Cover Forestry (CCF) systems. 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. E.g. The area of broadleaf expansion between the Loch Kindar and the lower road.

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. E.g. on the upper hill where wind is a limiting factor.

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 e.g. In the area immediately beside Loch Kindar.

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.

Open space (OS) is a key component of the forest delivering nature conservation and landscaping objectives as well as agriculture. Areas of permanent open space are planned (below the upper fence and immediately above the forest) to create appropriate landscape shapes which follow the landform.

5.2 Future Habitats and Species

There is much opportunity for tree species diversity in Criffel given the favourable climate and soil conditions. The key to a good design in Criffel Forest is identifying which species (given the soils and climate) will best deliver the management objectives.

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

- Lower in the forest the climate and soil is highly suitable for broadleaves and as such this plan proposes an increase in broadleaves in this area. These broadleaves will increase opportunities for biodiversity as well as deliver productive broadleaves programme and support social objectives.
- Higher, where the climate and soils are more challenging conifers will include spruces, pines (and some firs where suitable).

Broadleaves for biodiversity or production of timber? In the Natural reserve areas and with the riparian areas, production is not considered appropriate. There are other areas (proposed as management under CCF management systems) where production of timber will be appropriate.

Native broadleaves or non-native broadleaves? In the priority conservation areas immediately by the Loch and in the Natural Reserve areas only native broadleaves will be suitable. Elsewhere in the forest non-natives including beech and sycamore will be adopted.

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.
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, 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 not 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. A possible replacement for larch on the visible slopes.
Beech	Similar to Sycamore 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.
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 (lower mid hill). A useful species on the lower wetter soils and mid/lower slope. Red squirrels thrive on the cones, as seen on the forest floor in Criffel.
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.
Scots Pine	Given the visual benefits of Scots pine this is a useful component species in the future forest.
Western Hemlock	To be avoided in this forest due to prolific natural regeneration and proximity of conservation areas at Loch Kindar.
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 most mature larch will soon be felled as a pre emptive measure. 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 Criffel (and offer the species diversity benefits) and as such SS is limited to those more

	exposed and nutrient low locations.
Mixed Conifers	Will include a mix of all conifers but SS will be limited to 20 % of the area.

As can be seen comparing the current species map and the future forest species map there is a proposed change to a greater diversity of species and an increase in broadleaves.

Due to the soils and climate capability there is a significant reduction in SS in favour of Douglas Fir and Norway Spruce.

There is a reduction in Larch due to the threat from Phytopthora but with an increase in broadleaves across the plan this will offset the loss in autumn colour given the demise of larch.

The proposed future forest species clearly far exceeds the UKFS Guidelines (section 6), General Forest Practice paragraph 8, regarding species composition.

The proposed future forest species clearly far exceeds the UKWAS requirement 3.3.2

UKWAS Thresholds	Future forest design	Comments
< 65% primary species	25%	Sitka Spruce
> 20% secondary species	29%	Other conifers including DF, NS, SP, WRC
> 10% open space	21%	Including transition hill land
> 5% native broadleaf	25%	Riparian and by Loch Kindar

5.3 Restructuring

There has already been some very good restructuring work including felling of first rotation coupes, replanting and more recent new planting in the North of the block (1991).

The greatest challenge in this plan is restructuring of the P1991 SS area in the North, where creation of coupe shapes is difficult given there are few "green edges" to work to. This area has been considered for workability and visual analysis and the proposal aims to deliver on both fronts. Given the high sensitivity of landscape we have avoided the need for any new forest roads in the North of the block and have proposed to utilise the existing thinning routes recently used by operations. These "racks" are shown on the management map and the proposal is to make these permanent, with some importing of stone to avoid diffuse pollution during the clearfelling operation. The racks will be a maximum of 5m wide to minimise landscape impact. The proposed coupe shapes are much smaller than the current layout and these will better suit the landscape. This proposal is a compromise between workability of the site and landscape. It should be noted that the future forest design includes gaps between the future felling coupes making them more resilient to wind going forward and allowing different felling options and sequence of coupe felling to diversify the forest whilst minimising windblow.

The main part of the forest further south is relatively easy and is now predominantly in its 2nd rotation and much of the coupe layout has already been established, the review focused on amending the felling year and the altering the future spices to better deliver the management objectives going forward.

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

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, this principle was used in the previous plan too and is still relevant today.

There is a proposal to slightly increase the area being managed under CCF to better deliver the biodiversity, public access and social objectives

The summary table below shows the Coupes proposed for clear felling in the next 10 years.

Coupe	Felling Year	Felling area ha	Comments
22860	2022	4.7	Early larch felling
22025	2022	3.9	Early larch felling
22189	2022	13.1	Early larch felling
22404	2023	3.4	Early restructure felling in the North
22074	2024	2.7	First rotation felling

Production Forecast comparison

	Average annual production of clear felling	
Period of Felling	Current plan	Proposed plan
2017-2021	981	215
2022-2026	404	1294
2027-2031	2188	448
2032-2036	2341	433

The table above shows how changing the coupe type and felling date has changed the clearfell average annual production over the production forecast periods. The key change in 2017-21 period is the delaying and reshaping of a coupe in the North of the block. The drop in the final quinquenium is due to coupes being delayed beyond 2036.

In terms of age class diversity, there is work to be done on the North of the forest given its single p year of 1991, the phased felling proposal will lead to diverse age structure over time.

In the South end of the forest there is a wide range of age class diversity and this is becoming a fully normalized forest.

5.4 Operational Access

1. There is a good existing forest road network that will be maintained as required to accommodate timber transport and operational vehicles.

2. A single short planned road is shown on the management map to gain access to inaccessible areas. Please see Management map for details.
3. In the North of the area there is ~100ha of P90's Sitka Spruce. The proposal here to avoid new roading in the highly sensitive landscape is to provide permanent racks to gain access for clearfelling, thinning and general forest management. We have considered approaching the Private Sector to the North and sharing a road but given the PS road leads through a housing estate (Kindar Drive) this is not something FES would want to propose. All timber from NFE will continue to be removed via Ardwell Farm.

5.5 Thinning plans and CCF plans

Thinning plan

Area planned for thinning in this rotation is shown on the thinning ruleset map. Some of this thinning is in clear-fell coupes and other thinning is in areas managed for CCF. Typically the clearfell coupes will be thinned 5-7 years and the CCF thinning between 5 and 10 years. The higher altitude areas with wetter soils are not proposed for thinning given the risk of windblow.

CCF plan

Coupe name - Between forest road and Loch Kindar.

Coupe description: Including permanent native woodland by the loch. Recent pre emptive Phytopthora felling has removed the larch. Remaining are some native broalbeaves and groups of mature conifers.
Coupe felling: Crown thinning with a view to uniform shelter wood over time. Removal of conifer and favour broadleaves, especially native broadleaves.
Coupe Establishment: Planting and natural regeneration of native broadleaves as appropriate/required.
Intended outcome in 20 years: Mostly converted to native broadleaves with a few remaining individual conifers. Moving towards 100% native broadleaves which will be productive.
Monitoring/review: 5 year review
Suggested timing of operations: 5 – 10 year thinning cycle

Coupe name - LEPO at the forest gate
Coupe description: Mature beech plantation and nearby broadleaved woodland

Coupe felling: Crown thinning
Coupe Establishment: Natural regeneration of beech and supplemented with native broadleaves. Focus on production of timber.
Intended outcome in 20 years: Old beech woodland becoming more diverse in terms of species.
Monitoring/review: 5 year review.
Suggested timing of operations: 5-10 year thinning cycles

5.6 Deer Management and feral Pig

Although a lovely woodland animal, unchecked roe deer populations can increase quickly in these ideal conditions and to control populations, some animals are culled by qualified FES Wildlife Rangers and contractors working to industry best practice with regard to deer welfare and health & Safety . Control of populations has been an on-going activity since the forest was planted in the 1950's. This management plan aims to increase 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 to roe deer. To protect the trees from the roe deer the Dumfries and Borders deer management plan aims to reduce populations to around 5/100ha 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 productive broadleaves identified on the map will will probably require deer fencing to protect the young trees. These areas are small and typically the deer fence design will be small exclosures of 2 or 3 hectares around the young broadleaved plantations. Once established the fences will be removed.

The feral pig population is likely to extend and increase in size which will have an indirect negative effect on our ability to protect the young plantations and a direct effect on neighbouring farming land. With this in mind, the LMP will focus will be on maintaining/improving forest design/infrastructure to enable FES to manage the resident feral pig populations to deliver on future Scottish Government objective and 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 including access, rural development.

Public access to the forest is in high. Core paths exist through the forest and these will continue to be maintained by the Council. Other access routes are not formal waymarked facilities; they are used informally and guided by the Scottish Outdoor Access Code.

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.

There are some ongoing concerns around timber transport, mainly in New Abbey and we will continue to liase with the community council (and neighbours) to try and resolve any potential conflicts.

5.8 Management of open land

There are a number of areas of open land:

- Between the upper tree line and the NFE upper boundary there is an area of open space and transition tree cover. Typically this will incorporate graded non-productive woodland decreasing in intensity with altitude. SS will be removed, SP will be retained, retain upto 25 larch per ha as character trees (unless Phytopthora infection), retain upto 100 mature birch per ha, retain other native broadleaves inc rowan etc.
- Buffer areas around heritage features – see section 5.10
- In the 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. The two key viewpoints are at the point on the core path where it crosses the lower and also the upper forest road. You can see open space identified on the lower side of the forest road to allow views out to the farmland and the Solway estuary beyond. Specifically the vp vista areas should have low level of short tree cover not exceeding 10% of the area of rowan and willow etc. It is appreciated that the riparian zone at these two points will have minimal broadleaved tree cover.

5.9 Public Access and Core Paths

Informal public access is taken across the forest, mainly on the hill path. The hill path is a core path managed and maintained by the Council.

Informal access throughout the forest is guided through the Scottish Outdoor Access Code.

5.10 Heritage Features

Unscheduled sites are limited to HLA relic site in the North and Loch wood, near to loch Kindar. See Map. There are no scheduled sites in the National Forest Estate area.

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.

5.11 PAWS restoration

The ancient woodland site by Loch – commitment to restore during the 10 years of the plan including removal of the remaining non-native conifers and restocking via natural regeneration of native broadleaves.

The LEPO by the gate – retain as broadleaved species including the existing mature beech. Add other native broadleaved species as appropriate. The area should be managed as CCF and thinned accordingly.

5.12 Viewpoints and landscape

The key viewpoint for Criffel is from the bus stop near Ardwell farm road end, although different perspectives can be seen from Troston and New abbey.

The proposal includes coupe and species shapes that reflect the landscape character including shapes that strongly follow the underlying landform, size which is smaller at low levels and larger higher on the hill. There is more diversity lower on the hill and nearer to loch Kindar including a variety of different species. Above the high forest the upper margin grades out to open hill. The rocky granite crags will remain open in the South West of the block.

In the North of the block access for timber harvesting is limited and to avoid significant new forest road construction on the site within an NSA, the coupe shapes have been designed to be workable as well as maintaining or enhancing landscape design. This large shoulder leading towards Knockendock is currently a large scale spruce forest and by reducing coupe size and increasing diversity lower on the shoulder the proposal is an enhancement over the current situation.

The two key viewpoints looking out from the hill path are located at the two points where the hill path cross the lower and upper forest roads.

5.13 Red Squirrels

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 controlled by the grey squirrel control officers on an on-going basis.

A well-established design principle/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 in this situation.

5.14 Critical success factors

Main critical success factors for plan development are:

- ***Management of feral pig population***
- ***Landscape and support NSA objectives***
- ***Establish broadleaves and alternative conifers***
- ***Effective design of the mono age/species 1991 area in the North of the block to protect or enhance landscape and to be workable in terms of forestry operations.***

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 New Abbey Village Hall Advertised on www and on Gatepost signage and via letters to statutory stakeholders and Community Councils	During July 2016		Generally a positive meeting with the main issues being Timber Transport and Core Paths. Attended by approximately 25 people between 1500hrs and 2000hrs. Mostly people from New Abbey and Dumfries, few immediate neighbours. There was much discussion about Core Paths. Generally there it was appreciated that FES welcomed the core paths. There were issues around core path signage at the foot of Waterloo monument and also many were concerned about the wet and boggy surface on the hill path above the Criffel fence line. Some suggested that some drainage would help. FES noted that this was out with FES land but committed to passing on to DUMGAL which was done. Communication with Neighbours. A few people wanted to be informed about changes to the forest more regularly e.g. felling areas/timber transport. FES committed to informing neighbours and community councils when significant operations and changes were planned (lead by communities and ops). Timber Transport. People were concerned about timber transport and wanted more information. E.g. Frequency of lorries, area being serviced by the forest road (we explained this was Criffel only). There were two locations of concern. Firstly on the unclassified road from the forest which was becoming potholed and secondly on the route through New Abbey where there was no pavement. A community council member asked if the timing of the lorries could avoid school starting and finishing times and it was understood that the forthcoming foxes holes coupe was already sold and contracted and this would be difficult to achieve. FES committed to considering this for future contracts. It is noted that the unclassified road is a consultation route and DUMGAL will be contacted and agreement made before timber transport starts. Views from the hill path (and species selection) – Some of the views from the hill paths are becoming obscured by the growing trees and people would generally like to retain some views at	

			specific places but also allow trees to grow up on others. This would create diversity on the path and allow walkers to stop and take stock of the wonderful panoramas at various places on the path. There was a general comment that more hardwoods and broadleaves would be appropriate near the hill path. Water supply near Ardwall mains – FES checked and this is held within FES Core data and so will be picked up before operations start. Species of the future forest. People generally liked the idea of more diversity in species lower down including alternative conifers and broadleaves. Higher up the hill SS would be appropriate.	
Anton Watson Deer Officer SNH	13th July 2016			
SNH Dylan De Silva	13th July 2016	1st August 2016	Thanks for your invitation to participate in the consultation for the Criffel Forest Design Plan. Looking back at our records I see that my colleague Beth Wilson commented on the last plan in 2006 when our comments focused on the need to carefully consider the felling and restocking plans given the forest's location in the Nith estuary National Scenic Area (NSA), and consideration of water quality issues with reference to the European Protected Species, Slender Naiiad in Loch Kinder. These are likely to remain SNH's main areas of comment. We welcome comment in the draft design plan to maintain and support public access through the woodland as well as consider wider protected species and biodiversity interests (red squirrel, black grouse). The feral pig issue is an interesting one and as you are probably aware SNH is currently working with FCS to formulate a position with regards their future management. It will be interesting to see how this is dealt with in the Criffel Forest plan.	Noted.
Richard Masters DUMGAL Access officer	13th July 2016			
Kieran Mccrudden DUMGAL Roads officer	13th July 2016	22nd of July 2016	The road network in Dumfries and Galloway has been assessed relative to use by forestry extraction vehicles by Dumfries and Galloway Council in partnership with the Forestry Industry and this is reflected in the Agreed Routes	Noted and passed to FES Ops for implementation

			Map. Access/Extraction Routes Access within Nithsdale would appear to be via the U208n and then on to the A710. On the Agreed Routes Map the A710 is identified as an Agreed Routes. The U208n is not an identified route. The applicant must contact Team Leader Maintenance and Programming to discuss measures to minimise the likely impact on the affected roads and formally agree a timber traffic management regime.	
Adrian Pringle DUMGAL Landscape	13th July 2016		Keen to protect the landscape given NSA status. Adrian offered support and guidance during the design process including site visit.	Noted, appreciated and incorporated into the design
Peter Norman DUMGAL Biodiversity	13th July 2016	10th of August 2016	With regard to biodiversity, I'm happy with the draft design brief, and particularly pleased to see restoration of ancient woodland and protection of important open habitats. The only thing I would add (which you have probably already been informed about from others) is that Loch Kindar has been identified as a Local Wildlife Site and is designated as such in the Dumfries and Galloway Local Development Plan. In other words, it is considered to be of at least Dumfries and Galloway importance for its biodiversity, notably its wetland flora and fauna. However, I am happy that nothing in the design brief would adversely affect the loch. Slender Naiad, a rare aquatic plant and European Protected Species, was provisionally identified from the loch several years ago, though this is not the principal reason for Local Wildlife Site status. SNH are best placed to advice on any management that may affect Slender Naiad.	Noted and incorporated.
Andrew Nicholson DUMGAL Archaeology	13th July 2016			
Julia Gallagher RSPB	13th July 2016	Dec 2016	We welcome the objectives to diversify Criffel through restock species including the expansion of native broadleaves	Noted

			adjacent to ancient woodland sites. We also strongly support the objective to seek the potential to manage priority open habitats in the transition zone between forest and hill ground and we recommend that this is done to maximise habitat quality for species such as nightjar and black grouse. In support of this recommendation we can confirm that our records for 2016 confirm breeding nightjar within 4.5km north-east and 7.2km south-west of Criffel at Kirkconnell Flow and the Glider club respectively. In addition, black grouse (male and female) birds were recorded at the Glider club and Cuil Hill in 2016. Therefore, management which aims to increase the percentage of native broadleaf species particularly, where these are targeted on edge of felled coupes or open hill ground and to manage open hill ground to encourage plants such as heather will benefit these species. Native broadleaf species which will benefit black grouse in particular, would be rowan, hawthorn, willow, alder and birch.	
David McNay SEPA	13th July 2016			
Kevin Grant Historic Environment Scotland	13th July 2016	19th July 2016	Historic Scotland's remit is to comment where proposals might impact upon the fabric and/or setting of designated historic features, such as Scheduled Monuments, A Listed Buildings and Sites on the Inventories of Gardens and Designed Landscapes and Historic Battlefields. From the information provided in it would appear that no such designated features would be affected by the proposed land management plan. Therefore HES has no comments to	Noted

			make regarding the supplied design brief.	
Alexa Seagraves Red Squirrels	13th July 2016			
LouisePayne FCS	13th July 2016		Support and advice offered	Noted
Nith District River Salmon Fisheries Board	13th July 2016			
Jamie Farquhar CONFOR	13th July 2016	13th July 2016	Our general comments on the future of Criffel forest is a plea from the industry to take full advantage of a woodland that has enormous potential for softwood production, and that any move to decrease the area growing Sitka or Douglas should be resisted. Compliance with UKFS in itself will ensure more open space and an increase in broadleaves. Any move to further diversify the conifer component of the forest should be restricted to those species with proven market demand from the sawmilling and processing sector.	Noted and production remains high on the agenda but will include alternative conifers and proven broadleaves.
Community Councils at New Abbey and Kirkbean	13th July 2016		Input given at the public meeting see section above.	
Galloway Fisheries Trust	13th July 2016			
Anna Johnson NSA Officer DUMGAL	13th July 2016	Throughout autumn 2016	Much support given during the planning phase including 3 site visits to establish and explore issues. Focus of discussion and support was on the block to the North regarding landscape and workability, viewpoints out from the forest, the transistion land between the high forest and the upper NFE boundary.	Much appreciated input and ideas have been incorporated into the plan
Internal Consultation.	Spring and Summer 2016		Focus on increasing the buffer to the loch and the native woodlands. Agreed a proportion of productive broadleaves. Need deer fencing. Much discussion and debate about the landscape and workability of the area to the North including site visits.	

Please reply to:
Dumfries and Galloway Council, Planning and Environment, Militia House, English Street, Dumfries, DG1 2HR
Tel: 01387 260154

The Forestry Commission
South Scotland Conservancy
55/57 Moffat Road
Dumfries
DG1 1NP

Ref: EP/COA1/2017

Name: FOREST DESIGN PLAN – CRIFFEL

Number: FDP 234

The forest plan considers the historic environment in section 3.5.3. and puts management proposals forward in section 5.10.

The two known heritage features are shown on the heritage mapping. One is the area of the former farmstead of Roan (MDG16714) with its associated enclosures and infields, the other is a field system (MDG16716) associated with the former farmstead of East Glen. Recent aerial photographs indicate that some elements are still upstanding around NX 9592 6477. The features are both shown on the first edition Ordnance Survey map.

Careful ground-checking will be required before any on site activity takes place to ascertain the presence/condition and extent of features that have been recorded and to determine whether they can make a meaningful contribution to future forest management.

The proposals to survey, record and protect upstanding historic assets in improved open space is welcomed.

Signed **A Nicholson** **Date 19 April 2017**

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

Louise Payne
Forestry Commission Scotland
South Scotland Conservancy
55/57 Moffat Road
Dumfries
DG1 1NP

Our ref: CNS/FDP/N – CPP145715

Date: 3 May 2017

Dear Louise

Criffel Land Management Plan

Thank you for consulting Scottish Natural Heritage (SNH) on the above proposal.

Summary
The Criffel Forest Plan addresses the main environmental issues associated with the area. The following comments provide some additional advice in respect to protected species.

Appraisal
Our previous correspondence on the Criffel forest design plan drew attention to the need to carefully consider the felling and restocking plans given the forest's location in the Nith estuary National Scenic Area (NSA), and consideration of water quality issues with reference to the European Protected Species, slender naiad in Loch Kinder.

The approach proposed for felling and restocking will help to mitigate landscape effects satisfactorily.

I note that the plan states that slender naiad is no longer present in Loch Kinder. The last record we are aware of for slender naiad from Loch Kindar is from the survey commissioned by SNH in 2002. I appreciate that Loch Kindar is increasingly subject to eutrophication pressure from surrounding activity and the large Canada goose roost breeding there. Whilst I would not be surprised to find slender naiad had been lost, as far as I am aware its absence has not been proven as no comprehensive survey has been undertaken since 2002. I would therefore caution against dismissing it from potentially being present. Given this, it is important that forestry operations adopt appropriate measures to ensure that impacts to the loch are minimised. I acknowledge the statement in the concept map to consider drainage and riparian buffer strips in order to maintain or improve water quality. Given the eutrophication pressure on the loch from a number of sources, some of which are out with FCS control, I would suggest that you might want to change the target to one that aims to eliminate or substantially reduce any inputs to watercourses due to forestry activities. It would be good to see more detail on how this will be achieved; e.g. width of buffer areas,

felling protocols to minimise run off, silt traps etc. On a similar vein, there is no information given on storage of fuel or vehicle refuelling and the importance of this in a sensitive catchment. I assume that forestry best practice guidance will be adopted to minimise risk of watercourse contamination.

SNH welcomes the commitment to improve management of the site for key species such as black grouse and nightjar that are known to be in the area. The increased broadleaved complement will help to support these species, but the plan also highlights the likely requirement to erect deer fencing in order to protect these more palatable trees during the establishment phase. The habitat created by stands of young trees is ideal for black grouse and consequently there is a risk of collision with fences that may be erected around these areas. Marking the fences in areas where there are clear flight paths would be advisable in order to avoid this.

There is no reference in the plan to consider other protected species that may be present on site. Before any felling works are undertaken we would expect site checks to be undertaken for the likes of badger and otter and timings of works to take into account breeding bird interests. In these matters, adoption of standard forestry best practice guidance would be appropriate.

If you have any questions relating to any of the above, please do not hesitate to contact me.

Yours Sincerely

Dr Dylan De Silva
Operations Officer
Southern Scotland Unit
Tel: 0300 067 3206
dylan.desilva@snh.gov.uk

Appendix IV Tolerance table

Tolerance Table:

	Maps Required (Y/N)	Adjustment to felling period*	Adjustment to felling coupe boundaries **	Timing of Restocking	Changes to Restocking species	Changes to road lines	Designed open space * **	Windblow Clearance ****
FC Approval normally not required	N	• Fell date can be moved within 5 year period where separation or other constraints are met	• Up to 10% of coupe area.	• Up to 2 planting seasons after felling	• Change within species group eg. evergreen conifers or broadleaves		• Increase by up to 5% of coupe area	
Approval by exchange of letters and map	Y		• Up to 15% of coupe area	Between 2 and 5 planting seasons after felling subject to wider forest and habitat structure not being significantly compromised		• Additional felling of trees not agreed in plan • Departures of > 60m in either direction from centre line of road	• Increase by up to 10% of coupe area • Any reduction in open ground within coupe area	• Up to 5 ha
Approval by formal plan amendment may be required	Y	• Felling delayed into second or later 5 year period • Advance felling into current or 2nd 5 year period	• More than 15% of coupe area	• More than 5 planting seasons after felling subject to wider forest and habitat structure not being significantly compromised	• Change from specified native species. • Change Between species group	• As above, depending on sensitivity	• More than 10% of coupe area • Colonisation of open space agreed as critical	• More than 5 ha

NOTES:

* *Felling sequence must not compromise UKFS in particular felling coupe adjacency. Felling progress and impact will be reviewed against UKFS at 5 year review.*

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

*** *Tolerance subject to an overriding maximum 20% open ground.*

**** *Where windblow occurs, FCS must be informed of extent prior to clearance and consulted on clearance of any standing trees.*

Forestry Commission Scotland
Coimisean na Coillteorachd Alba

Criffel

Land Management Plan
Design brief - version 2

Contents

1. Background and key information

This is a design brief for a long term land management plan for Criffel area which is part of the National Forest Estate. The area, which extends to 210 ha, is located on the east side of Criffel with an easterly aspect and predominantly with medium to steep slopes. The woodland shares some of the best climates in Scotland along with excellent soil for growing trees with potential for a wide range of tree species.

Criffel forest was originally planted in the 1950's and although large areas of the first rotation are felled, the second rotation is growing well and the whole area is progressing well towards a fully restructured forest.

Landscape has been an important aspect of this area for many decades. Given Criffel's high levels of visibility, landscaping is an important driver for the woodland design and particularly given that the woodland sits within the Nith estuary NSA (designated by SNH).

As outdoor access has grown over the past 50 to 100 years there has been demand for the hill access route. This is now an established path which has Core Path status designated and maintained by Dumfries and Galloway council.

The woodland adjoins private sector woodland to the North and South. To the east is fertile agricultural land and loch kinder, to the West is the Criffel massif

Surface water quality is important; Loch Kindar is located at the foot of the forest, there is considerable fishing interest. Flooding risk downstream in "Sheep burn" is not considered to be significant, given the latest SEPA flood data.

The land is rough given the underlying Granite rock and this roughness has caused timber extraction challenges over the past 50 years. Good forest planning is essential.

Tourism development in the area is supported with landscape and public access.

First and second rotations have included a high Sitka Spruce component but the next rotation should include more species diversity, given threats of climate change and the favourable climate and soils there is opportunity to grow productive broad leaves.

Community involvement in the management of the forest is low but involvement is encouraged this will be explored in the development of this land management plan.

Ancient woodland sites on the edge of the forest by Loch Kindar have high biodiversity potential.

There are historical records of Black Grouse but current populations are unknown. Red squirrels are present in the forest.

Forestry Commission forests are independently certified as being responsibly managed. We're regularly audited against the UK Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification.

Keeping in touch with our stakeholders and understanding their views is important to us and an important part of the standard. We welcome all comments on these proposals.

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

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

2. A vision for Criffel Forest

Moving towards traditional permanent woodland with appropriate shape and scale, delivering long term benefits to the environment, community, tourists and economic development.

3. Priorities for the design and draft management objectives

Aspiration 1: Healthy

Aim to diversify the species to provide resilience to climate change. This is particularly relevant in Criffel where there are excellent soils and climate for growing a variety of different tree species. In addition, this species diversity will deliver other social and environmental objectives.

Diversify the structure where possible to provide resilience to climate change. Expand the CCF areas and reduce coupe size which will also be appropriate for the NSA designation and landscape

Currently in the Phytopthora management area, the larch will be removed where infected or where appropriate pre-emptive felling is required. E.g near to core paths. Larch replanting will be avoided in the first 10 years of the plan but will be included beyond this in the future forest as this is an important species for Autumn colours in the landscape.

Aspiration 2: Productive

Traditionally, large diameter and a variety of species have been harvested in the locality and this is typical of the diverse woodlands around the coast in the better climates and soils. To continue supply this plan will encourage species diversity and CCF management will be important in the future forest. Broad leaves for hardwood will be an important component.

In the higher elevations of the forest species will be more limited with Sitka spruce and scots pine being key components. Birch and rowan and other native broadleaved species will be important in the riparian zones.

Douglas fir is a very suitable species in terms of soils and climate and this will be a preferred species for production and species diversity.

Opportunities for productive broad leaves will be considered whether this is the existing broad leaves or changing from conifer to broadleaves.

Protection from deer is manageable but the growing Feral Pig population will give challenges as populations increase.

Large dimension scots pine is a specific aspiration given the tradition on nearby estates and its timber use.

Strategic Timber Transport remains important and all of the timber will exit via Ardwell farm and via the minor road to the A710 which is an agreed route. There are no known issues on the minor road or whilst passing the Criffel car park. All lorry drivers follow the codes of practice recommended by FCS and the timber transport forum.

Aspiration 3: Treasured

Landscape and the NSA. Locals and tourists and those traveling along the Galloway Tourist Route. From Long distance views from England to short distance small landscape views from the hill path leading through the forest.

Public access hill path to the top of Criffel is treasured by many.

Water quality is treasured by people fishing in loch Kinder.

Aspiration 4 Accessible

The traditional hill path (now a core path) and general outdoor access are important features of the area and are treasured by the general public, especially for the panoramic views. Public access arrangements will continue to be encouraged and guided by the Scottish Outdoor Access code.

Linkage between New Abbey and Criffel is readily available on foot via the core path. Although less suitable for horses and cyclists.

On-going liaison and consultation with neighbours and stakeholders will aim to retain the access going forward.

FES will continue to facilitate access of the Council's core path. This starts from a car park on private land, leading to and through FES Criffel Forest and back onto private land on the open hill to the summit.

Aspiration 5: Cared For

Red squirrel exist in the forest and future tree species will include Scots Pine and Norway Spruce, both of which are high in nutrition for Red Squirrels.

Black grouse numbers are currently unknown, but this aspect will be explored during the plan.

There is a long history of woodland with Ancient Woodland sites and long established woodlands of plantation origin. We aim to restore most of these sites within the 10 year period of the plan.

We are looking to expand broad leaved areas adjacent to the ancient woodland sites to enlarge Native broad leaves areas and to provide buffering for water and habitat networks particularly near to loch Kindar. Focus on native species in these areas along with exclusion of non-native broad leaves.

Potential for management of any Priority Open habitats on the transition zone between forest and the hill will be explored during the creation of this plan.

Maintain and strengthen permanent native broad leaves in the riparian corridors.

Highest priority restored Ancient Woodland sites will be managed as natural reserves.

Although there are no scheduled heritage sites, the unscheduled suites will be identified, recorded and protected going forward.

Aspiration 6: Good Value

Timber sales will remain an important revenue stream into the future. The public access availability is considered a very important contribution to the local economy especially for tourism. As there are no formal FES facilities there is no direct charging for access at this location. Procurement of services and sales of Timber will be conducted in a fair and open and transparent way.

Proposed Management Objectives

Primary Objectives

- **To provide resilience to climate change, diversify the tree species and structure.**
- **To maintain productivity, and increase species diversity, grow a range of tree species for a variety of markets, locally and nationally.**
- **To maintain and enhance landscape value carefully plan shapes and scale in line with NSA recommendations**

Secondary Objectives

- **Monitor feral pig populations and manage population to protect trees and neighbouring land.**
- **Continue to work with Dumfries and Galloway Council (Access Officer) on the forest design to ensure there is a permanent through route for the hill path and associated core paths.**

- **Identify and manage areas for nature conservation and environmental importance and manage using Natural reserve, Minimal Intervention and Logn Term retention techniques.**
- **Maintain links with the community and remain agile to ensure forest management remains in alignment with the ambitions and aspirations of the community.**
- **Manage the water to improve quality and regulate flow where appropriate.**

Design Concept (Draft wording for Analysis and Concept Map)

Important factor/drivers (including opportunity and constraints)	The Design Concept
1. Landscape value	Carefully design appropriate shapes and scales of future woodland. On-going restructuring of landscape shapes following the geometric shapes of the first rotation. Choice of appropriate conifer and broadleaves species.
2. Hill access including core paths.	Design the coupes to keep the hill path free in the future forest and indeed enhanced in terms of the small scale visual landscape including appropriate species choice and allocation of open space.
3. Water including Loch Kindar	Consider drainage and appropriate riparian buffering to ensure quality of surface water is maintained or improved. Open space in the riparian zones will be important component.
4. Tourism development	Ensure public access arrangements and landscape design continue to support tourism in the area.
5. Excellent climate and soil conditions and the opportunity to maximise diverse productive forestry	The soils and climate give the opportunity to maximise diversity of species and structure to help ensure resilience to climate change as well as providing significant economic advantage in terms of the timber production and marketing. Including alternatives to Sitka Spruce and productive broadleaves. Aim to increase the broadleaved proportion in the future forest. Maximise structural diversity including the management of forest under Continuous Cover Forestry Systems particularly on the lower more wind firm slopes near the ancient woodland sites.
6. Rough terrain	Consider future extraction techniques and ensure coupe size is appropriate to using ropes where necessary.
7. New Abbey and the local community	As well as supporting communities with provision of excellent landscapes and public access opportunities, during the consultation period for the land management plan review (and beyond) ensure active engagement to check that plan continue to deliver in

	line with community aspirations.
8. Ancient Woodland Sites	Identify sites where there are Plantations on Ancient Woodland Sites (PAWS). Plan to restore to native broadleaved species within the timeframe of this management plan. Where sites are already restored manage to improve biodiversity condition and maximise the advantages to the biodiversity. Create new native woodland buffers adjacent to these AW sites. Treat areas of Long Established woodland as Ancient Woodland sites. Open space will be an important component. Utilise open space recently created by pre-emptive larch felling.
9. FCS Priority species – Red Squirrel and Black Grouse.	Ensure appropriate proportions of Norway Spruce and Scots Pine are planned for the long term to provide food source for the red squirrels. Identify any important Black Grouse sites and prioritise the management of that land for BG.
10. Priority Open habitats	Identify sites of importance (perhaps on the transition between upper forest and the open hill land) and manage appropriately including exclusion of trees as appropriate.
11. Feral Pig	As populations increase, monitor and plan control to protect the woodland regeneration and planting as well as protection for neighbouring farm land. This will include creation of open space for feral pig control.
12. Roe Deer	Continue to manage deer populations on a landscape scale and avoid deer fencing on all areas but those of the highest investment e.g. productive broadleaves.
13. Timber Transport	Plan extraction routes and roads in the forest for long terms sustainable timber extraction. Work with the timber transport forum to ensure that timber transport impact is minimised.
14. Archaeology	Although there are no scheduled sites aim to identify record and protect the unscheduled sites on a permanent basis. Open space will be an important component.

1. Glossary

LTR- Long Term Retention
CCF - Continuous Cover Forestry
LISS – Low Impact Silvicultural Systems
PAWS – Plantation on ancient woodland site
ESC – Ecological Site Classification
UKFS – UK Forest Standard
FCS – Forestry Commission Scotland
FES – Forest Enterprise Scotland
NR – Natural Reserve
MI Minimal Intervention
BG – Black Grouse

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel forest

Analysis and Concept Map

Scale: 1:25,000

Date: June 2016

Legend

- Ancient Woodland Inventory
- Criffel_land_management_plan_a
- NSA
- Heritage Features Point
- Heritage Features Line
- Heritage Features Polygon
- water_courses
- Forest roads
- CORE_PATHS
- Existing NFE Boundary

Tounsm development. Ensure public access arrangements and landscape design continue to support tourism in the area.

New Abbey and the local community. As well as supporting communities with provision of excellent landscapes and public access opportunities, during the consultation period for the land management plan review (and beyond) ensure active engagement to check that plan continue to deliver in line with community aspirations.

Ancient Woodland Sites. Identify sites where there are Plantations on Ancient Woodland Sites (PAWS) Plan to restore to native broadleaved species within the timeframe of this management plan. Where sites are already restored manage to improve biodiversity condition and maximise the advantages to the biodiversity. Create new native woodland buffers adjacent to these AW sites Treat areas of Long Established woodland as Ancient Woodland sites Open space will be an important component. Utilise open space recently created by pre-emptive larch felling.

Water including Loch Kindar Consider drainage and appropnate riparian buffenng to ensure quality of surface water is maintained or improved. Open space in the riparian zones will be important component

Priority Open habitats. Identify sites of importance (perhaps on the transition between upper forest and the open hill land) and manage appropriately including exclusion of trees as appropriate

Landscape value Carefully design appropriate shapes and scales of future woodland. On-going restructuring of landscape shapes following the geometric shapes of the first rotation. Choice of appropriate conifer and broadleaves species.

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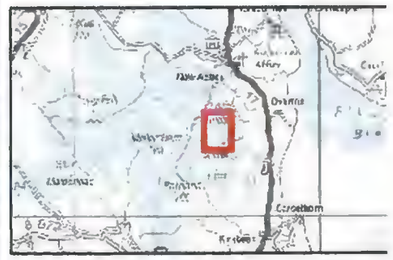
Feral pig. As populations increase, monitor and plan control to protect the woodland regeneration and planting as well as protection for neighbouring farm land. This will include creation of open space for feral pig control.
Roe Deer. Continue to manage deer populations on a landscape scale and avoid deer fencing on all areas but those of the highest investment e.g. productive broadleaves.

Rough terrain Consider future extraction techniques and ensure coupe size is appropnate to using ropes where necessary.

Design the coupes to keep the hill path free in the future forest and indeed enhanced in terms of the small scale visual landscape including appropnate species choice and allocation of open space.

Archaeology. Although there are no scheduled sites aim to identify record and protect the unscheduled sites on a permanent basis. Open space will be an important component.

The purpose of this Analysis and Concept Map is to identify the key issues and factors influencing the design and to give a picture of how the forest will look in c. 50 years time. For more detail se the Design Brief.



0 165 330 660 990 1,320
Mete

N

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel

Location Map

Scale: 1:75,000

Date: June 2015

Legend

Forestry Commission Scotland

0 550 1,100 2,200 3,300 4,400 M

N

Forestry Commission Scotland
Coimisean na Coillfearachd Alba

Dumfries and Borders FD

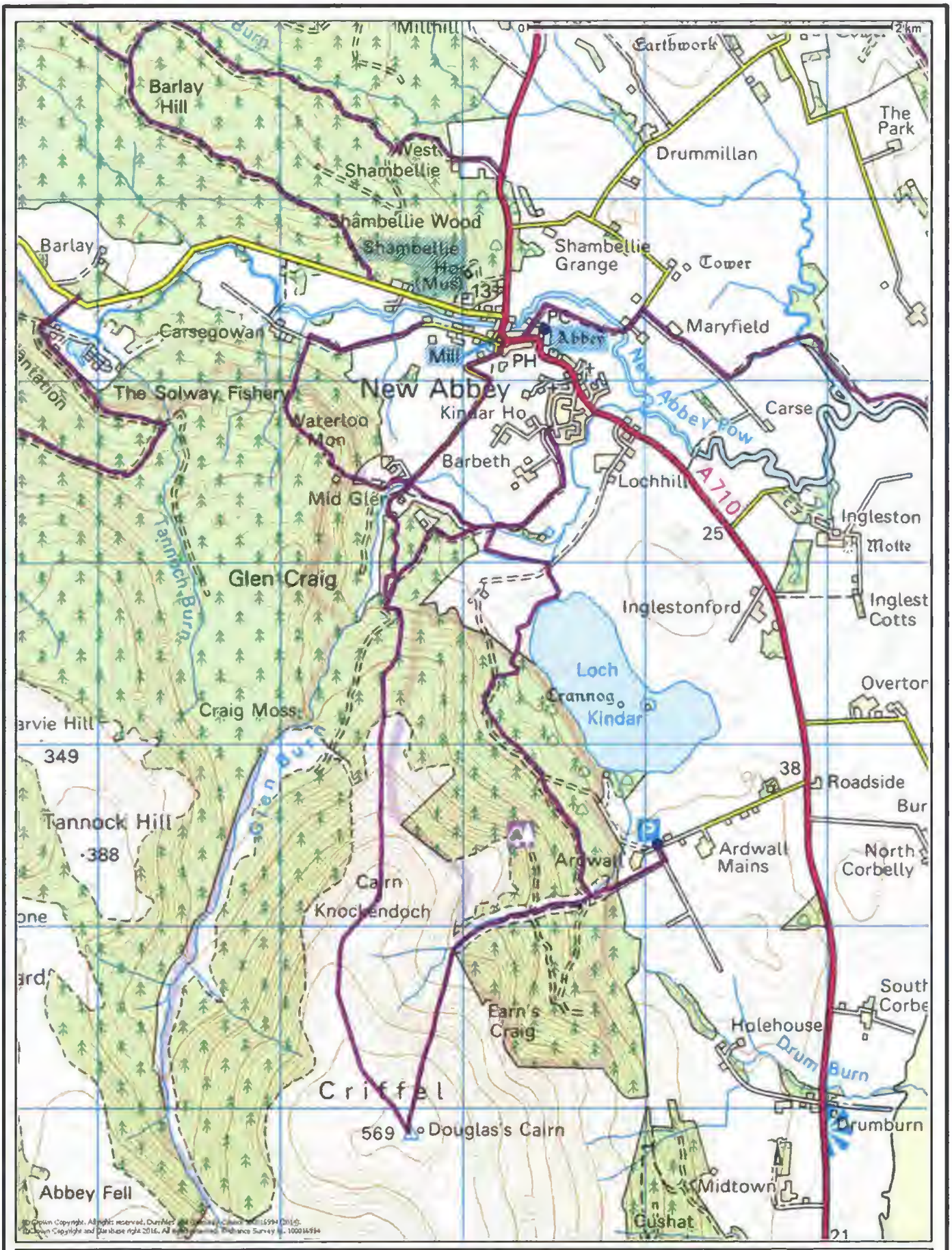
Criffel
Current Species
Scale: 1:10,000
Date: June 2015

Legend

- Road Segments
- NS
- SS
- XS; OMS; ORS
- Pines
- Larches
- Other Conifer
- Broadleaves
- Blocks

0 65 130 260 390 520 Meters

N



Dumgal Paths Map

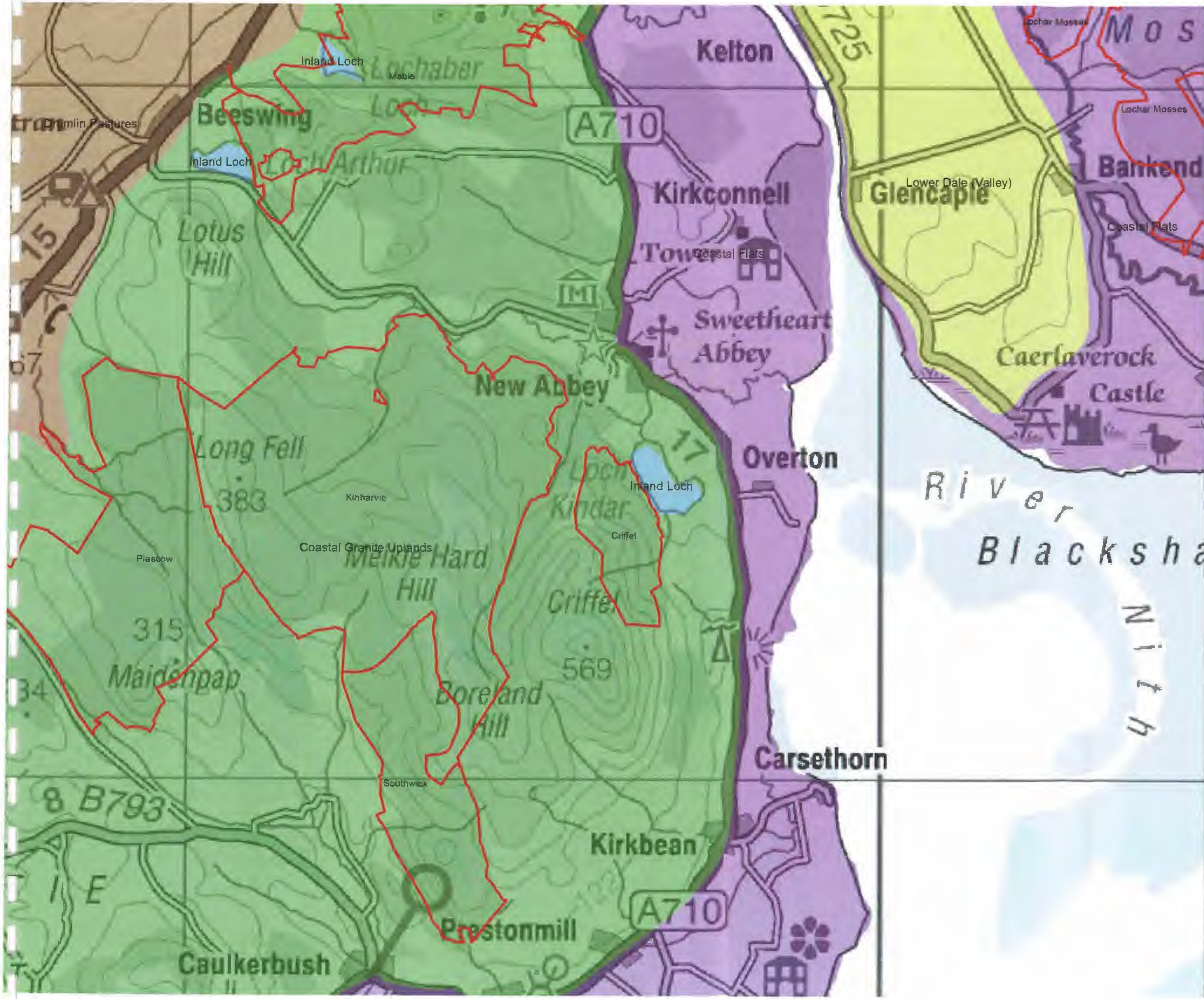
N W E S

Scale 1:26815

Keep out of crops, including grass grown for silage
Use gates and stiles to cross fences, hedges and walls
Leave gates as you find them * Take care on country roads
No dogs in fields with young livestock * Take your litter home
Protect wildlife, plants and trees * Guard against risk of fire
Keep dogs on a lead or walking to heel at all times
Make no unnecessary noise.

Dumfries & Galloway COUNCIL

Created on 08 January 2016


Kelton
A725
A710
Beeswing
Drumlin Pastures
Inland Loch
Lochaber Loch
Mabie
Loch Arthur
Kirkconnell
Glencaple
Lower Dale (Valley)
Locher Mosses
Bankend
Coastal Flats
Lotus Hill
Coastal Flats
Sweetheart Abbey
Caerlaverock Castle
New Abbey
Long Fell
383
Kinharvie
Loch Kindar
Inland Loch
Criffel
Overton
River Nith
Blackshaw
Plascow
Coastal Granite Uplands
Meikle Hard Hill
Criffel
569
315
Maidenpap
Boreland Hill
Carsethorn
Southwick
B793
Kirkbean
Prestonmill
Caulkerbush

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel

Landscape Character (SNH

Scale: 1:50,000

Date: June 2015

Legend

National Forest Estate

LCA

LANDSCAPE

- Coastal Flats
- Coastal Granite Uplands
- Drumlin Pastures
- Inland Loch
- Lower Dale (Valley)
- Narrow Wooded River Valleys
- Peninsula with Gorsey Knolls

0 320 640 1,280 1,920 2,560 Meters

N

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel

Heritage

Scale: 1:10,000

Date: June 2015

Legend

- Forestry Commission Scotland
- Road Segments

DESIGNATION TYPE

- Scheduled Monument
- Heritage Features Point
- Heritage Features Line
- Heritage Features Polygon

0 70 140 280 420 560 Metres

N

Glen Craig
Craig Moss
Quarry (dis)
HLA Relict Area
Loch Hill
Roseneath
Inglestonford
27
Loch Kindar
Tranmog
Kirk Kindar (rems of)
LOCH WOOD, LOCH KINDAR
Loch Wood
Boat House
Overto
MS
Roadsid
Craigbeg
39
P
59
Ardwall
Ardwall Mains
Glen Burn
Knockendoch
29
Craigrockall Burn
Foxes Holes
Corbelly Hill
Gillarthur Wood
Tup Park Wood
Earn's Craig
Shawhead
Holehouse
56
Pultarson Burn
Dru
Brid

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel
Ancient Woodland

Scale: 1:25,000

Date: June 2015

Legend

- FC Boundary

ANTIQUITY

- Ancient (of semi-natural origin)
- Long-Established (of plantation origir
- Other (on Roy map)
- Forest roads

0 165 330 660 990 1,320 Mete

N

Forestry Commission Scotland
Coimisean na Coillfearachd Alba

Dumfries and Borders FD

Criffel

Soils

Scale: 1:10,000

Date: June 2015

Legend

- Road Segments
- <all other values>
- 1 [Typical brown earth]
- 2s [Mining spoil, stony or coarse textured]
- 3 [Typical podzol]
- 4 [Typical ironpan]
- 5 [Typical ground-water gley]
- 6 [Typical peaty surface-water gley]
- 7 [Typical surface-water gley]
- 8a [Phragmites (or Fen) bog]
- 8b [Juncus articulatus or aculiflorus bog]
- 8c [Juncus effusus bog]
- 8d [Carex bog]
- 9a [Molinia, Myrica, Salix bog]
- 9b [Tussocky Molinia, Calluna bog]
- 9c [Tussocky Molinia, Erioph. vag. bog]
- 9d [Non-tussocky Molinia, Erioph. vag., Trichoph. bog]
- 9e [Trichoph., Calluna, Erioph., Molinia bog]
- 10a [Lowland Sphagnum bog]
- 10b [Upland Sphagnum bog]
- 11a [Calluna blanket bog]
- 11b [Calluna, Erioph. vag. blanket bog]
- 11c [Trichoph., Calluna blanket bog]
- 11d [Erioph. blanket bog]
- 12a [Rendzina]
- 13b [Brown ranker]
- 13c [Ranker complex]
- 13g [Gley ranker]
- 13p [Peaty ranker]
- 13z [Podzolic ranker]
- 13r [Rock]
- 13s [Scree]
- 14 [Shallow hagged eroded bog]
- 14h [Deeply hagged eroded bog]
- 14w [Pooled eroded bog]
- 15s [Shingle]
- 15d [Dunes]
- 15e [Sand with deep water-table]
- 15i [Sand with moderately deep water-table]
- 15g [Sand with shallow water-table]
- 15w [Sand with very shallow water-table]
- VC [Valley complex]
- Blocks

0 65 130 260 390 520 Meters

N

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

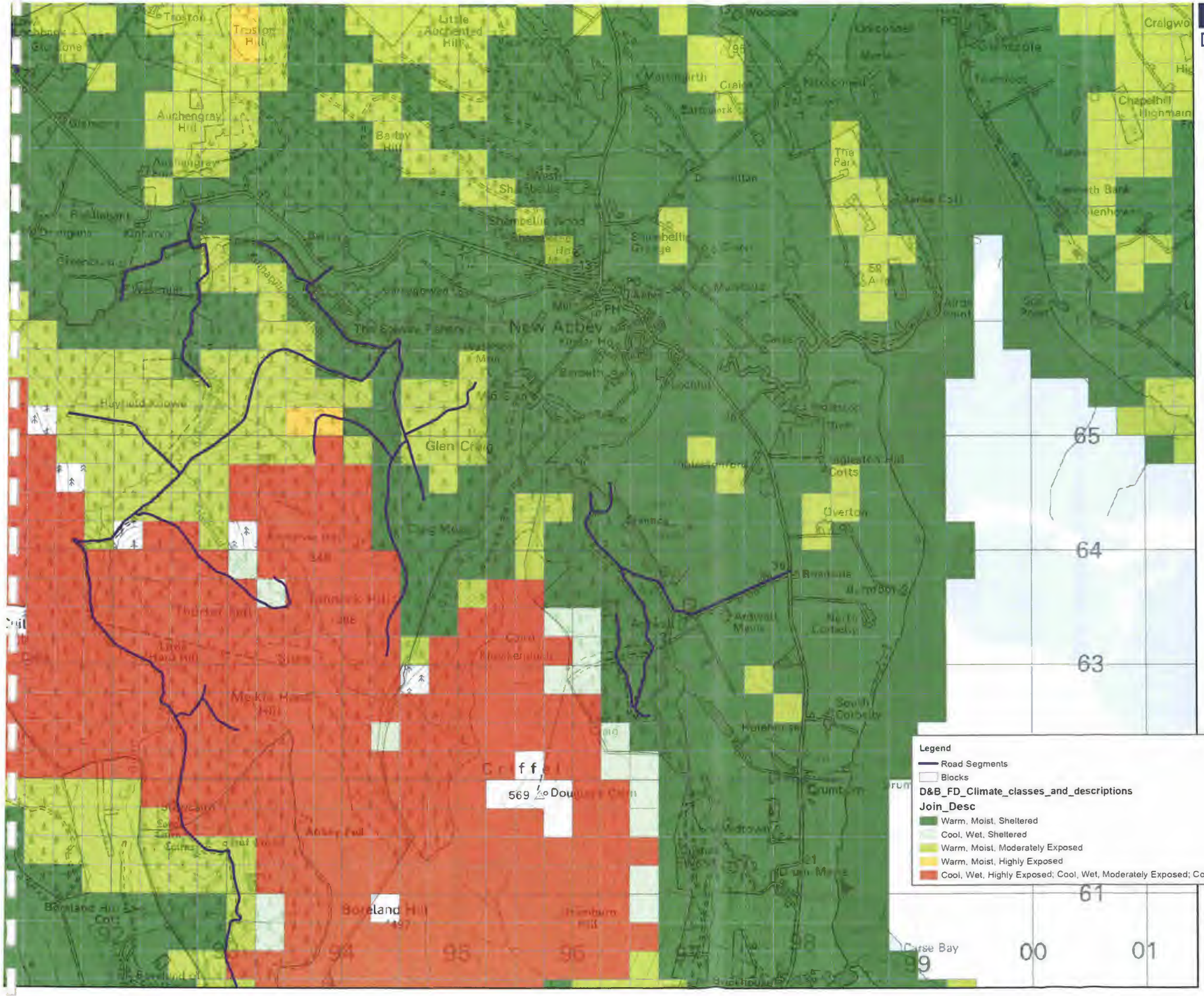
Dumfries and Borders FD

Criffel

Current Climate

Scale: 1:30,000

Date: June 2015



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Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel

Designations

Scale: 1:25,000

Date: June 2015

Legend

- FC Boundary
- NSA
- SPA
- SAC

Heritage Designations

DESIGNATION TYPE

- Scheduled Monument

0 165 330 660 990 1,320
Mete

N

Forestry Commission Scotland
Coimisean na Coillteorachd Alba

Dumfries and Borders FD

Flood return period

On NFE

Scale: 1:10,000

Date: 4 Jan 2016

Legend

SEPA_FloodRisk_DB

Flood_Return_Period

- 10 Years
- 1000 Years
- 200 Years

0 65 130 260 390 520 Meters

N

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders FD

Criffel
Wind
Scale: 1:25,000
Date: June 2015

Legend

Road Segments

Blocks

Clim_intsct_soil_on_D+B

<all other values>

GRIDCDDAMS

- <13 Sheltered
- 13-16 Moderately Exposed
- 17-19 Highly Exposed
- 20-22 severly exposed
- Too exposed!

0 170 340 680 1,020 1,360 Mete

N

Shambellie
Shambellie Wood
Shambellie Grange
Tower
Banks Cott
Kinharvie
Barlay
Carsegowan
Westmuir
Mill
PC
Abbey
PH
New Abbey
New Abbey Pow
Maryfield
58 Airds
Airds Point
Scar Point
Kindar Ho
Barbeth
Lochhill
Carse
Ingleston
Motte
Ingleston Hill Cotts
Inglestonford
Loch Kindar
Overton
Roadside
Burnfoot
Ardwall Mains
North Corbelly
South Corbelly
Holehouse
Drum Burn
Drumburn
Drum Bay
Cairn Knockendoch
Criffel
569 Douglas's Cairn
Midtown
Cushat Wood
21 Drum-Mains
Drumburn Hill
Brickhouse
Carse Bay
Southwick
Boreland of Southwick
Craigtappock
Cars