

Whinlatter Forest Plan 2018

DRAFT

North England Forest District



Planning and District Context

The Strategic Plan for the Public Forest Estate in England outlines the delivery of forest policy at a national level. At a regional level there are six Forest Districts covering the country that directly oversee the implementation of policy actions in local public forest estate woodlands. Forest Enterprise England is the organisation responsible for managing the English public forest estate.

North England Forest District (NEFD) is the management unit that manages the public forest estate in Northern England. This is an extensive area encompassing 9 county or unitary authority areas from the Scottish border to Durham and Lancashire.

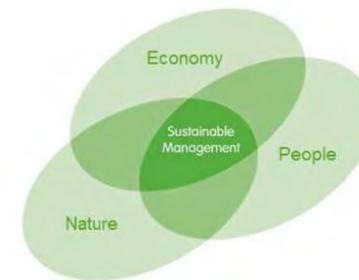


Our task is to realise the potential of each of the forests in our care for sustainable business opportunities, wildlife and nature conservation, and the enjoyment and well-being of local people and visitors. Each of our forests supports the economy through local jobs, sustainable timber production and the provision of recreation and tourism opportunities. All are funded by revenue from timber sales and recreation provision.

The woodlands of the district are currently arranged in 62 management areas, and their management is covered by individual ten year Forest Plans that identify local issues and the broad silvicultural management of the woods. Forest Plans are reviewed every five years.

These plans and their associated forest operations ensure that produce from the woodlands is endorsed by the Forest Stewardship Council® (FSC®) and the Programme for the Endorsement of Forest Certification™ (PEFC™) as being produced from woodlands under good management that meet the requirements of the UK Woodland Assurance Standard (UKWAS) and the UK Forest Standard (UKFS).

Individual Forest Plans aim to deliver a range of public benefits with achievable objectives that deliver the three drivers of sustainable land management outlined in the North England Forest District Strategy.



These key drivers are supported by the following Forest District Policy;

- we will optimise the financial return from timber production compatible with achievement of other forest district objectives while complying with the UK Forestry Standard and meeting the requirements of the UK Woodland Assurance Standard.
- we will provide public access to all our forests and woodlands where there are no legal or safety restrictions. We will encourage and permit a wide range of recreational activities from walking and quiet enjoyment to more specialised activities including orienteering, horse riding and motor sports.
- we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value.

Whinlatter Forest Plan

This is the third revision for the Whinlatter Forest Plan. Changes to the previous plan include some re-scheduling of harvesting coupe periods, a re-assessment of silvicultural management around the core recreation area, changes to future species composition in response to larch disease and updated ancient woodland restoration and landscape sensitivity objectives.

Part 1 Background Information

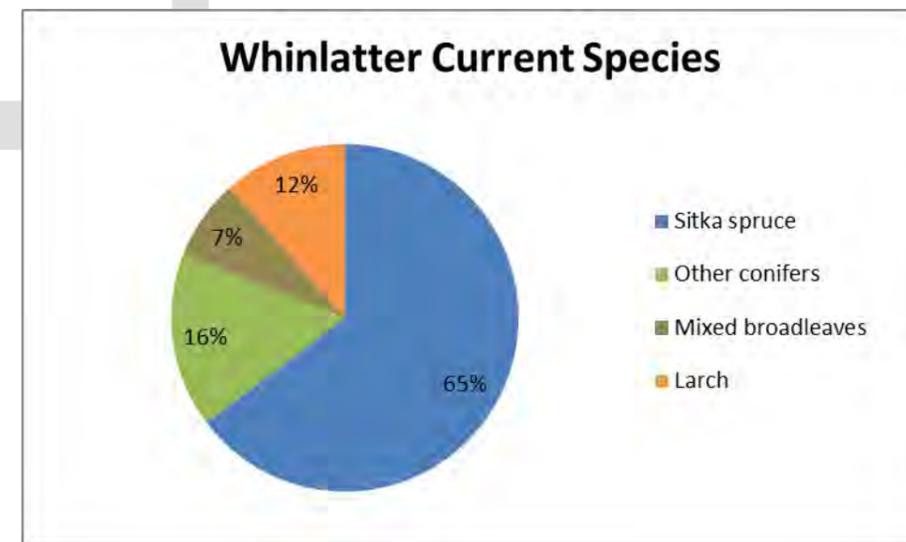
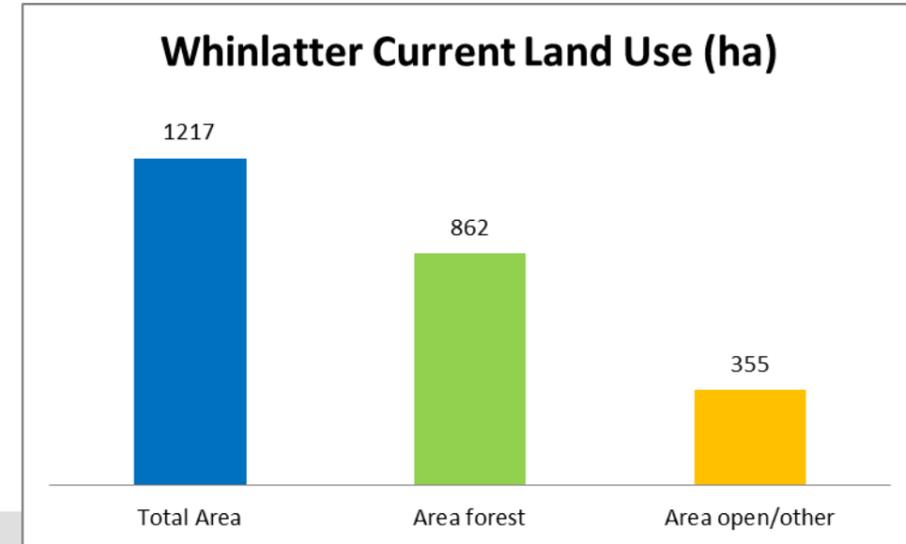
Introduction

Whinlatter Forest is situated 5km west of Keswick, accessed from the B5292 Braithwaite to Lorton road which dissects the forest along Whinlatter pass. The landholding extends to 1217 hectares which includes approximately 200 hectares of open fell and sits in a complex landscape of valleys and mountains which is centred on Whinlatter Pass and includes the peaks of Grisedale Pike and Lords Seat. The forest is entirely freehold and includes some of the very first land to be planted by the Forestry Commission in 1919. Further acquisitions were made and new planting continued until 1965. In more recent years the size of the landholding has altered following boundary changes aimed at resolving external edge landscape issues.

Current Woodland composition, species and timber potential

The species present reflect the upland terrain, Sitka spruce being the dominant species overall, in particular on the higher slopes. A variety of species is present on the lower slopes with an emphasis on larch and Douglas fir on the more stable and deeper rooting soils. The broadleaved component, which is predominantly upland oak woodland, is associated with areas of ancient semi-natural woodland. The coniferous forest is managed silviculturally through a combination of clear-fell and Continuous Cover techniques and crops typically achieve a yield within the range 12-18m³/yr producing good quality timber that is important economically to both Forest Enterprise and in contributing to the rural economy.

The principal soil types are upland brown earth and intergrade iron pans which are suitable for the principal conifers. Windthrow hazard varies with the more stable lower classification found on the steeper eastern lower slopes. On the flatter upper plateau the classification is higher and thinning is not possible due to the risk of wind throw. The eastern slopes are steep with some localised landslip and stability risk and usually require skyline systems for harvesting. At higher elevations the terrain levels off and mechanised harvesting systems can be employed but the varied rocky and boggy terrain requires careful operational site planning.



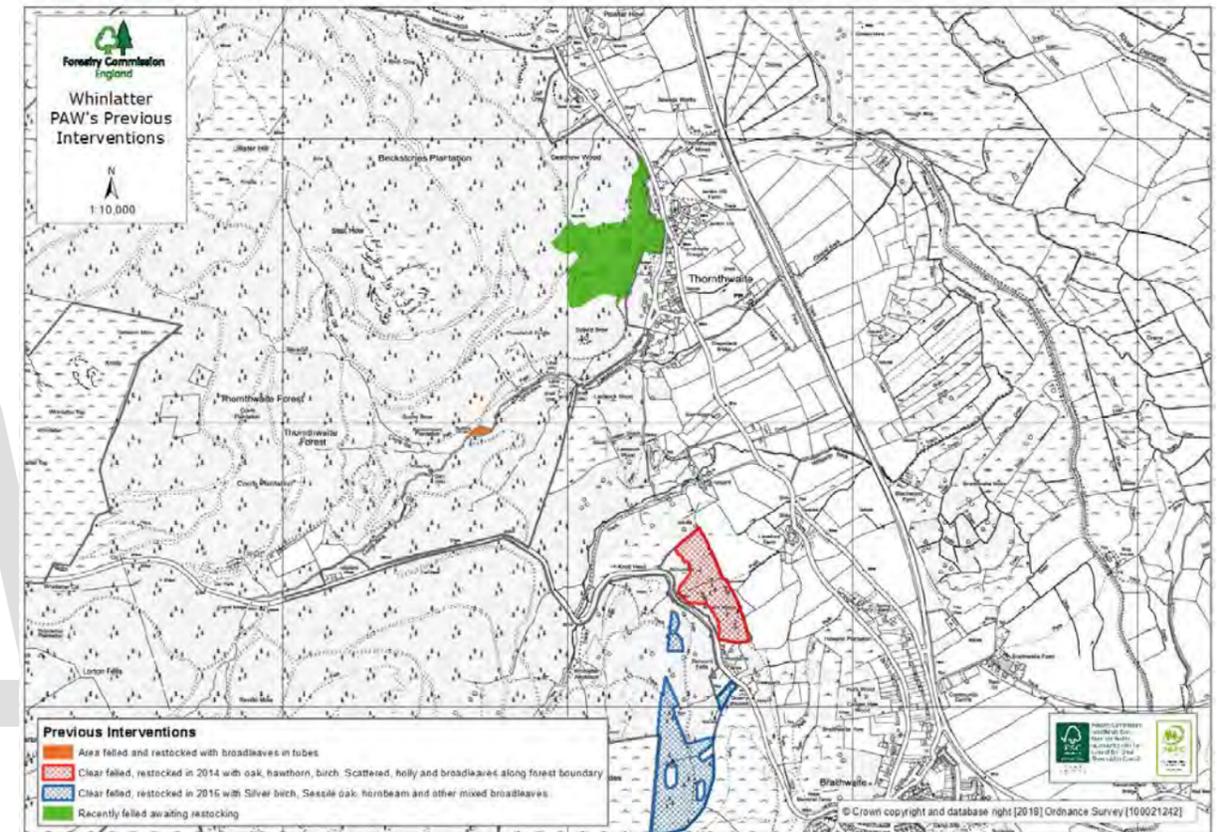
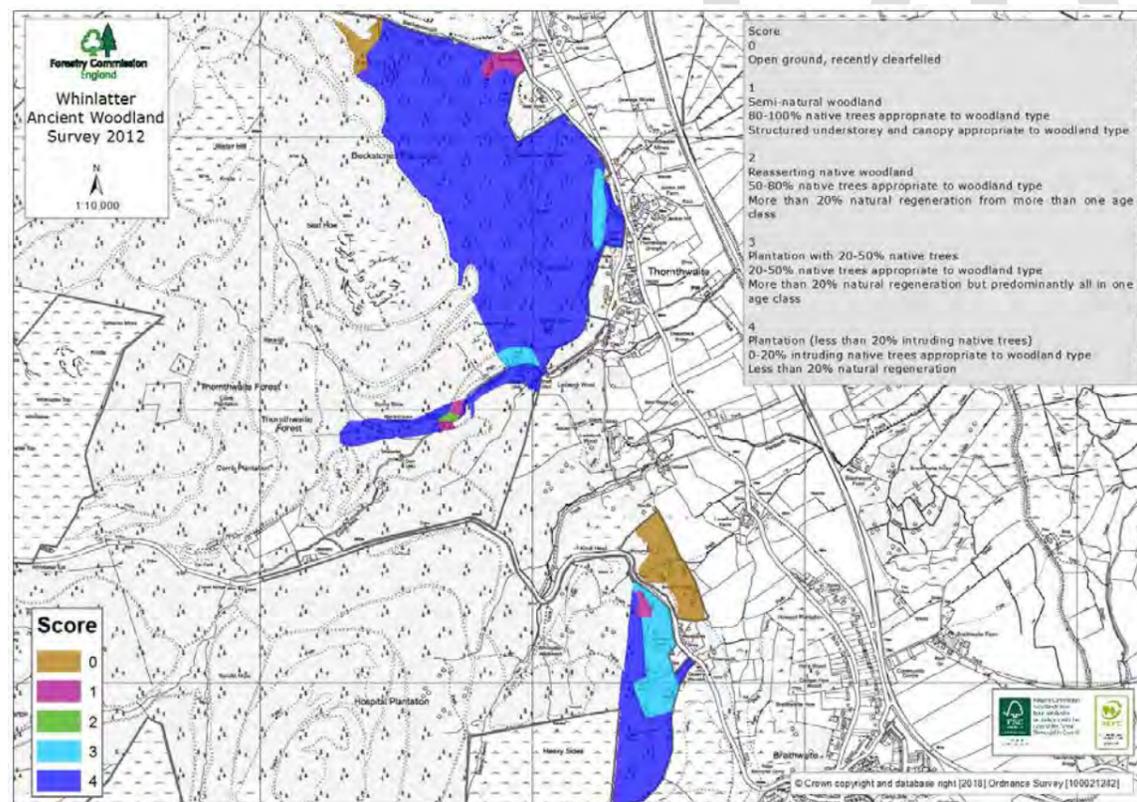
Designated areas

Whinlatter is situated wholly within the Lake District National Park and World Heritage Site area (UNESCO 2017 Outstanding Universal Value as a 'cultural landscape'). This designation provides the opportunity to demonstrate at a practical level how activities such as forestry, which have been prominent in shaping the landscape we see today, can be integrated to provide greater public benefits through sustainable land management delivering for people, nature and the economy.

There are two Special Areas of Conservation (SACs), which affect Whinlatter, in recognition of the European importance of some of the species or habitats. The Lake District High Fells SAC, which includes the Buttermere Fells SSSI, for its contribution to European dry heaths and The River Derwent & Bassenthwaite SAC which has a variety of species and habitats associated with its ecosystem. Part of the open fell at Hobcarton End is within the Buttermere Fells SSSI and SAC designated for important flora and fauna associated with the upland heath. There is currently an area of plantation on this SSSI and the proposals within this plan identify how we aim to improve the condition of the SSSI through the removal of remaining conifer crops. Adjacent to Whinlatter are Bassenthwaite Lake (SSSI, SAC, NNR) and the River Derwent and Tributaries (SSSI, SAC) and Barf and Thornthwaite (SSSI). The SSSI at Scawgill and Blaze Beck is also within the FC landholding to the west of Whinlatter pass which has geological interest.

Ancient Semi Natural Woodland (ASNW) is located on the lower eastern slopes and the ancient woodland status of this area dictates that there is a presumption for conversion to native species in line with our policy for Plantations on Ancient Woodland Sites (PAW's). An Ancient Woodland Survey was undertaken in 2012. The results of this survey, shown below will be used to formulate an intervention plan for the PAW's restoration. The rate at which this conversion is achieved will be dictated by the success of planting and regeneration of native species following felling and/or thinning interventions.

Management towards this objective has been ongoing through thinning and felling of non-native tree species through the period of the previous plan indicated on the map below.



Environment and Conservation

Whinlatter is a diverse forest in terms of the range of species present, the age class distribution and site conditions which reflect the range in altitude from 140m asl to over 500m asl. At lower levels site fertility is high and the vegetation reflects this but higher up skeletal soils with heather moorland pre-dominates. The forest offers protection to fragile soils within the Bassenthwaite catchment for which the lake and its tributaries are designated Special Areas of Conservation extending up into Whinlatter along Aiken Beck as far as Spout Force. Sedimentation from soil erosion has been identified as a key factor in the ecological decline of Bassenthwaite Lake and tree cover can be an excellent land use in stabilising such erosion.

The area surrounding Seat Howe summit is categorised as an area of 'Natural Reserve' (NR), an internal designation that recognises valuable, predominantly wooded areas where the conservation of biodiversity is a prime objective. NR's

provide the opportunity for natural dynamics to develop and management is focused on a minimum intervention approach. Seathow NR is a unique place with pine trees and other conifers that date back nearly a century. At its summit the trees fade out into heathland and rock with fantastic views across the northern fells and the trees, shaped by geology and stunted through many years of exposure have taken on a natural appearance. This unusual habitat has a spirit of place of "forest on the edge" and is possible to visit by those who are able to traverse the long and steep paths and cycle trails that pass through the area taking visitors to the summit.

In addition to the designated SSSI areas, Whinlatter has other expanses of heather fell which provide good heather habitat because they are stock fenced and not grazed. This is especially the case in the Ullister Hill and Lords Seat area which supports a population of grouse where the objective is to maintain as open fell and where appropriate integrate into surrounding areas at the time of restocking. As a long term aim scattered upland birch woodland with heather under storey would provide a diversity of habitat appropriate to this upland location through natural succession or widely spaced planting of appropriate species.

Whinlatter has a population of red squirrels and being of appropriate scale and habitat type has been designated as one of sixteen Red Squirrel Reserves in the North of England. The structured approach to felling and restocking helps to diversify the range and age of seed bearing conifer species which is important in order to sustain a continuous food supply. The forest and surrounding area is good habitat for birds of prey and is adjacent to woodland which hosts a breeding pair of ospreys. Maintaining and enhancing appropriate habitat and providing viewing opportunities for visitors at Whinlatter are a considerable focus of our management.

The watercourses and stream systems in Whinlatter are important with watercourses such as Aiken Beck and Hobcarton Gill being important spawning streams. Forest operations are managed in accordance with the Forest and Water guidelines and opportunities taken at the restocking stage to increase the amount of open space and incorporate native broadleaves through either planting or natural regeneration. The value of some of these watercourses in helping to alleviate downstream flooding is becoming increasingly recognised and opportunities to enhance natural flood management systems to help slow the flow of water during flood events are a consideration of management and we are investigating natural flood management techniques with Forest Research. The forest also plays an important role in helping to regulate the impacts of high rainfall events by intercepting and slowing the rate of run-off and we have aspirations for areas of new woodland and scrub habitat that will contribute toward flood alleviation for communities in downstream catchments. Any proposals will be subject to appropriate consultation, planning and environmental impact

assessment and as such are not within the scope of this forest plan but are indicated on the Aspirations Plan in Part 5.

In addition to the areas designated as PAW's Whinlatter contains three areas of upland Oakwood (Masmill, Noble Knott and Comb Gill). Most of the work required is to protect and enhance the conservation status of these areas by the felling and removal of non-native conifer species from amongst the oaks. In the longer term, regeneration of these areas will need to be encouraged although some areas will be suited to non-intervention strategies. Conservation interest associated to these and the remnants of this habitat in other areas include features such as veteran trees, deadwood and riparian zones. These features of interest are safeguarded and enhanced during felling or thinning operations.

Landscape and Topography

Whinlatter Forest is located within the 'Bassenthwaite Lake' Landscape Character Area (LDNPA 2007). The areas distinctive characteristics include the extensive ancient semi-natural woodland right down to lake shore, and wooded and open rocky outcrops on rising ground to both the east and west of the lake itself. The guidelines for managing landscape change refer to encouraging the sustainable management of broadleaved woodland and maintaining continuous cover. The guidelines also seek the conservation and enhancement of the strong sense of enclosure provided by broadleaved semi-natural woodland.

Of significance to recreational and tourist interests is the contribution the forest makes to the wider external landscape as well as how the forest and wider landscape look from within the forest. Whinlatter Forest is in a highly prominent position visible from the main Penrith to Keswick A66 trunk road and is overlooked by many popular walkers' vantage points including Grisedale Pike and Skiddaw. The high numbers of visitors and the presence of the B5292 Whinlatter pass which divides the forest means that internal landscape is also an important consideration.

Whilst there has been a number of significant achievements over recent years in addressing external forest edge issues, for example at Darling How, there is scope to resolve remaining issues which are identified through this plan. These include proposals to soften the transition between plantations and open fell, represented in Part 5 on the Design Concepts, Aspiration and Future Species Plans.

Internally there is also the need to maintain and enhance external views from within the forest either through strategically managed permanent open space or in contrast through the ongoing transitional nature of changing views associated with the clear felling of coupes. Within the core recreational zone adjacent to the visitor centre enhancement focuses on maintaining large, stable mature conifers which are of aesthetic value to visitors.

Heritage

Archaeological features are minimal possibly because the predominance of rocky outcrops and wetland will have severely limited land use in earlier periods. A number of non-designated heritage features are indicated on the Conservation and Heritage plan and include a smelt mill near Comb Beck and a wash house at Hobcarton End. These features are recorded on GIS and routinely protected during forest operations.

Communities and recreation

Current provision

The forest contributes significantly to recreation and tourism within Cumbria and as England's only true mountain forest is home to stunning views, fantastic walks, exhilarating mountain biking and adventure play. Whinlatter has become a high profile attraction that attracts visitors both locally and from further afield and the Visitor centre and its associated facilities provide a focus for visitor activity and an introduction to the forest experience. The centre is home to the Lake District Osprey Project which includes an indoor viewing area from April to September, as well as exhibition area, shop, café, bike hire, main car parking and toilet facilities. More adventurous visitors can enjoy the Go Ape high ropes course or access the wider forest using the extensive network of waymarked walks and cycle trails. Whinlatter is a popular mountain biking destination and there are two purpose built routes, the red graded 'Altura' and blue graded 'Quercus' single tracks. The forest trails provide a range of routes that can accommodate people of all ages and abilities from short multi user routes close to the centre to more challenging longer steep routes to the summits of Lords Seat, Barf and Grisedale Pike for more serious walkers. The open fell above the tree line and the spectacular view over Bassenthwaite Lake, Keswick and Derwent Water are popular features of the Whinlatter landscape that attract serious walkers and day visitors alike.

Lake District World Heritage Status

The Lake District has become a UNESCO World Heritage Site in recognition of its cultural landscape and is the UK's largest World Heritage site at 229,200 ha. Three themes, identity, inspiration and conservation underpinned the bid for World Heritage Site status, recognising the Lake District National Park as an evolving cultural landscape of international significance. The Lakes are a dramatic and unique landscape which has been formed through a combination of nature and man's activities, such as forestry and land management; the result is an evolving working landscape. Whinlatter and the wider Lake District has inspired many of the world's greatest artists, writers and thinkers over the years and the landscape is still a source of inspiration today challenging the traditional perceptions of what culture in the Lake District means.

Due to the Forestry Commission's sustainable land management, we have formed evocative scenery, a perfect place for wildlife to thrive and visitors to explore. Our custodial forest management and investment has ensured the nations Lake District Forests and Woodlands are here for future generations to enjoy.

Future provision

Whinlatter Forest has grown over the past 30 years into a popular visitor attraction in the area, contributing significantly to the local visitor economy.

The Forestry Commission is keen to continue to evolve and develop its visitor offer at Whinlatter, England's only true mountain forest and expanding our current offer could support new, diverse and exciting experiences for a wide variety of visitors. We are keen to explore the opportunities offered by the World Heritage Site Status and we are looking at innovative transport solutions and the potential to develop a world class visitor experience. Over future years we will be working with partners who share our aspirations, to explore the concept of a mountain centre at Whinlatter and will be consulting fully with interested parties and stakeholders as part of the process. The Aspirations Plan in Part 5 indicates some of the ideas we have for the future.

Pests and diseases

The varied age structure and range of species provides ideal habitat for Roe deer. The population is monitored and managed by Forestry Commission rangers to an appropriate density in order that natural regeneration is possible. Grey squirrels are also present, often reported on the southern and western edges of the forest and pose a threat to the local population of native red squirrels and have the potential to cause damage to mature trees.

Larch is threatened by the disease *Phytophthora ramorum* and there have been several outbreaks within the forest in recent years. Our strategy is to respond swiftly and expediently to outbreaks through adherence to Statutory Plant Health Notices as issued and agreed with Forest Services to try to reduce the spread of the disease within the forest and to neighbouring woodland. Consequently there will be no future restocking of larch; however in thinned areas of continuous cover natural regeneration will be accepted and monitored in the future. Larch is an important species within the landscape providing seasonal changes in colour and texture across the forest. As part of our strategy to deal with the impact of the disease the Forestry Commission is actively exploring the use of alternative species choice which is a positive outcome in terms of increasing the opportunity for diversification and improved future resilience.

Access and roading

Internally forest operations are served by a good network of forest roads and tracks that require routine maintenance. A new section of forest road is needed at Aitken to enable the haulage of timber westward from the forest avoiding the need to exit past the visitor centre. The proposed section is indicated on the Operations Plan in Part 5 and will require Environmental Impact Assessment screening.

Part 2 Analysis and Concept

The factors outlined in Part 1 present various opportunities and issues. These are summarised below:

Factor	Issues	Opportunities
Current species/coupe design	<p>Poor crop stability adjacent to highway at Masmill currently managed as CCF is not thinable</p> <p>Some windblown trees at the top of Whinlatter pass raise concerns re crop stability</p> <p>Thinning CCF in steep sided Blaze Beck not achievable due to terrain and poor access</p> <p>Larch is widely distributed and at risk from P. Ramorum. Some areas are highly visible in the landscape and managed as continuous cover for biodiversity and landscape</p>	<p>Conifer species grow well in the right locations providing high natural capital value including recreation, biodiversity and quality timber.</p> <p>Clearfell and replace with native species adjacent to the highway</p> <p>Re-scheduling coupes in the operations plan to provide protection to trees around the visitor centre</p> <p>Clearfell and convert to native broadleaved species</p> <p>Replacing felled infected areas with alternative conifer species will contribute to species diversification and improve long term resilience of the forest.</p>

	<p>reason.</p> <p>Some internal permanent open habitats are infilling with sporadic conifer regeneration e.g. Tarbarrel Moss, Seat Howe</p> <p>Some coupes from the previous plan were not felled due to delays associated with P. Ramorum. This may be a recurring issue depending on future outbreaks.</p> <p>Coupe shapes NW of visitor centre impacted by route of Altura bike trail which will impact on the ability to harvest timber without major disruption to the trail.</p> <p>Landslip risk zone within PAW's area north of Seat Howe present issues of crop stability</p>	<p>Regeneration is of manageable size to be removed.</p> <p>Re-scheduling of coupes in Operations plan.</p> <p>Re-design and schedule coupes to reduce impact on closures/diversions/re-instatement of cycle trail.</p> <p>Move away from large conifers to more open woodland type.</p>
Management type	<p>Forest management in and around the core recreation area is currently under CCF. The timing and duration of thinning operations impacts on recreational use and revenue. Some areas have passed optimum time for thinning and have become unstable.</p> <p>At higher elevations felling coupes are dictated by existing windfirm</p>	<p>Identify which coupes need to be felled due to stability to optimise their economic value but plan timing to limit the impact to visitors and recreation infrastructure.</p> <p>Small coupe felling will open up the internal landscape and create opportunity for a wider choice of species and possible re-alignment of existing trails.</p> <p>Away from core recreational area fell and restock management is appropriate, adopting a</p>

	boundaries.	combination of clearfelling and ATC with CCF in areas of lower wind hazard classification. Long term retention of native MB.
Biodiversity	<p>Experience from Seat How suggests that PAW's restoration along the front of Whinlatter overlooking Bassenthwaite is not economically or operationally viable through thinning under a CCF approach due to terrain</p> <p>Paw's dataset updated from NE – reduced PAW's area from previous plan.</p> <p>Conifer crop at 'Black Crag' on northern extreme of the Buttermere Fells SSSI.</p> <p>Need to ensure an appropriate balance of objectives to maintain productive capacity of the forest.</p>	<p>Re-design coupe shapes and timing using 3D analysis to work within landscape constraints</p> <p>Re-map PAW's boundary and consider future management options for areas outside the boundary to optimise their economic potential.</p> <p>Fell coupe within plan period.</p> <p>Protection of features associated with ASNW, such as veteran/feature trees or ground flora provide opportunity to target thinning operations for greatest benefit.</p>
Access/Roading for operations	Haulage east of Aitken currently has to pass through visitor centre due to unsuitable section of forest road.	New section of forest road would facilitate timber haulage north of the visitor centre to exit at Darling Howe thus avoiding the visitor centre.
Pests and disease	Deer present challenges to natural regeneration and restocking. Grey squirrels impact on red squirrel populations. Phytophthora ramorum and Chalara tree disease risks	Utilising alternative species in the future will contribute toward diversification and resilience

Future Species/ Climate change	Larch is not a viable future species choice due to disease risk. Restocking of clear fells is limited to light demanding species i.e. pines which will limit diversity and impact on the landscape.	Proactively thin areas of wind firm larch and under plant with a wider range of shade tolerant species. PAW's restoration and establishment of transitional scrub habitat will enhance integration with neighbouring woodland and open fell.
Public access/recreation	Existing plan may not necessarily accommodate current or future aspirational developments for example due to coupe design, silvicultural regimes and species choice.	The plan revision provides the opportunity to incorporate aspirational ideas to enable the FC to potentially develop its visitor offer at Whinlatter. Expanding the current offer could support new, diverse and exciting experiences and contribute to the health and well-being for a wide variety of visitors.
Landscape	Some remaining upper boundaries with straight lines and harsh transition from plantation to open fell.	On-going improvement through implementation of operations plan and establishment of low density open woodland on fringes where appropriate.

Appraisal of Opportunities and Constraints

There are landscape concerns regarding the potential impact that Phytophthora Ramorum could have on the visible stands of larch which are currently managed under CCF. However, through carefully planned felling and thinning and underplanting of these crops there is an opportunity for species diversification which will improve the future resilience of the forest.

The difficulty of managing Continuous cover forestry techniques, which requires frequent thinning of crops, in areas close to the visitor centre needs to be addressed as some of the crops are becoming unstable due to lack of management in recent years. The implementation of a small coupe felling regime will ensure silvicultural management of the crops progresses whilst keeping the duration of operations to a minimum with the added benefits of opening up the internal landscape and creating new views from within the forest. This proposal will also create the opportunity for species diversification and crop boundary alteration at restocking and trail maintenance or re-alignment where needed.

In the PAW's area along the north eastern front of Whinlatter the long term approach of gradual restoration to ASNW by thinning is not viable due to the steep terrain, landslip risk and poor access. Conversion to native species will only be achieved through clearfelling and restocking with the desired species. Careful planning using 3D simulations to ensure there is limited landscape impact will be required; however, the recent harvesting at Seat Howe indicates that this is possible.

Landscape and biodiversity objectives need to be appropriately balanced with economic objectives and a pragmatic approach taken to manage natural regeneration of conifer in some areas previously identified for open habitat is needed. Continued restructuring of the forest can be achieved with some readjustment of coupe boundaries and felling periods.

Part 3 Objectives and Proposals

The following objectives have been identified based on FEE National Policy and NEFD Strategic Plan

Forest District Strategic Goal	How Forest Plan delivers
<p>ECONOMIC</p> <p><u>Wood Production</u> – <i>'we will optimise the financial return from timber production compatible with the achievement of other district objectives whilst complying with the UK Forestry Standard and meeting the requirements of the UK Woodland Assurance Standard'</i></p>	<p>Harvesting plan provides a sustainable yield of timber into the future. Over the next 10 years of approval we will fell/thin approx. 80,000m³. Construct new section of forest road at Aitken.</p>
<p>NATURE/LANDSCAPE</p> <p><i>'we will continue to diversify the age class structure of our even-aged woodlands and increase the value of all our woodlands and forest for wildlife'</i></p> <p><i>'we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value'</i></p>	<p>Ongoing restructuring through the felling and restocking plans to create linkage of open, conifer and broadleaved habitat across the forest to maximise connectivity.</p> <p>Fell four coupes in the period of the plan to convert to ASNW. Existing features of interest associated to the ASNW, such as veteran or feature trees, will be protected and enhanced during operations through sympathetic management. Re-survey of ASNW is planned for 2022.</p> <p>Fell Black Crag coupe in the 2017-2021 period (Buttermere Fells SSSI)</p> <p>Establish upper edge transitional habitat adjacent to planned or recently felled areas at Hobcarton and Graystones.</p> <p>Continue to manage the forest with red squirrels and other protected species and habitats as a priority.</p>

<p>PEOPLE <i>'we will utilise the land and resources at our disposal to assist communities close to our forests to enhance their environments and hence their quality of life'.....</i> <i>'we will provide public access to all our forests and woodlands where there are no legal or safety restrictions...'</i></p>	<p>Manage Whinlatter as a first class visitor attraction providing an offer that includes an inspiring range of facilities and opportunities that makes Whinlatter enjoyable to all.</p> <p>Effective strategic and operational planning to ensure the forest fits well in the landscape and is resilient to accommodate change.</p>
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Part 5 Forest Plan Maps

- Location – 1:50,000 scale showing location in context of other woodland in the local area
- Current Species – species composition in 2018
- Landform – indicating topography of the woodland and local area
- Soils and Geology – indicating soil composition and underlying geology across the forest
- Yield Class – indicating the productivity of the timber crops
- Wind Hazard Classification – indicating the windiness across the site
- Conservation and Heritage – statutory and non-statutory conservation and heritage features
- PAW's Intervention Plan – indicating proposals to restore native woodland within area of designated plantation on ancient woodland site.
- Recreation, Access and Services – recreational provision, formal public rights of way, FC access and local services
- Hazards and Constraints – operational hazards and constraints
- Design Concepts – broad concepts and zoning of management
- Aspirations Plan – Showing aspirational ideas for ecological, landscape, community and recreational enhancement
- Operations Proposals – showing felling proposals, areas of Long Term Retention, Minimum Intervention and Continuous Cover and proposed new roading
- Future Species – representing the long term vision for future species composition

Part 4 Monitoring plan

Objective	Criteria for success	Assessment
ECONOMIC		
Wood production	Marketable parcels of timber on offer to the market	Contract and sales records
Sustainable economic regeneration	Maintain timber harvesting access and infrastructure	
NATURE/LANDSCAPE		
Restructuring	Delivery of Forest Plan felling/thinning/coppicing proposals	Five yearly Forest Plan review
PAW's/ASNW	Enhance ASNW condition	Re- survey planned for 2022
Landscape	Enhancement achieved through contribution to the LCA guidelines for managing landscape change	Five yearly Forest Plan review
PEOPLE		
Visual enhancement to visitors.	Ongoing restructuring of the forest.	Five year Forest Plan review.



**Forestry Commission
England**

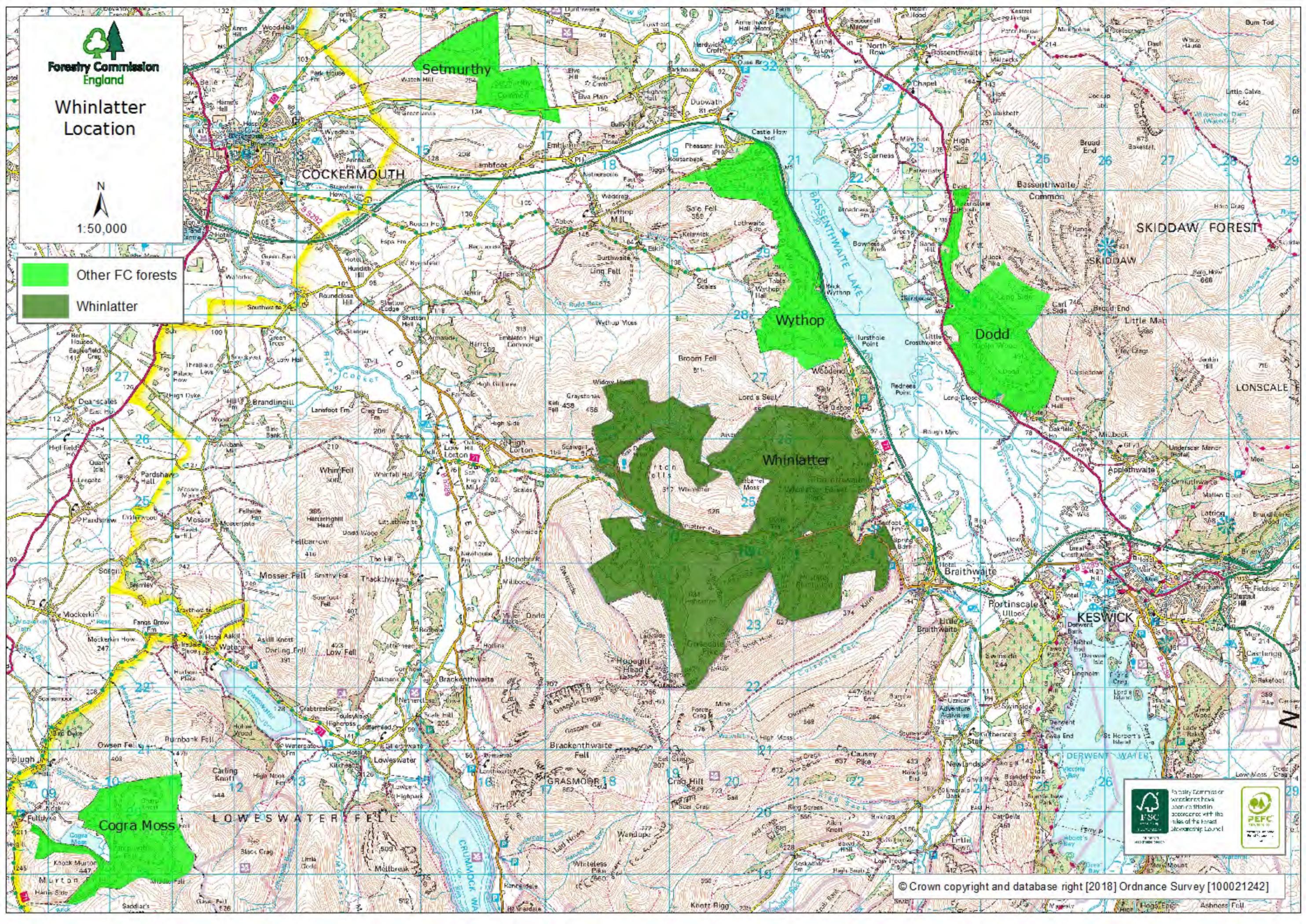
**Whinlatter
Location**

N

1:50,000

 Other FC forests

 Whinlatter




Forestry Commission
Whinlatter has been approved with the
rules of the Forest
Stewardship Council



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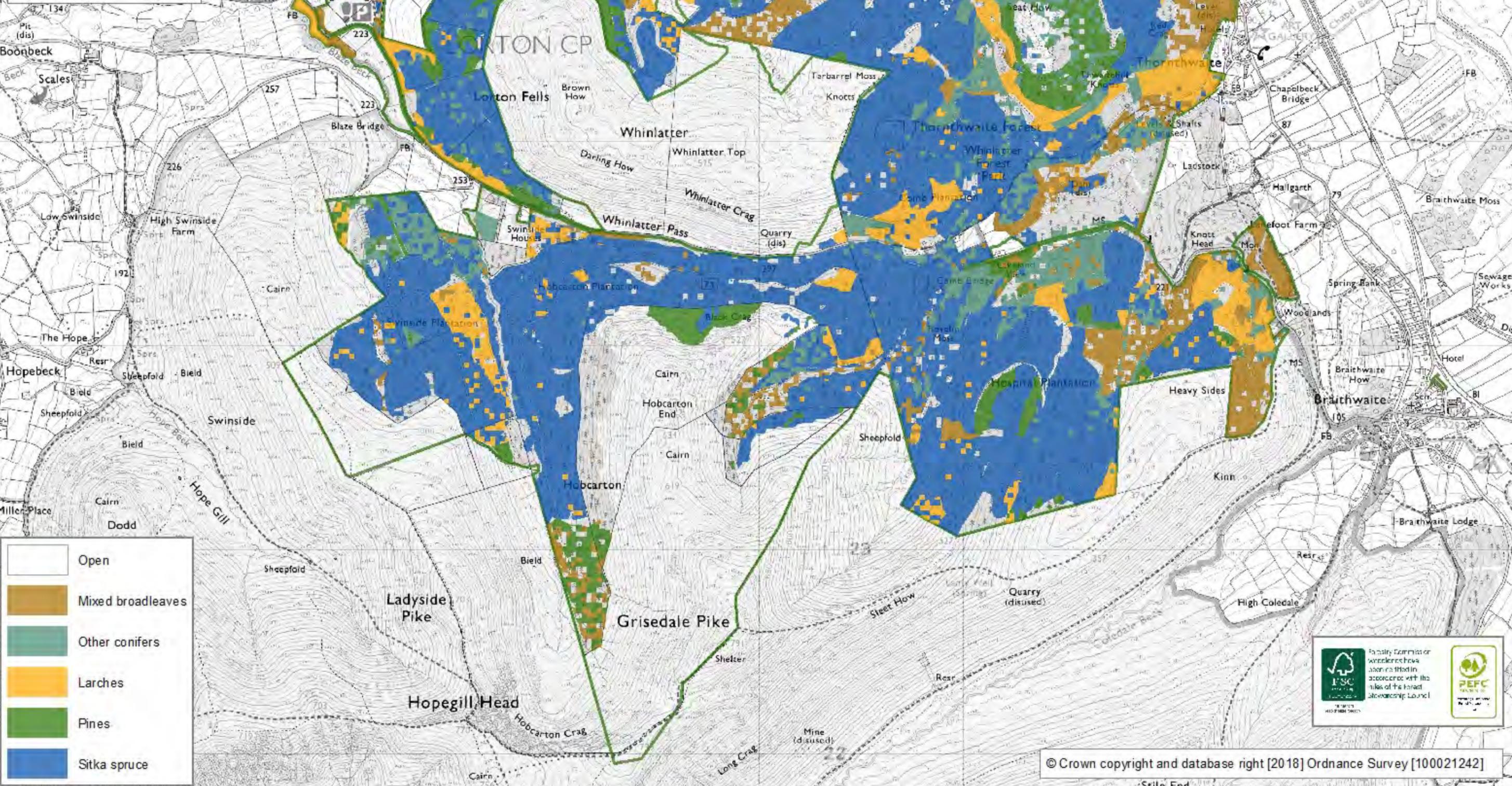


Forestry Commission
England

Whinlatter Current Species



1:18,000



- Open
- Mixed broadleaves
- Other conifers
- Larches
- Pines
- Sitka spruce



Whinlatter Landform



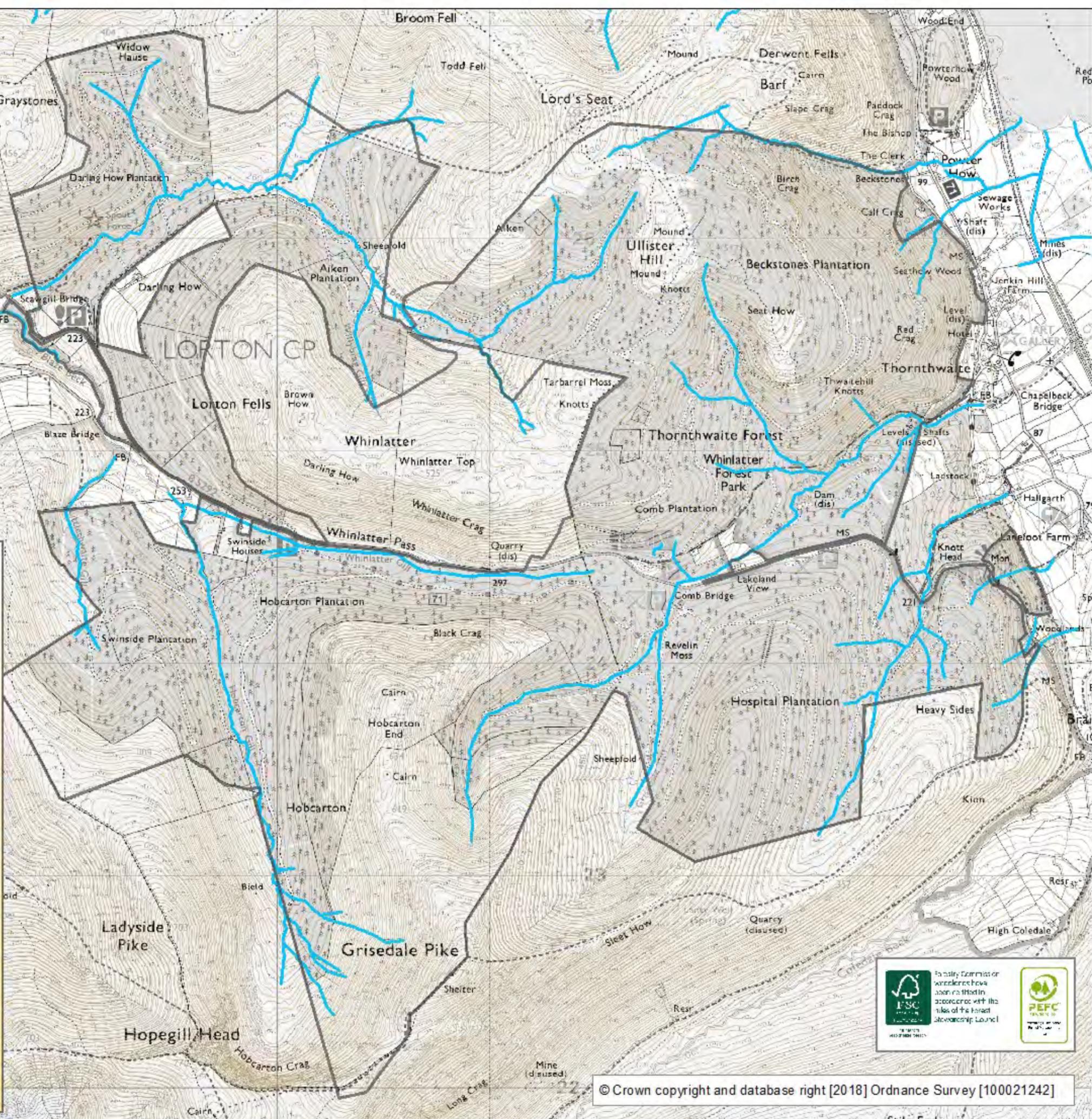
— Contours
— Watercourses

The North Western Fells occupy the area between the rivers Derwent and Cocker, a broadly oval swathe of hilly country, elongated on a north-south axis. Whinlatter is in the most northerly sector, rising either side between Whinlatter Pass and the Vale of Embleton.

The hub of this group of fells is Lord's Seat, the highest point north of Whinlatter Pass. The main line of high ground runs east to west, taking in Barf, Lord's Seat, Broom Fell and Graystones, before petering out in the direction of Cockermouth. Lord's Seat however sends out a substantial additional ridge which starts southward, curves west and finally turns back north. This is Whinlatter Fell, and the valley enclosed between it and the main ridge is that of Aiken Beck.

The descending ridge from Lord's Seat has a number of tops along its length. First is Ullister Hill (1,722 ft) before it narrows at Tarbarrel Moss (1,617 ft), before rising again as it turns westward to arrive at Whinlatter Top. A final top, Brown How (1,696 ft) stands above the terminal descent to Aiken Beck.

The southern boundary of the fell is formed by the Whinlatter Pass road. The summit of the pass lies south east of Whinlatter Top, marking the line of the Derwent-Cocker watershed. Aiken Beck and Whinlatter Gill combine to form Blaze Beck, a sizeable stream flowing into the Cocker at Low Lorton. South of Whinlatter Pass the peak of Grisedale Pike is dominant with a northerly spur extending to Hobcarton End above the treeline.





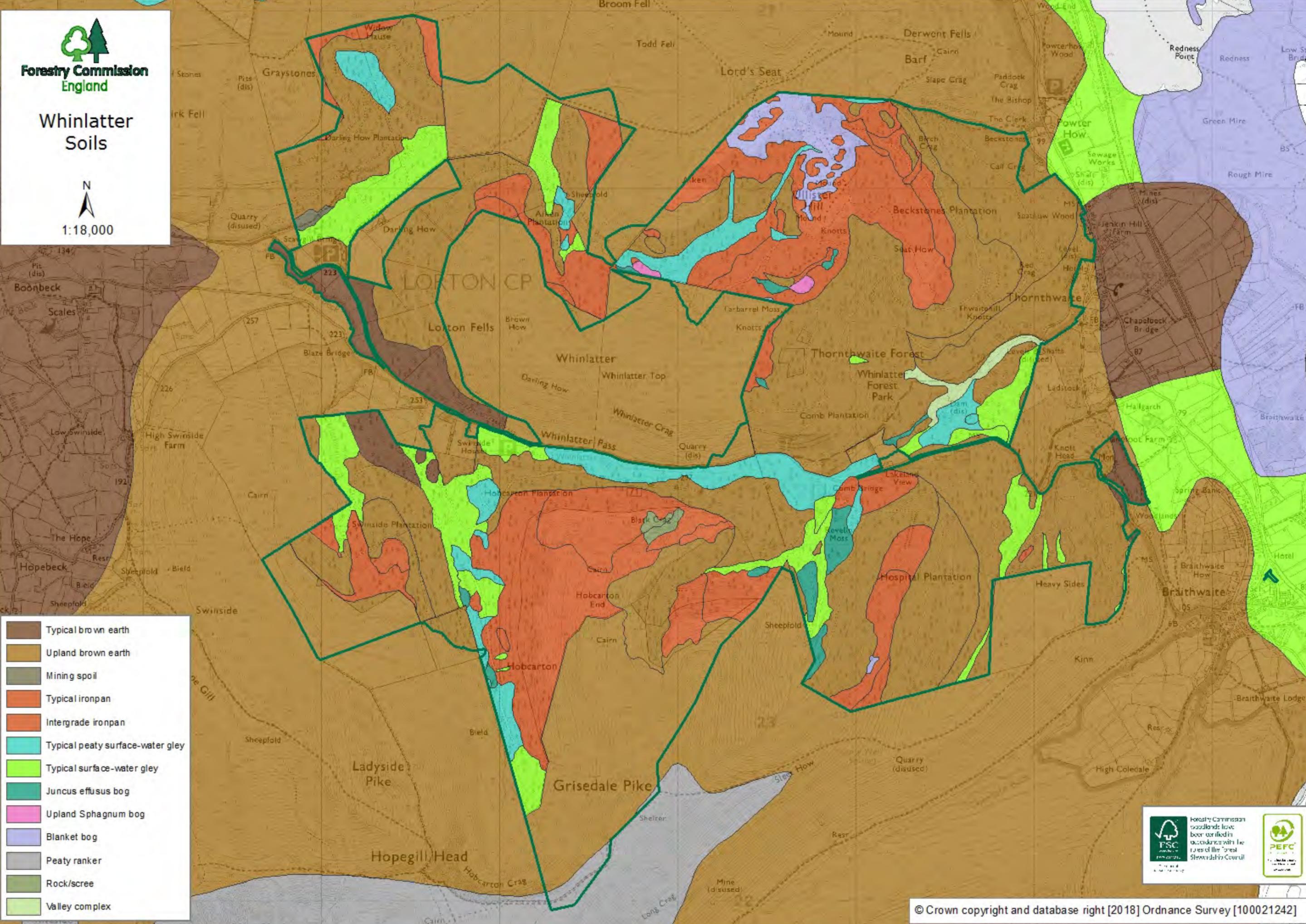
Forestry Commission
England

Whinlatter Soils



1:18,000

-  Typical brown earth
-  Upland brown earth
-  Mining spoil
-  Typical ironpan
-  Intergrade ironpan
-  Typical peaty surface-water gley
-  Typical surface-water gley
-  Juncus effusus bog
-  Upland Sphagnum bog
-  Blanket bog
-  Peaty ranker
-  Rock/scree
-  Valley complex



Whinlatter Yield Class

N
1:18,000

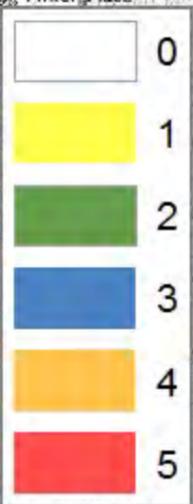


Yield Class is a measure of how fast the trees are growing. For example, if they are yield class 12, the trees will put on 12m³ of growth/hectare/annum as an average over the trees lifespan.



Whinlatter Wind Hazard Class

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The Wind Hazard Class map indicates zonation of the forest in terms of tree stability, based on exposure and soil type. Zone 1 is the most windfirm and zone 6 the least. In practical terms crops in zones 1 to 3 should be thinnable, whilst zones 4 to 6 would not be thinned. Lower numbered zones therefore provide more opportunity for extended rotation lengths and implementation of Low Impact Silvicultural Systems (LISS) such as Continuous cover and long term retention.

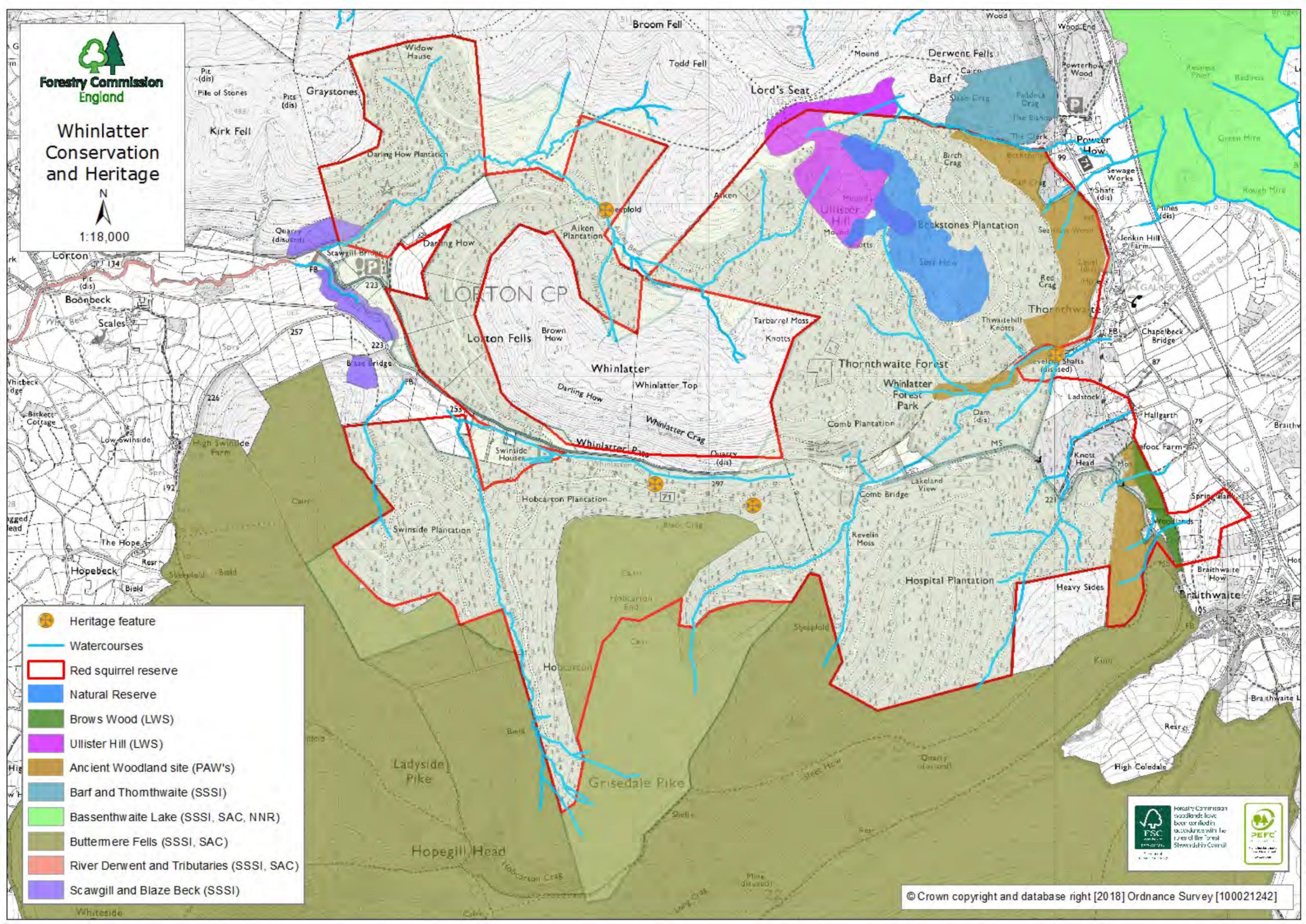


Whinlatter Conservation and Heritage



1:18,000

-  Heritage feature
-  Watercourses
-  Red squirrel reserve
-  Natural Reserve
-  Brows Wood (LWS)
-  Ullister Hill (LWS)
-  Ancient Woodland site (PAW's)
-  Barf and Thomthwaite (SSSI)
-  Bassenthwaite Lake (SSSI, SAC, NNR)
-  Buttermere Fells (SSSI, SAC)
-  River Derwent and Tributaries (SSSI, SAC)
-  Scawgill and Blaze Beck (SSSI)





Forestry Commission
England

Whinlatter PAW's Intervention Plan



1:10,000

Note: Since the completion of the Ancient Woodland Survey in 2010 the boundary of the PAW's area has been re-classified by Natural England. The areas of younger conifer above the forest road north of Seathowe Wood are no longer classified as ASNW and are therefore excluded from the intervention plan.

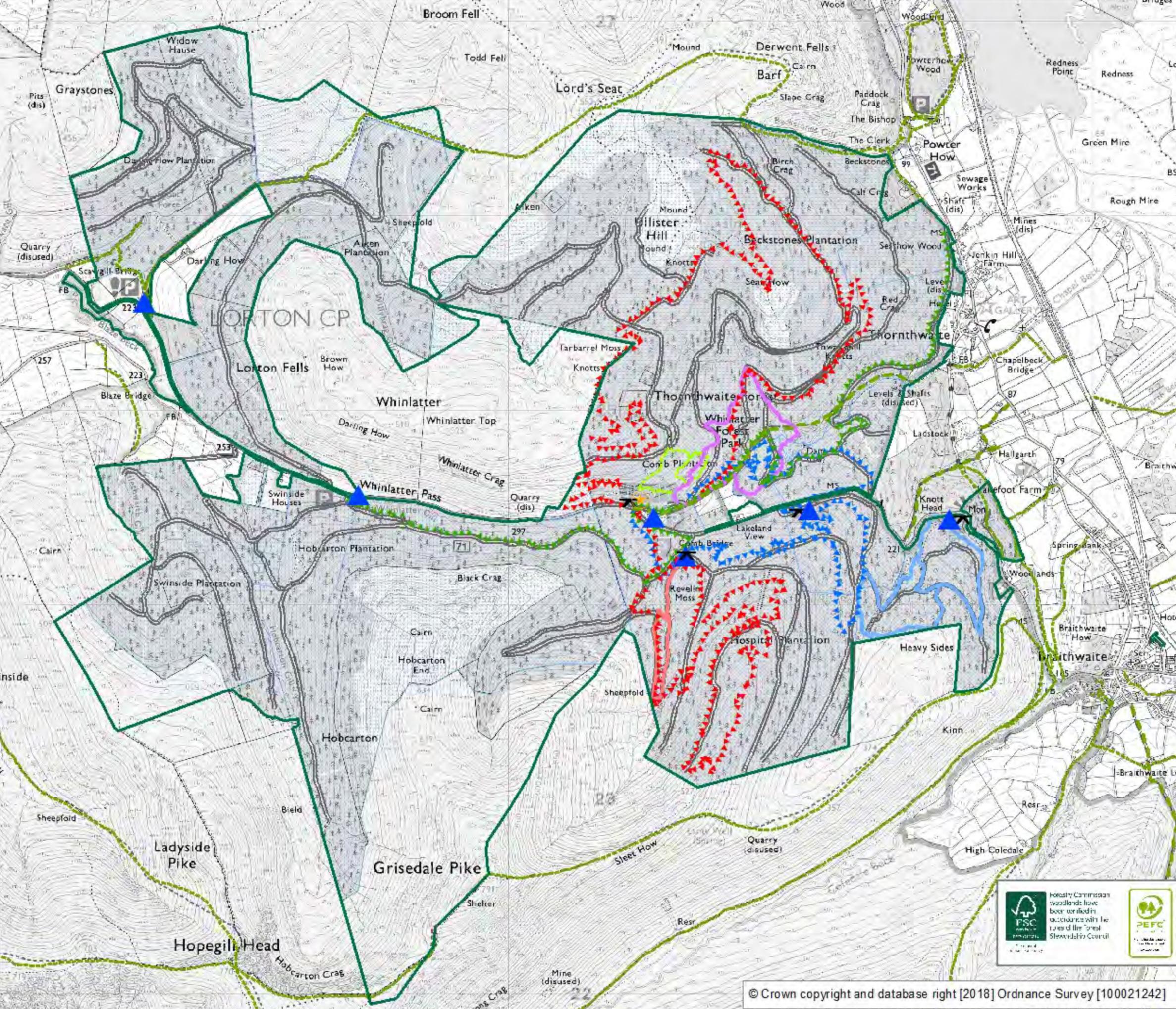
-  Broadleaved now
-  Clearfell 2017-2021 and restock with native MB
-  Clearfell 2022-2026 and restock with native MB
-  Clearfell 2027-2031
-  Clearfell 2032-2036
-  Clearfell >2042
-  Mostly broadleaved, thin Western hemlock
-  Restock with native MB



Whinlatter Recreation and Access

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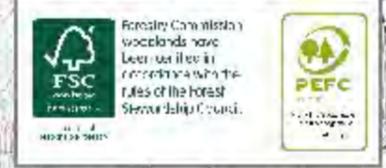
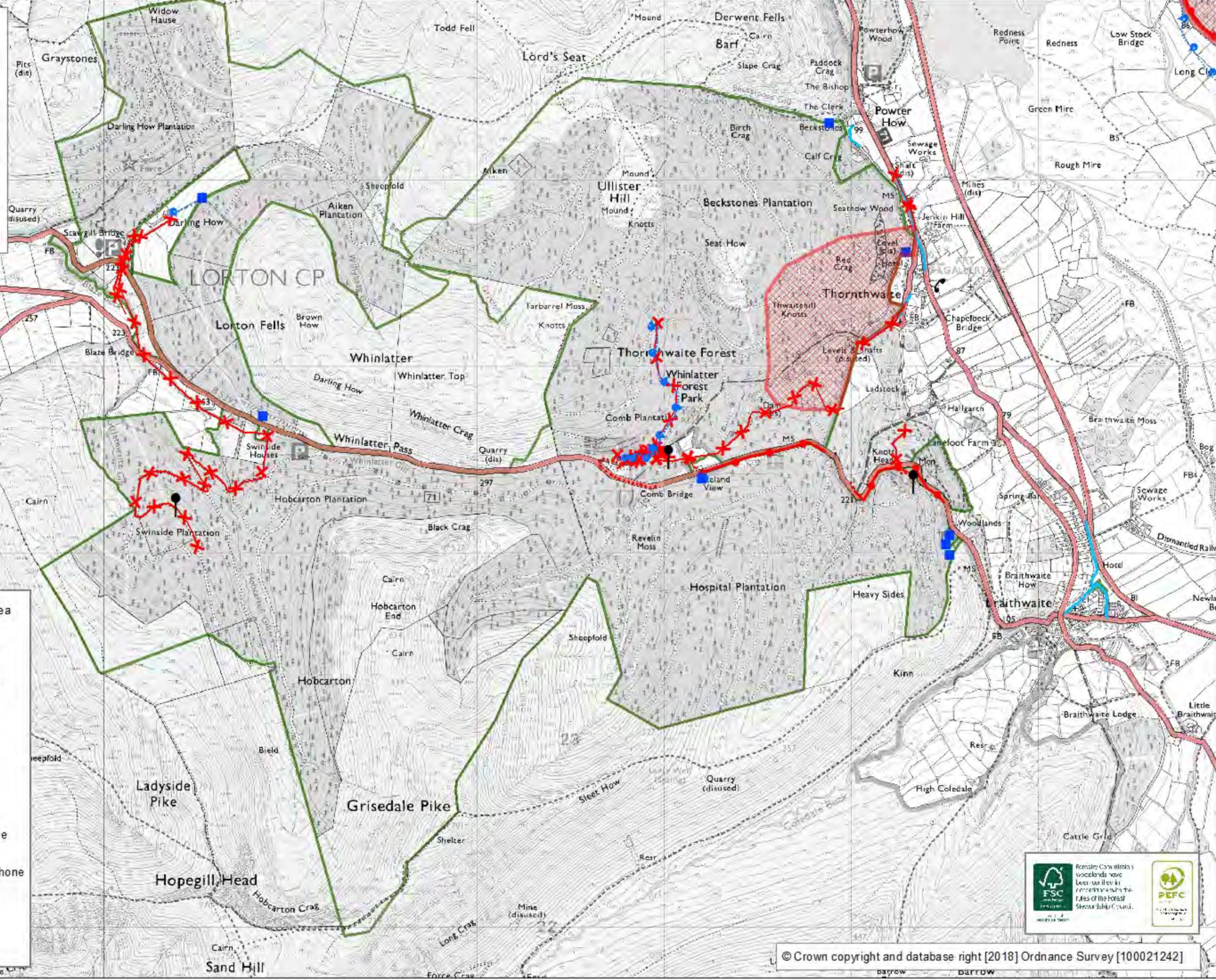
-  Car Park
-  Visitor Centre
-  Picnic Site
-  Public bridleway
-  Public footpath
-  Coast to coast cycle route
-  Red cycle trail
-  Blue cycle trail
-  Masmill trail
-  Revelin Moss trail
-  Comb Beck trail
-  Orienteering course
-  Forest road
-  CROW access land



Whinlatter Hazards and Constraints

N
1:18,000

-  Mine and shafts area
-  Landslip risk zone
-  Water supply point
-  Water pipeline
-  Mast
-  Powerline
-  Overhead telephone
-  Underground telephone
-  Gas pipeline
-  Public road



Whinlatter Design Concepts



Wider Forest Zone
Throughout this zone crops will be managed with the objective of optimising their economic return and restocking principally commercial conifer species including Sitka spruce.

Seathow Natural Reserve is a unique place with pine trees and other conifers that date back nearly a century. At its summit the trees fade out into heathland and rock with fantastic views across the northern fells and the trees, shaped by geology and stunted through many years of exposure have taken on a natural appearance. This unusual habitat has a spirit of place of "forest on the edge" and is possible to visit by those who are able to traverse the long and steep paths and cycle trails that pass through the area taking visitors to the summit.

Landslip Risk Zone
The shallow nature of the soils and underlying geology influence stability within this zone. Careful site planning and choice of harvesting techniques is needed. At restocking aim to move toward more open woodland types avoiding the presence of large trees.

Upper Margin Landscape Sensitive Zone
At time of restocking, areas within this zone will be considered for stocking at a lower density with the aim to create a transition between fully stocked plantation and open fell. This is represented on the Future Species plan for those coupes within the 10 year approval of the forest plan. Note: areas are representative and species and stocking density will be decided at the time of restocking if there is a significant landscape impact.

Removal of conifer crops on Buttermere Fells SSSI and Scawgill/Blaze Beck SSSI to enhance and/or to move towards achieving favourable condition.

Native Woodland Restoration Zone
Area of Plantation on Ancient Woodland Site (PAW's) with the objective for conversion to native species in line with Forestry Commission policy. Steep terrain and landslip risk necessitate that this will be achieved through a program of clear-felling and replanting with desired species.

Watercourses will be developed as mixed open and native broadleaved habitat. This positive riparian management will help to improve connectivity within the forest during the coupe felling program for species such as red squirrels and assist in maintaining good water quality.

Recreation Zone
This zone contains the principle walking and cycling trails which radiate from the core visitor centre zone at the centre. The core area includes the visitor centre, facilities, main car park, go-ape, cycle hire, cafe and trailheads and the preferred management regime is to use Low Impact Silvicultural Systems (LISS). The wider recreation zone will utilise a combination of LISS and clearfelling dependant on crop stability and timing of operations will aim to minimise disruption to visitors and recreation infrastructure. There will be an aim to diversify the range of species in the future.





Whinlatter Aspirations



Potential to create areas of transitional scrub habitat on areas of open ground within our ownership. These would help to soften the transition from plantation to fell and provide habitat diversity for a range of species

Altura North Descent
New section of 'Red grade' descent would provide an alternative to the existing descent and function as a diversion route during future harvesting operations

Beckstones
Creation of new climbing section to the Altura North trail to provide a safe alternative route away from the forest road to use during forest operations

Wildlife trail and osprey viewpoint
Create public wildlife trail linking visitor centre to a new osprey view point at Seat Howe to take advantage of the stunning view overlooking Bassenthwaite

New woodland creation of native broadleaved and Scots pine woodland linking with area of broadleaved woodland at Blaze Beck (post felling). This would contribute to flood alleviation in the downstream Lorton catchment and enhance habitat connectivity for species such as red squirrel.

Establish scattered conifers in open area to provide screening for Altura red route descent when viewed from across the valley

Altura South Descent
New section of 'Red grade' descent would provide an alternative to the existing descent and function as a diversion route during future harvesting operations

Noble Knott
An extension of the easier graded blue Quercus route would enhance the offer available for families and cyclists who prefer a less technical cycling experience.

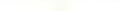
Establish Scots pine/birch woodland to diversify the upper forest margin and contribute to flood alleviation for communities in the Lorton catchment.

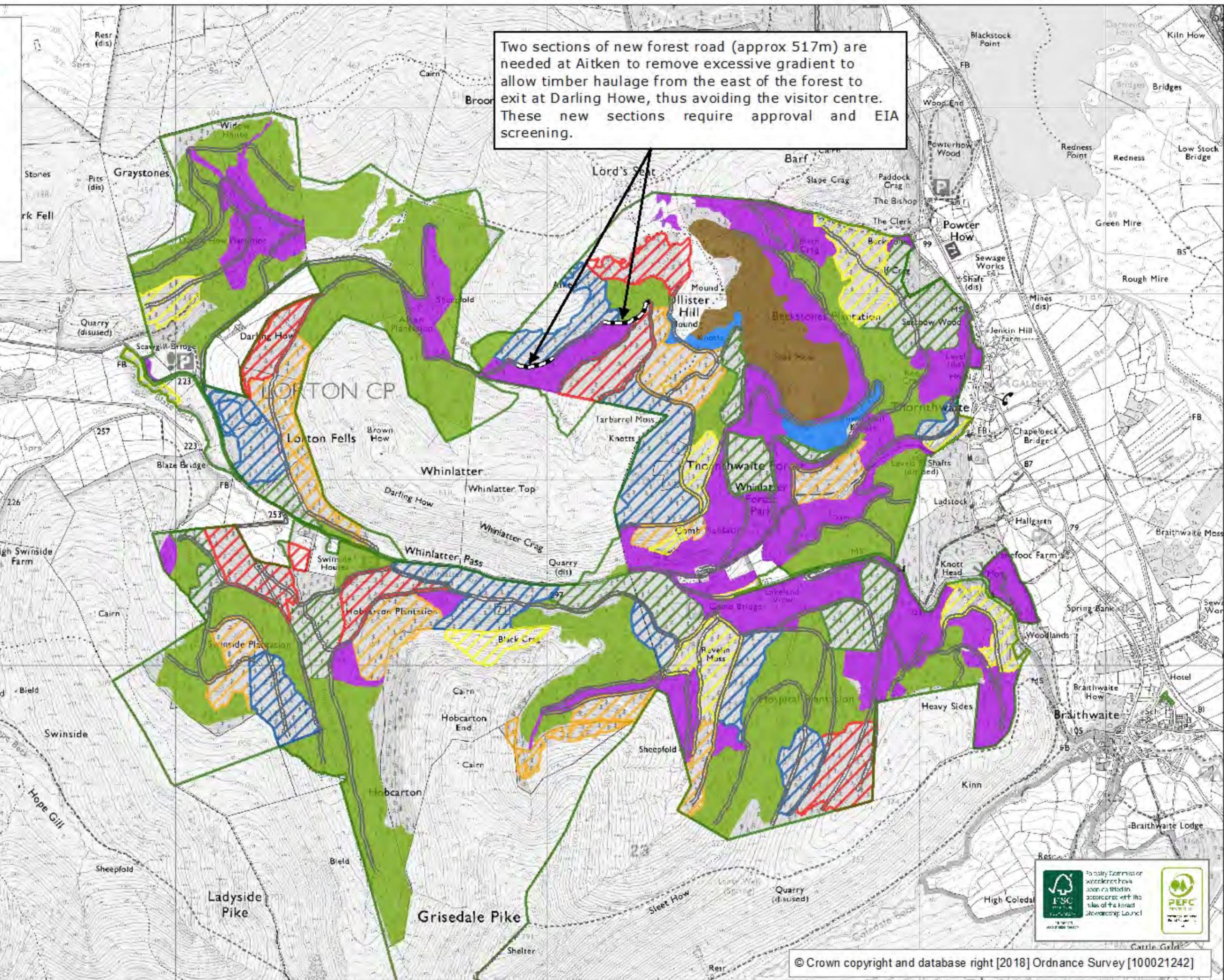
Potential to create an area of transitional scrub habitat within the Buttermere Fells SSSI in partnership with neighbouring National Trust. This would enhance habitat diversity on the SSSI and increase wooded cover in the Braithwaite catchment contributing toward flood alleviation for communities through natural flood management.

The Forestry Commission is keen to develop its visitor offer at Whinlatter, England's only Mountain Forest. Expanding the current offer could support new, diverse and exciting experiences and contribute to the health and well being for a wide variety of visitors. We're working to explore the opportunities offered by the World Heritage Site Status, as part of the Keswick Showcase Area looking at innovative transport solutions and the potential to develop a world class visitor experience. We will be working with partners who share our aspirations, to explore the concept of a Mountain Centre at Whinlatter and will be consulting fully with interested parties and stakeholders as part of the process.

Note: aspirational new woodland areas and cycling routes are indicative only and any proposals will be subject to appropriate consultation, planning and Environmental Impact Assessment.

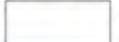
Two sections of new forest road (approx 517m) are needed at Aitken to remove excessive gradient to allow timber haulage from the east of the forest to exit at Darling Howe, thus avoiding the visitor centre. These new sections require approval and EIA screening.

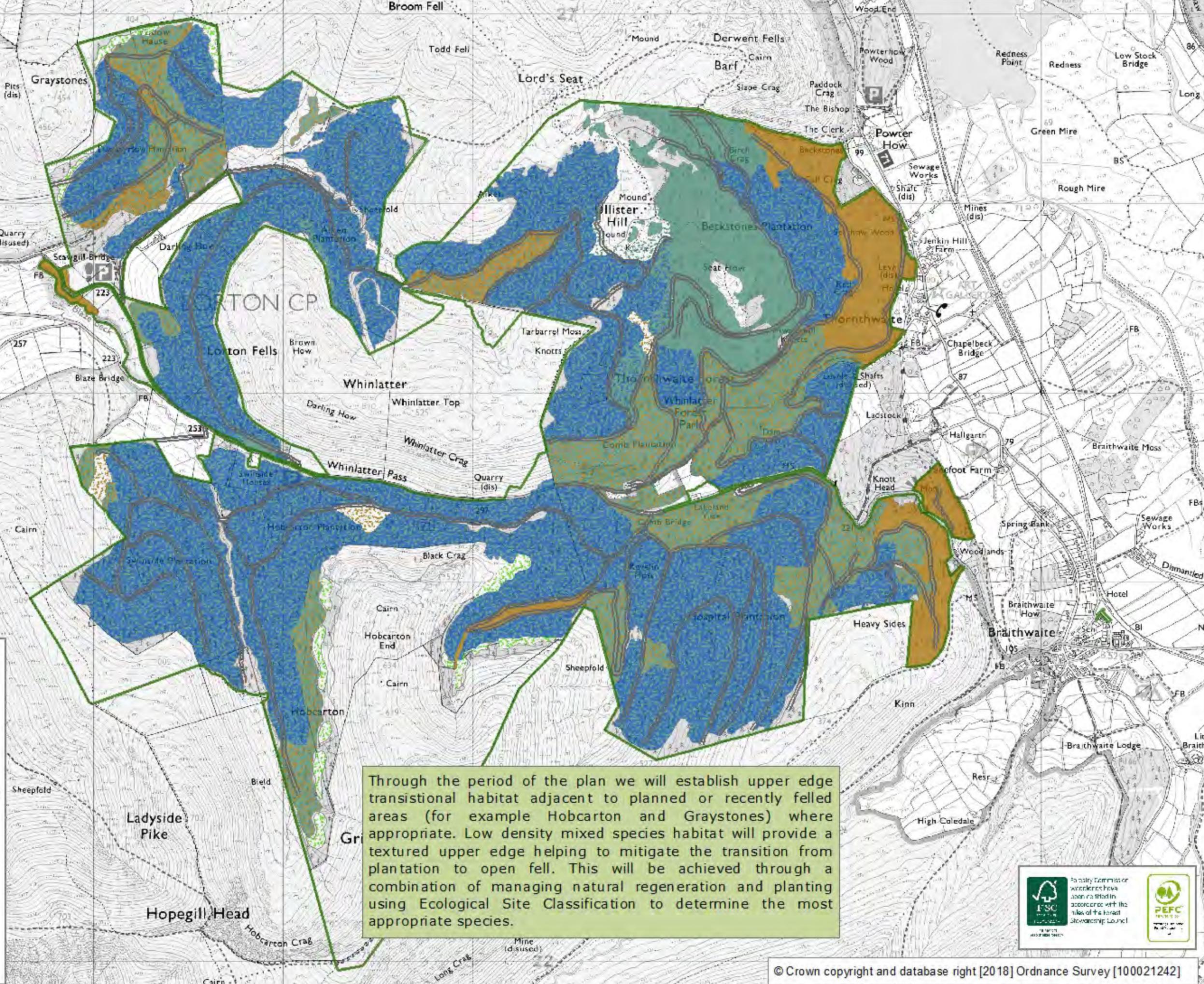
 New road sections
 Open
 2017 - 2021
 2022-2026
 2027-2031
 2032-2036
 2037-2041
 >2042
 LTR
 CCF
 Natural Reserve



Whinlatter Future Species

N
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-  Open
-  Mixed broadleaved
-  Other conifers
-  Sitka spruce/other conifer
-  Other conifers/broadleaved
-  Other conifers/spruce
-  Mixed broadleaved/conifer
-  Open broadleaved habitat
-  Open conifer habitat
-  Mixed transitional habitat



Through the period of the plan we will establish upper edge transitional habitat adjacent to planned or recently felled areas (for example Hobcarton and Graystones) where appropriate. Low density mixed species habitat will provide a textured upper edge helping to mitigate the transition from plantation to open fell. This will be achieved through a combination of managing natural regeneration and planting using Ecological Site Classification to determine the most appropriate species.



Landscape Appraisal

Whinlatter is in a prominent position particularly within the wider landscape viewed from the direction of Keswick and Bassenthwaite. The forest also nestles within the surrounding mountainous landscape and views from several fell top routes including Grisedale Pike, Skiddaw, Barf and Lords Seat are seen by many walkers. The internal landscape is equally important as the forest provides the backdrop for views out of the forest for the many visitors using the forests popular trails. Particular proposals in the forest plan that have the potential to impact on these landscape qualities include:

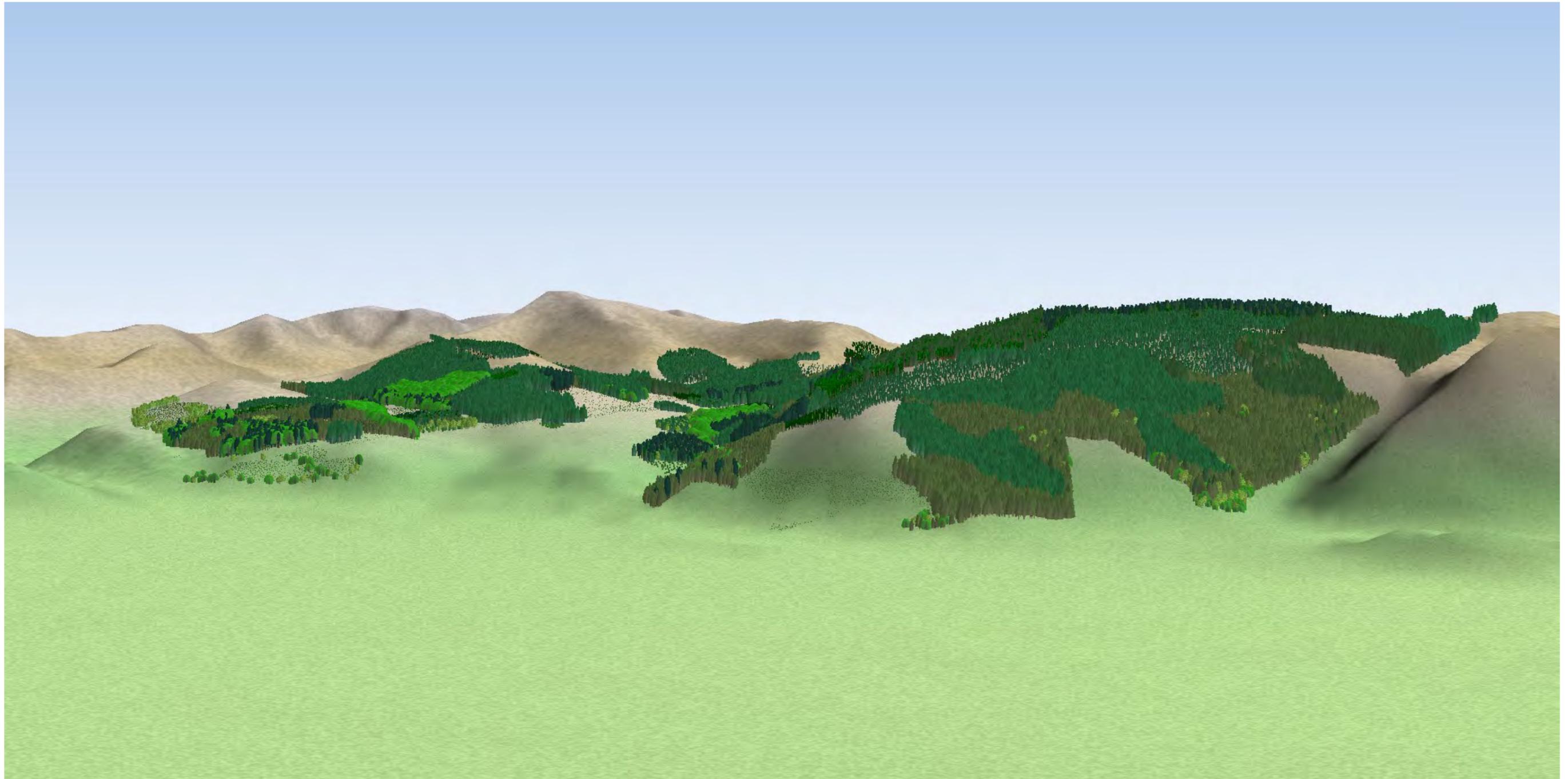
- Felling coupe shape and design on the North east slopes overlooking Bassenthwaite to achieve native woodland restoration.
- The introduction of a coupe felling regime within the core recreation zone previously managed as Continuous cover.
- Harsh upper boundaries between plantation and open fell.

1. PAW's restoration along the north east facing slopes overlooking Bassenthwaite.

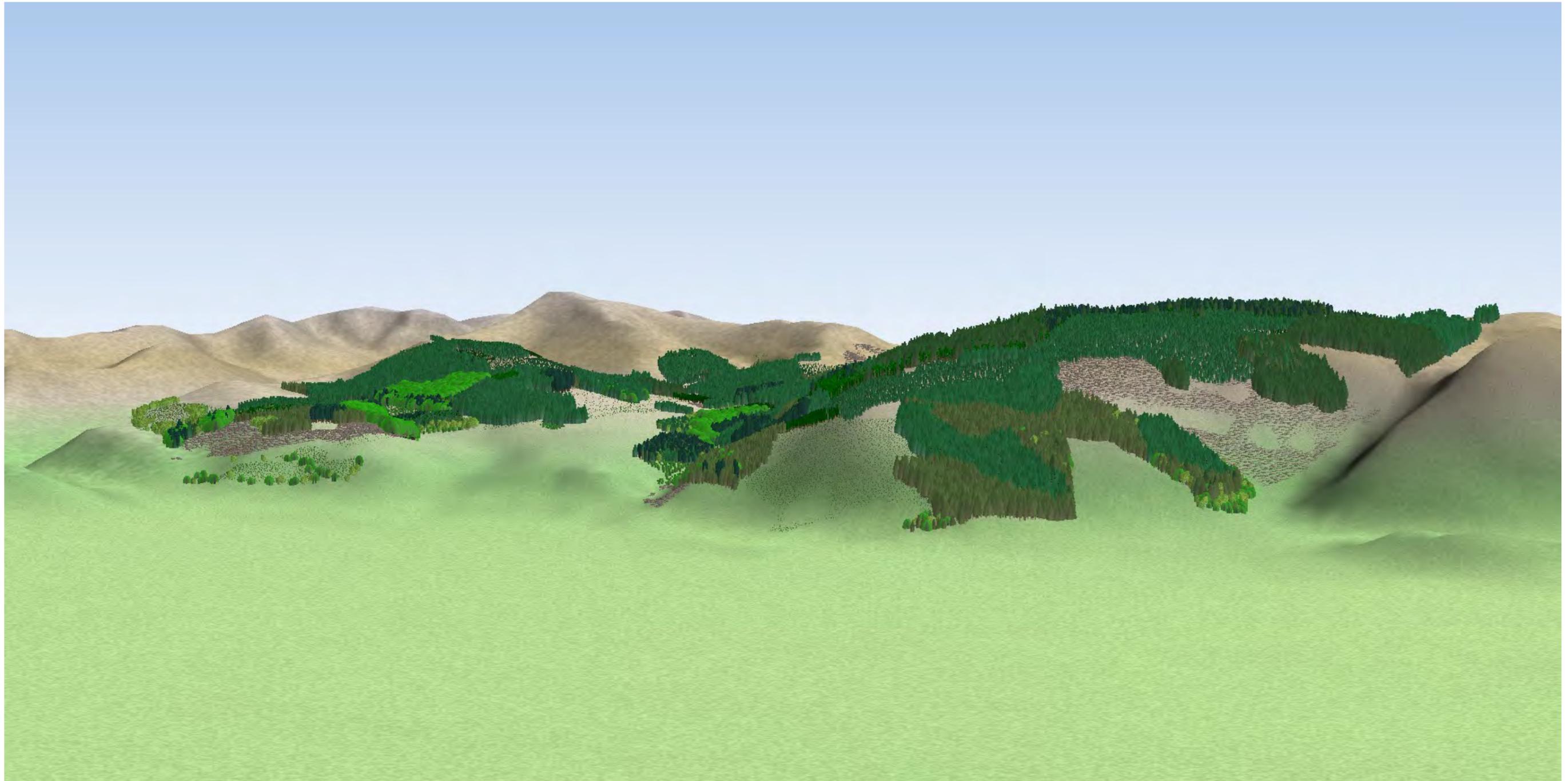
A gradual conversion to a native mixed broadleaved woodland type utilising continuous cover techniques would be the preferred management technique both in terms of landscape impact and ecological benefit. However, the steep terrain and very unstable fragile soils limits operations to a clearfell and restock scenario utilising high lead or skylining techniques. These techniques limit the risk of soil erosion but have a more dramatic impact on the landscape. However, through thoughtful design and choice of coupe boundaries it is possible to reduce the impact, as demonstrated by the recent clearfelling at Seat Howe in response to a Statutory Plant Health Notice to fell infected larch.

The images below demonstrate how the operational proposals to clear fell two further coupes within the 10 year approval period of the plan will look in the wider landscape viewed from Dodd Wood across Bassenthwaite.

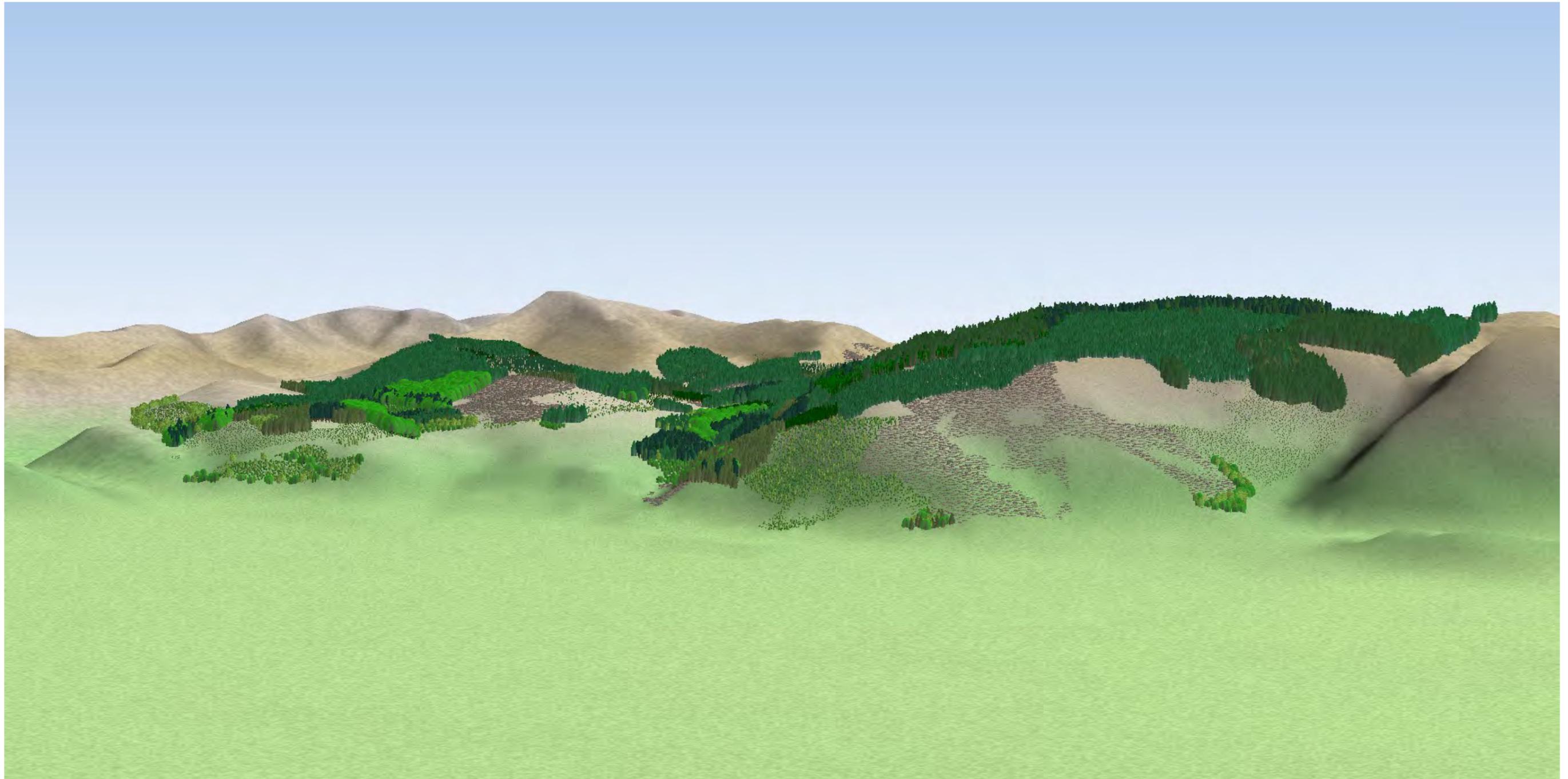
Note: the 3D representations show only FC woodland, other woodland and trees in the landscape are not represented.



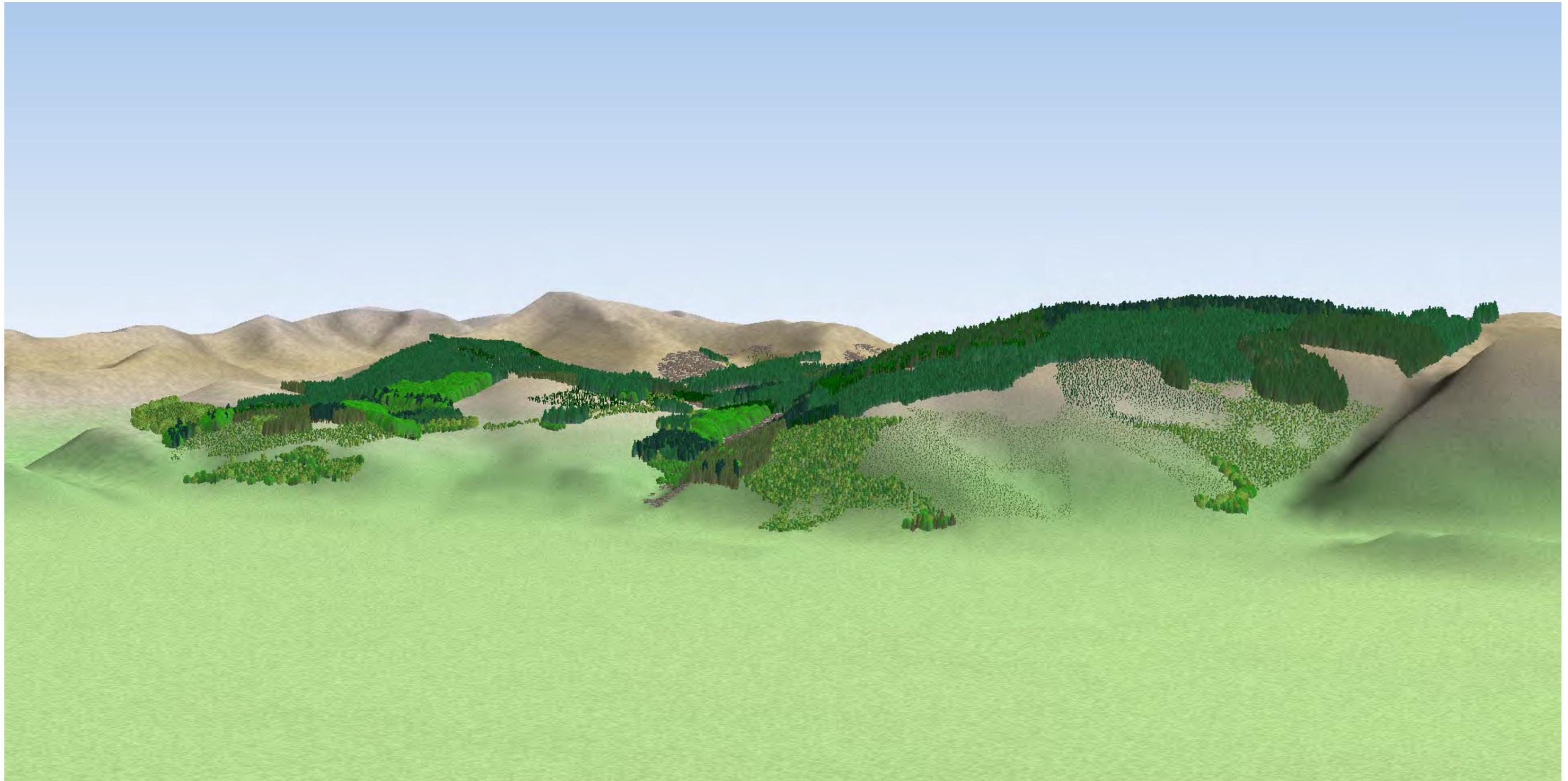
Present view 2018, the Seat Howe clearfell in the centre



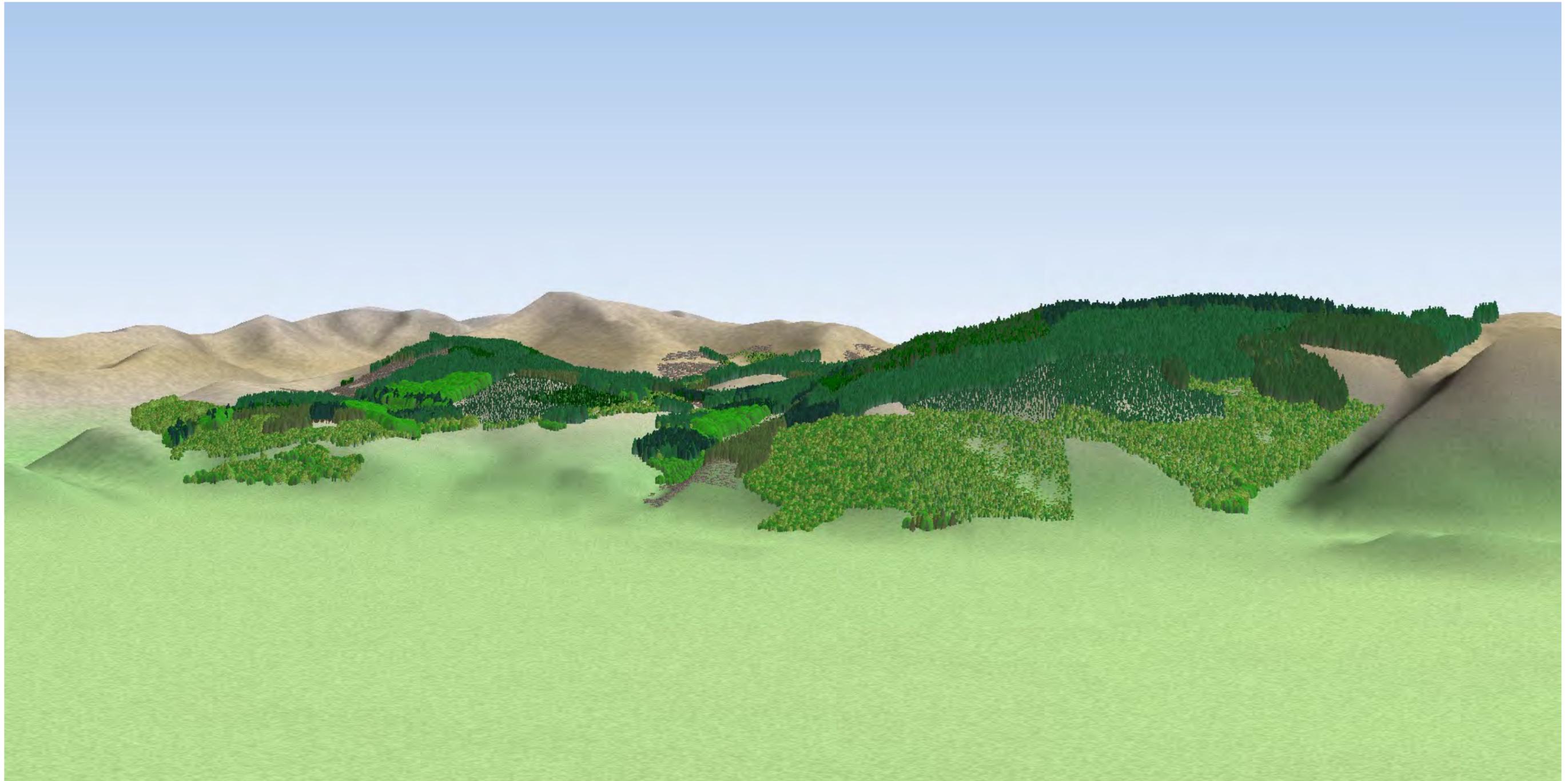
First coupe felled 2018-2021, Seat Howe restocking developing. Interlocking boundaries above the felled coupe help to break the visual impact by avoiding a boundary along the contour.



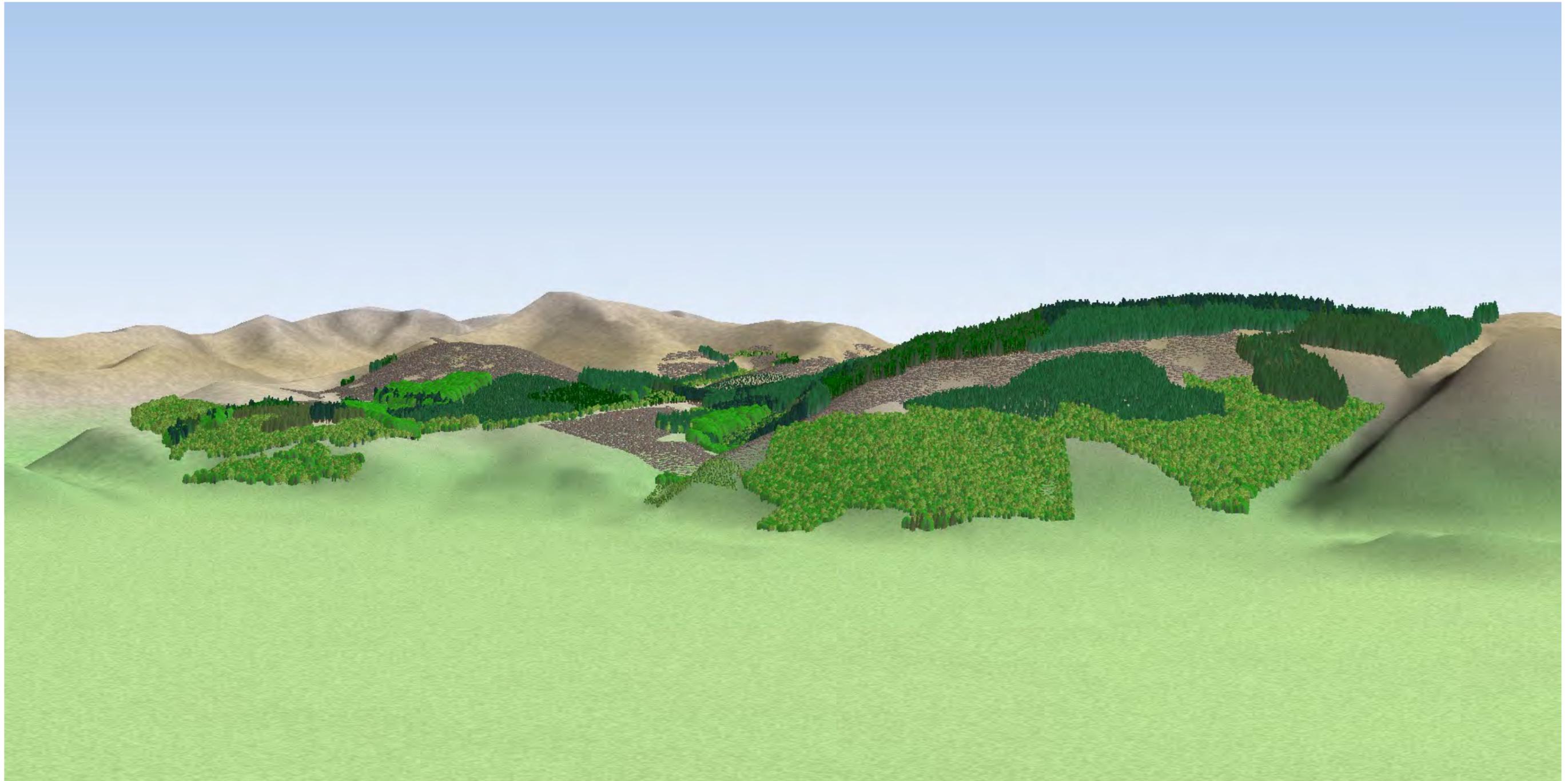
Second coupe felled 2022-2026. Seat Howe now restocked for circa. 8 years. The benefit of adjoining woodland and trees in the wider landscape is important.



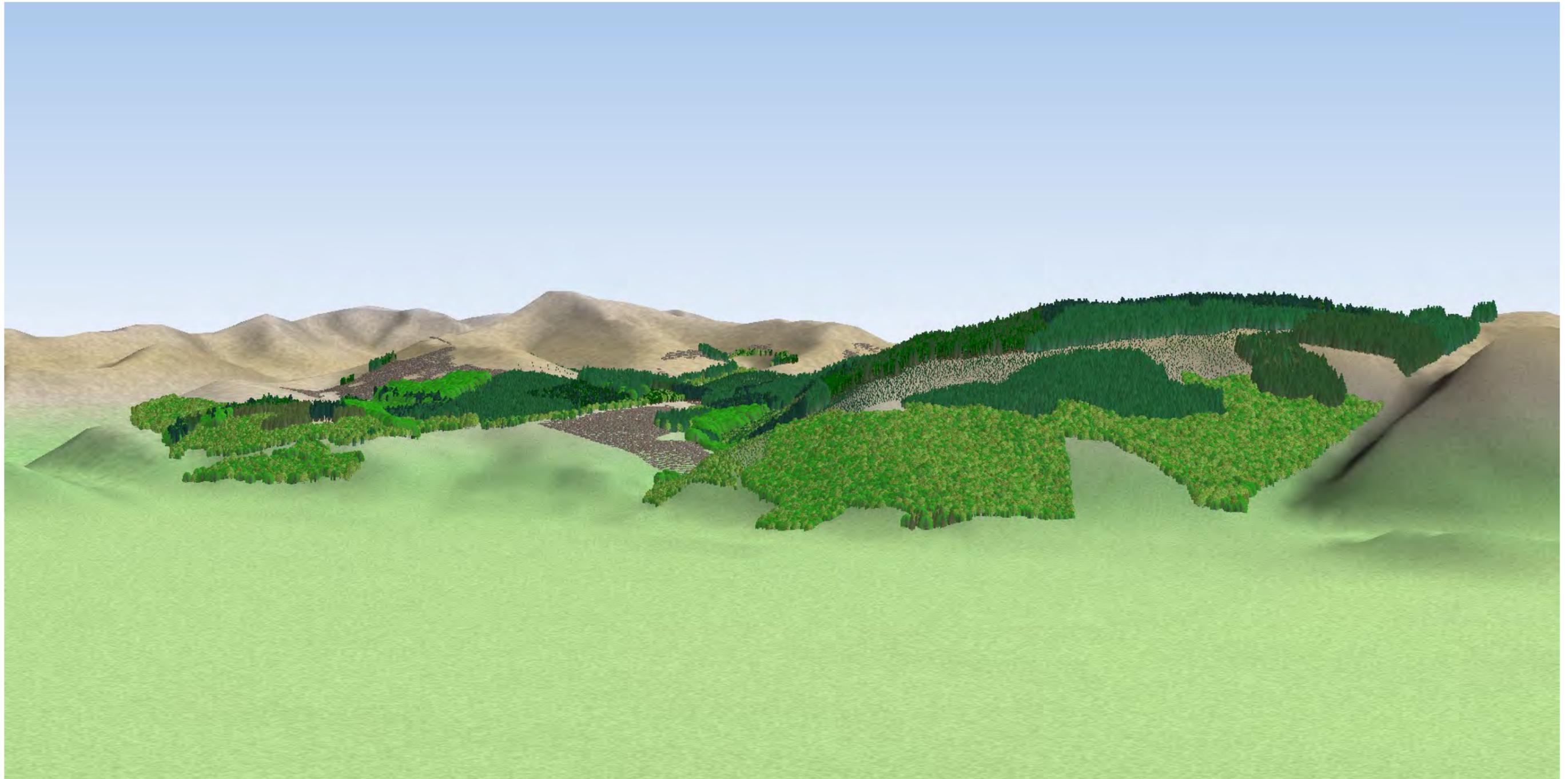
End of plan approval period 2028. Native broadleaved woodland developing.



2040 Longer term view showing restoration of native woodland with interlocking coupes of conifer above.

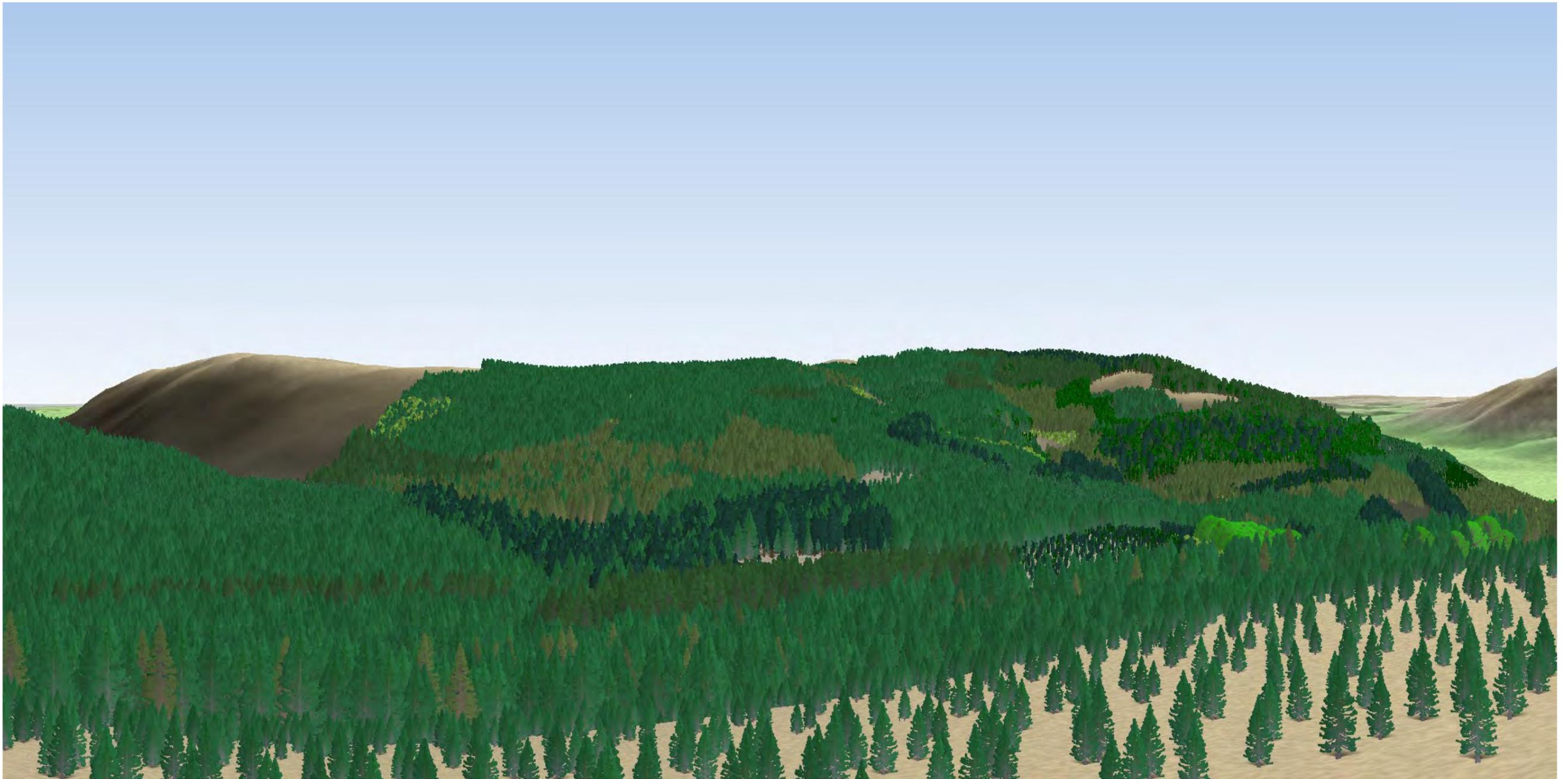


2050 – Area of native woodland managed as retention provides landscape continuity into the future as productive conifer crops are felled and restocked.

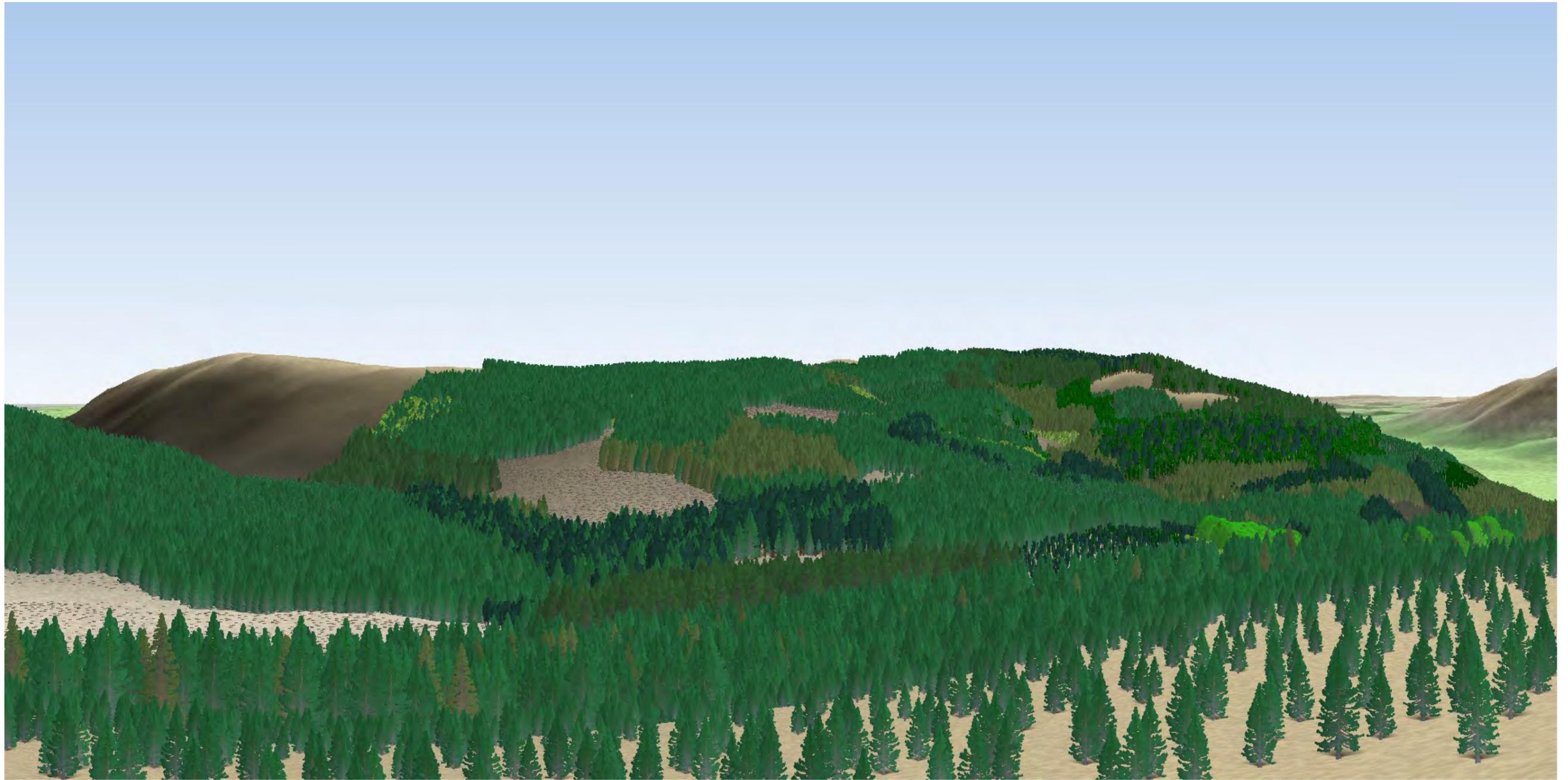


2060

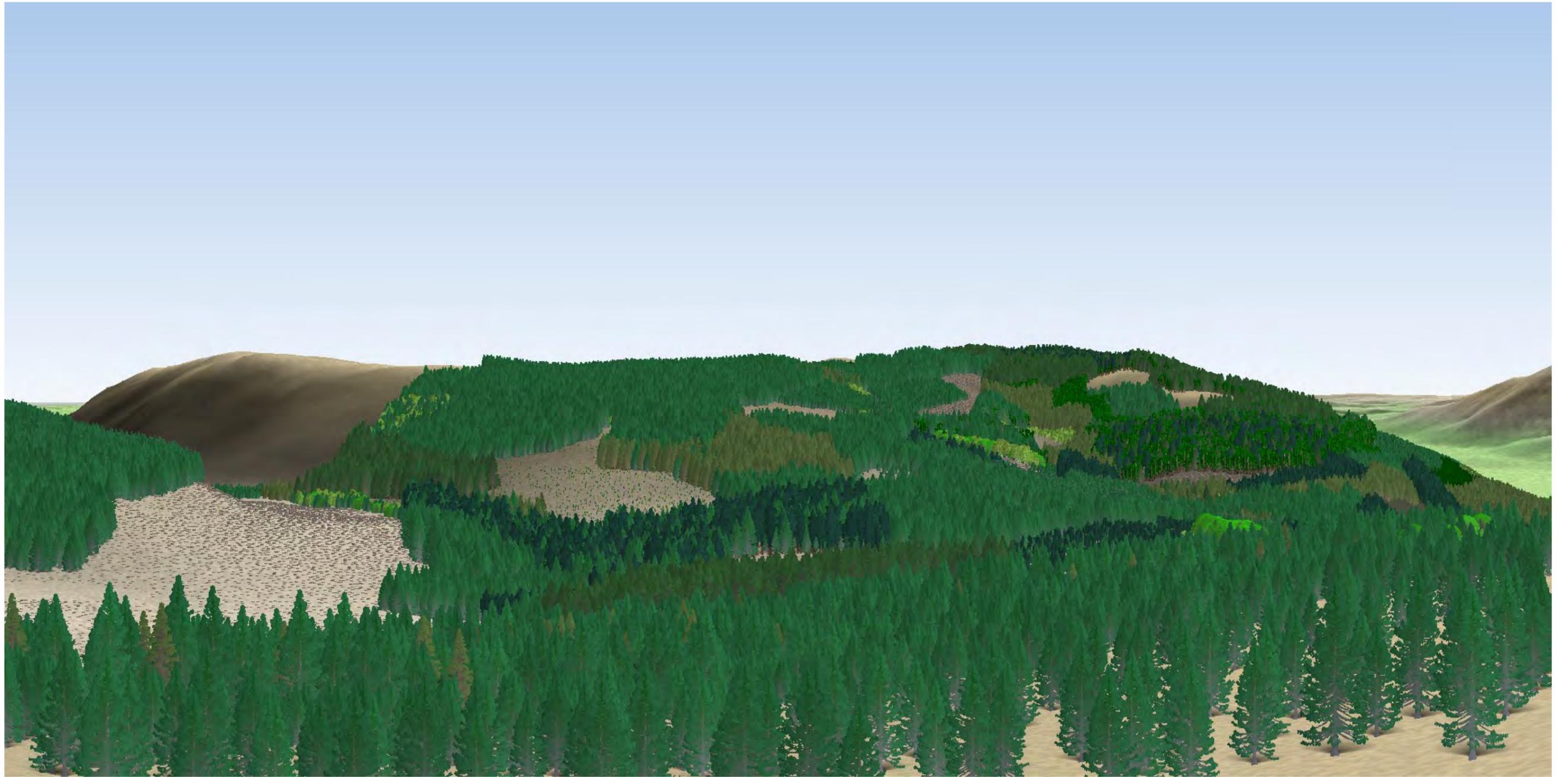
2. Demonstration of the impact of coupe felling within core recreation zone adjacent to visitor centre.



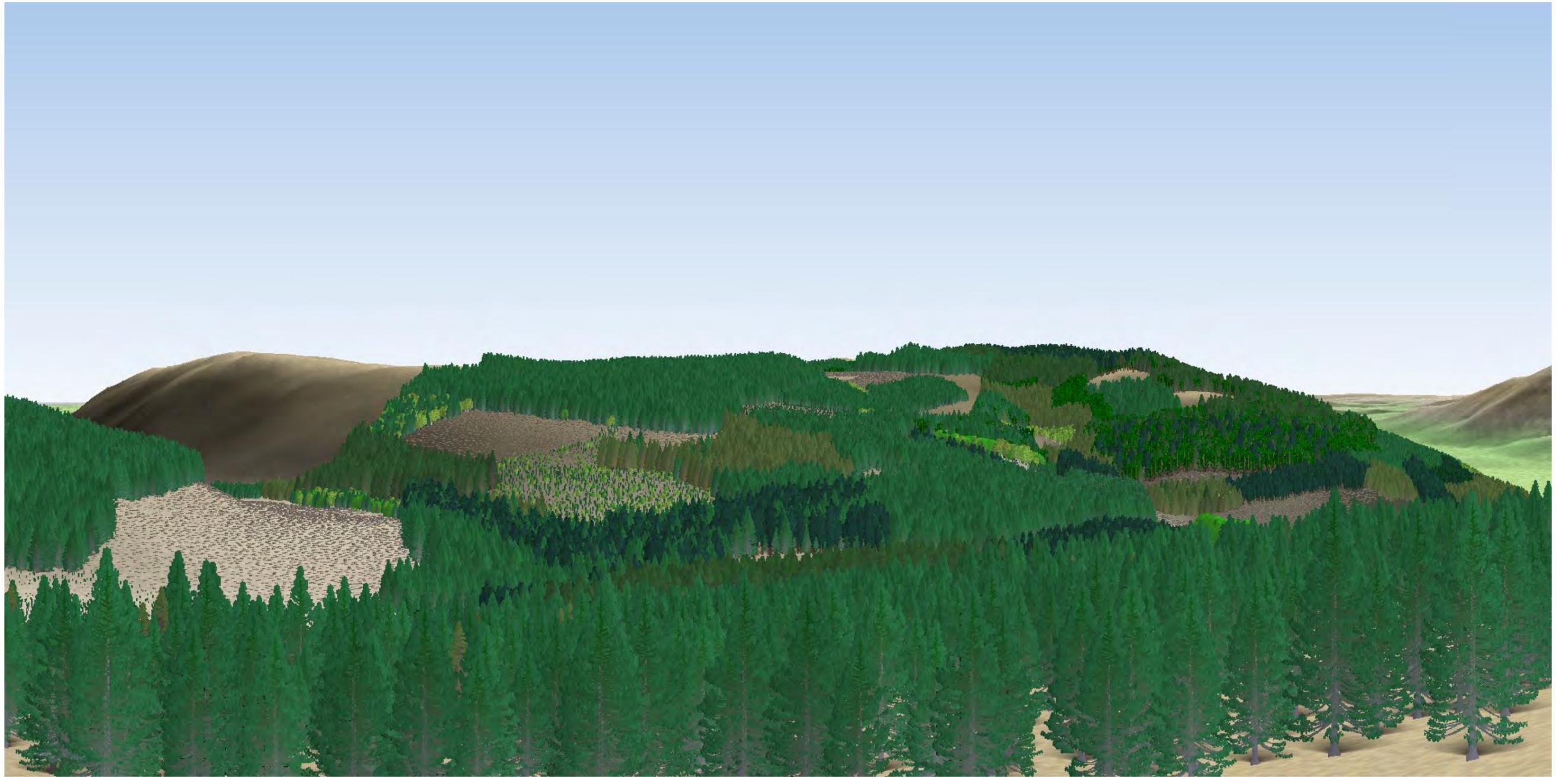
Present view from south section of the Altura bike trail 2018. Visitor centre approximately located in the low mid area of the image.



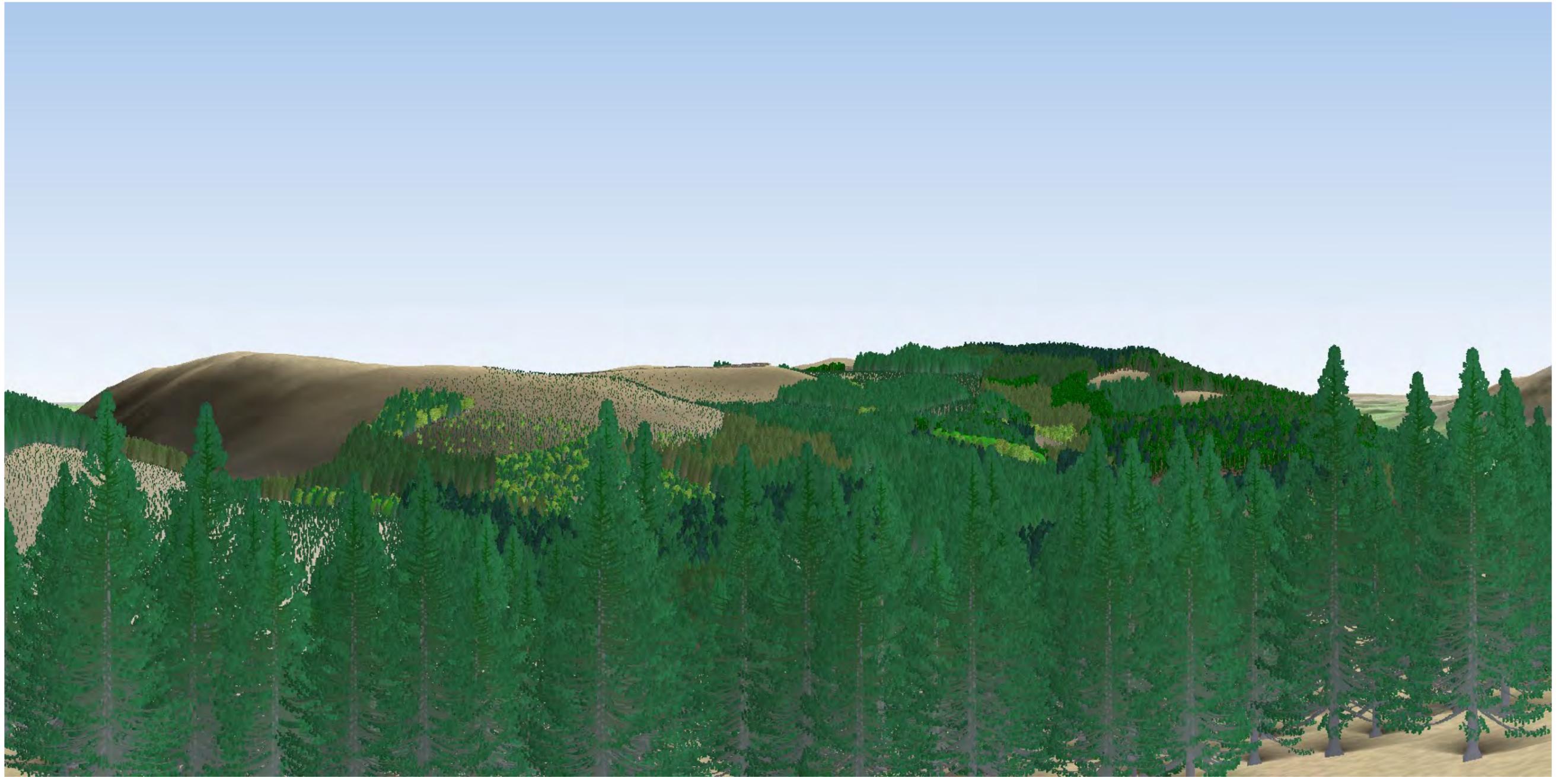
2018-2021 – small coupes felled have minimal impact on the view.



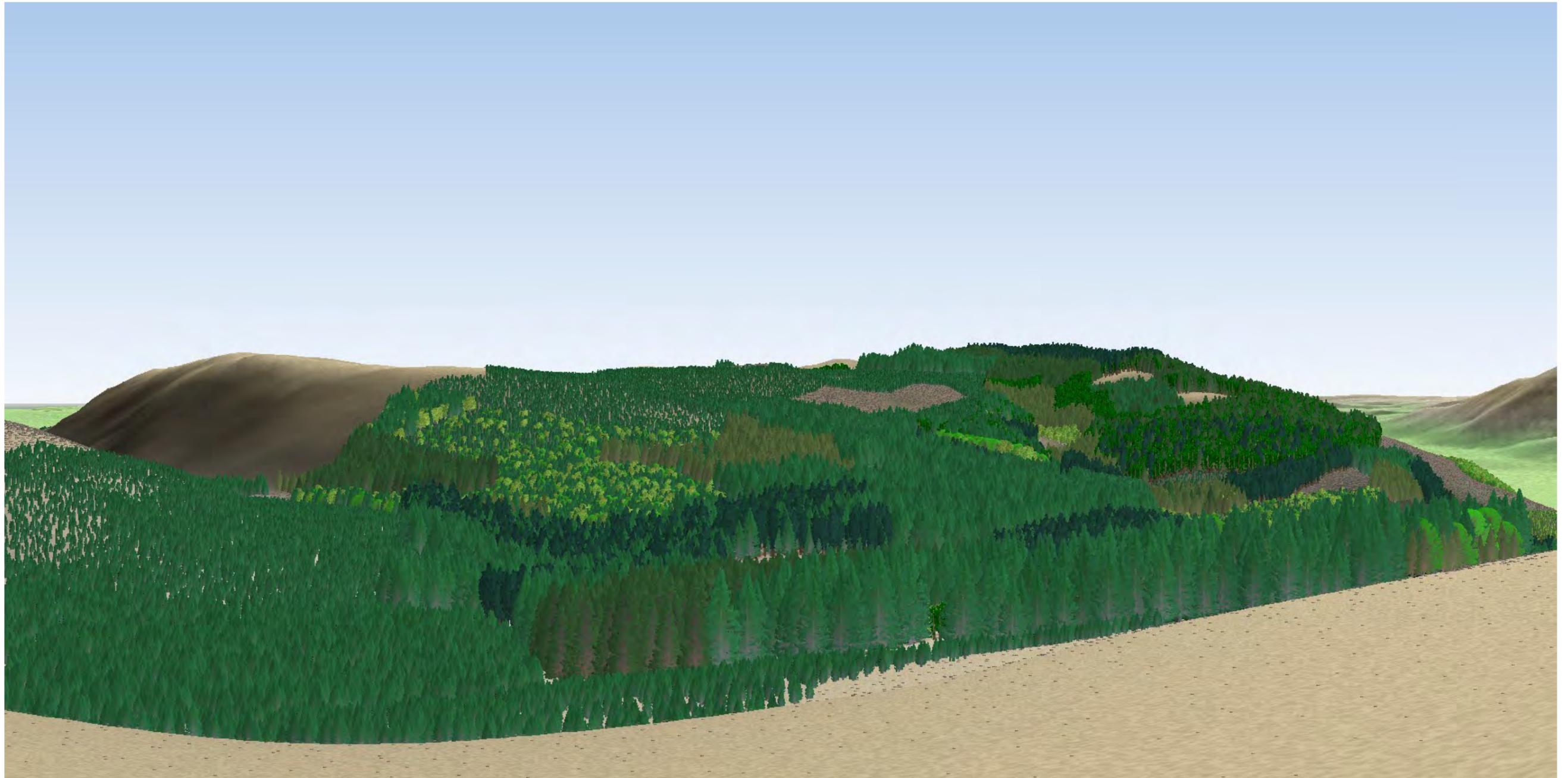
2022-2026



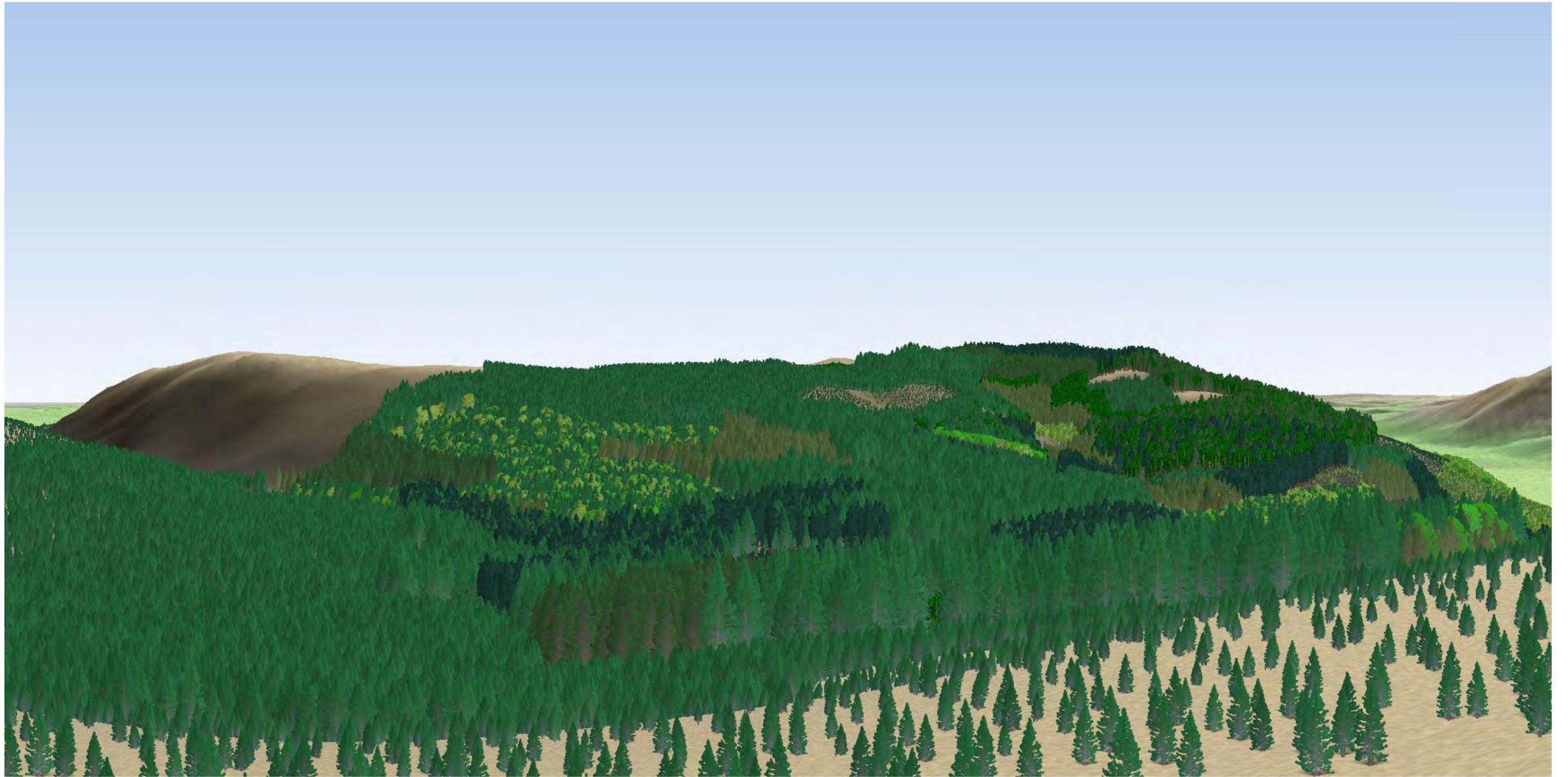
End of plan approval 2028



2040



Longer term view showing the mosaic of felled and replanted areas adding to species and age diversification.

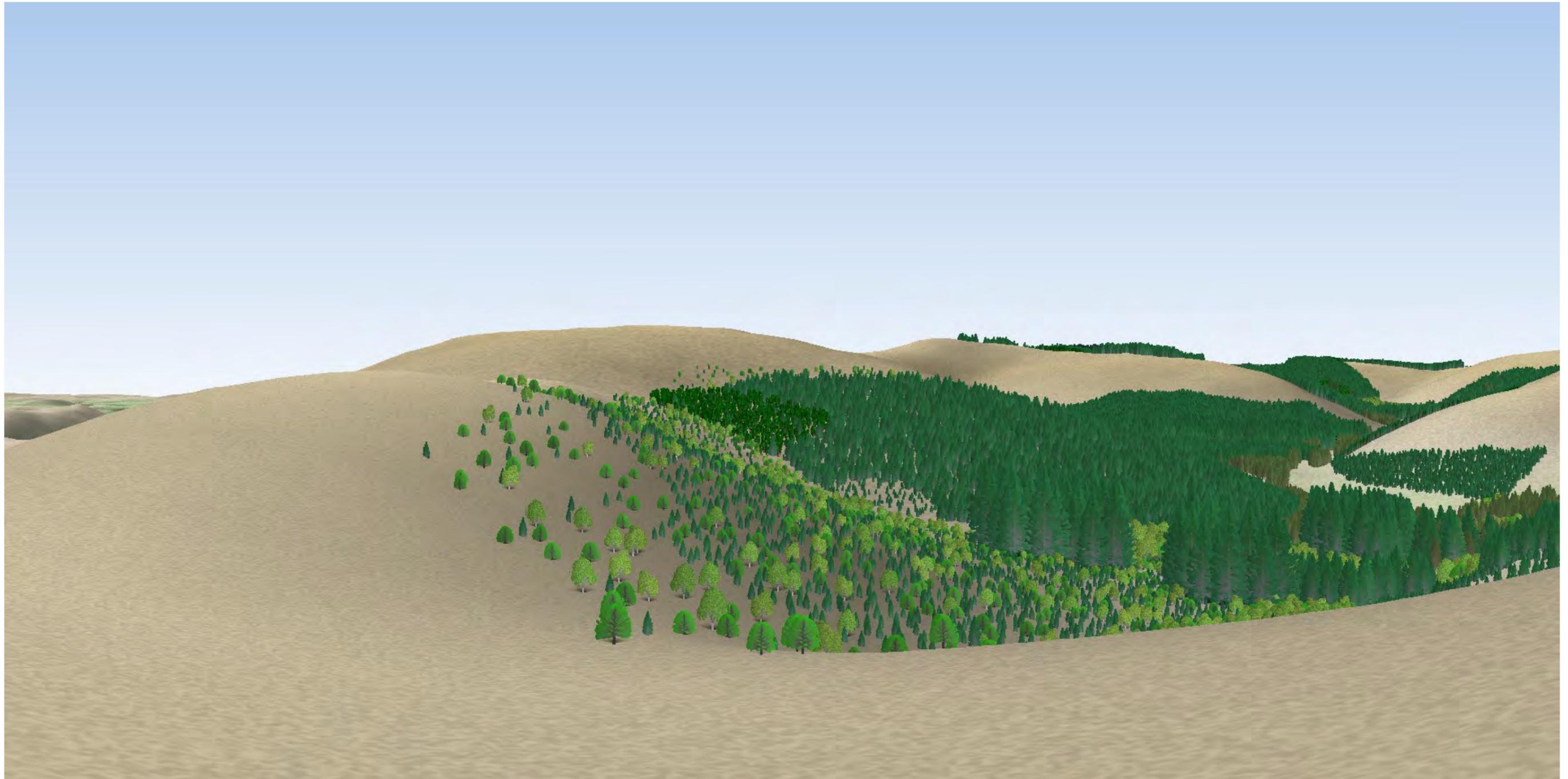


2060

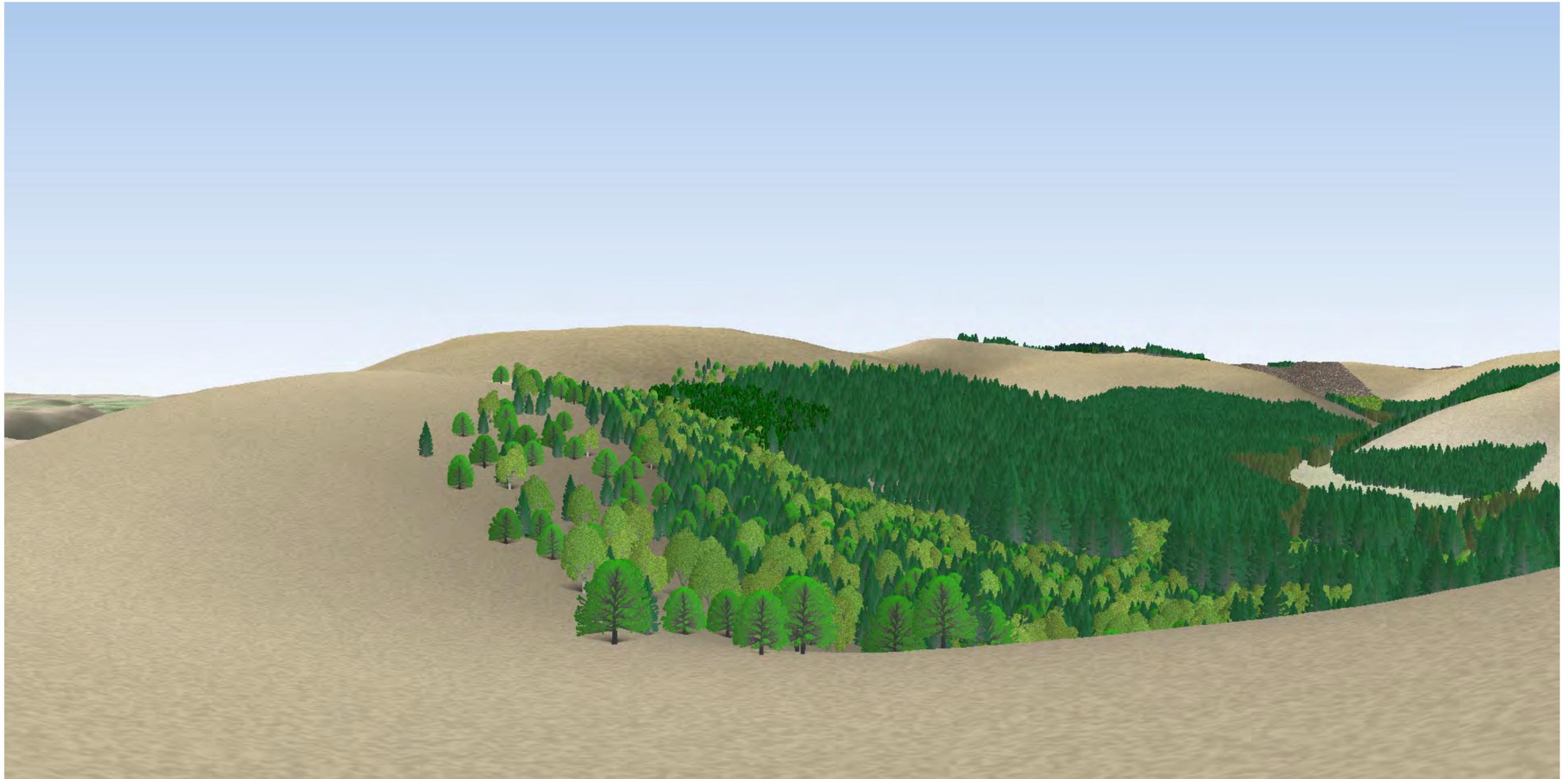
3. Upper forest transition from plantation to open fell using the example of Darling Howe in the North West of the forest. This coupe was felled in 2016 with the previous first rotation crop of Sitka spruce planted up to the forest boundary.



Present view prior to restocking in 2021



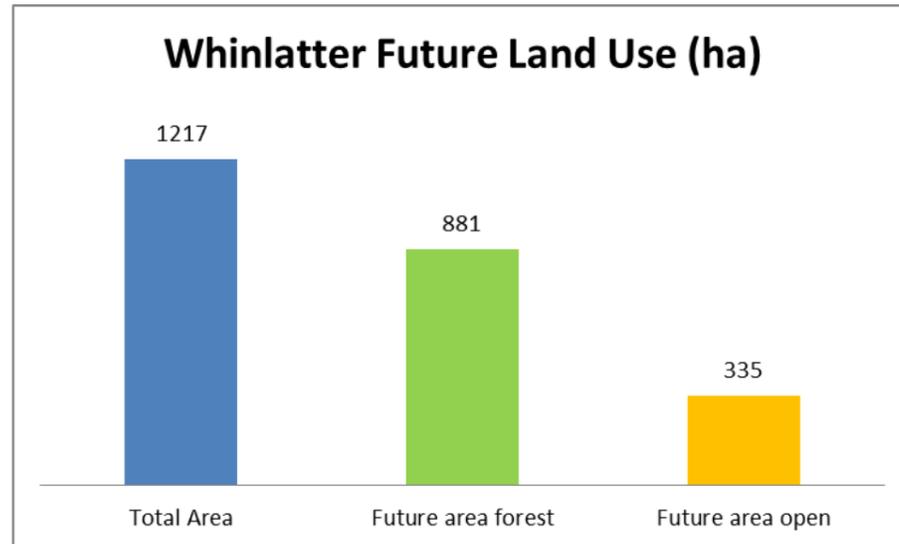
View at end of approval period in 2028 showing restocking with spruce and other conifers.



Longer term representation in 2040 showing the open transitional habitat feathering out to the open fell.

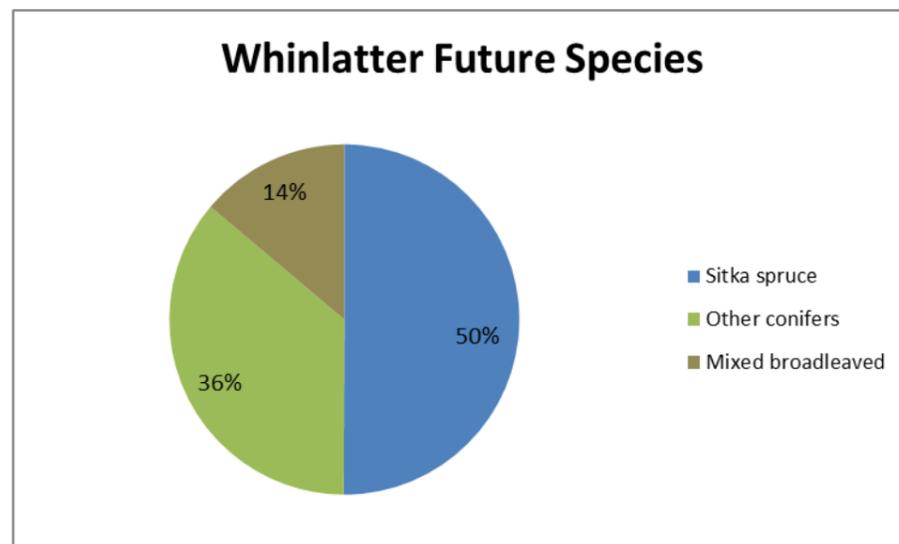
Part 6 Forest Plan Outcomes

Future Area and Land Use



The slight reduction in open area, compared to the previous plan is a reflection of our proposals to create low density transitional scrub habitat on the upper edges of the forest to help mitigate the harsh boundary between forest plantation and open fell. No reduction of permanent open space within the forest is proposed.

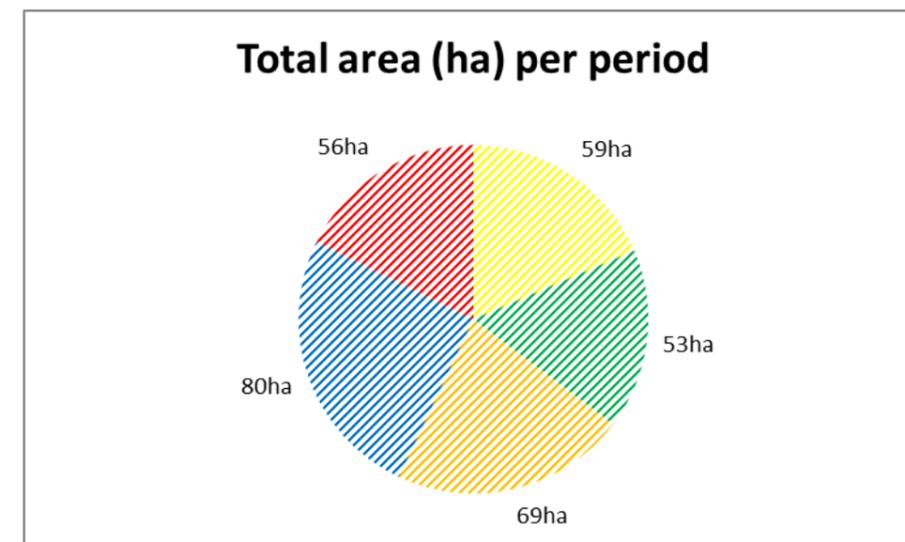
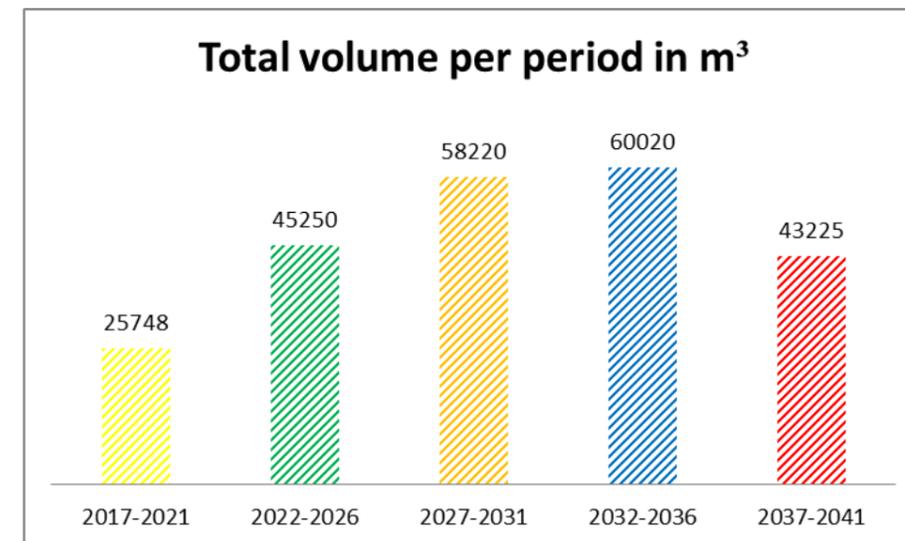
Future Species



The combined percentage of future species composition exceeds the requirements for UKFS and UKWAS (65% primary species (Sitka spruce), 20% secondary species (Other conifers) and 5% mixed broadleaves).

Timber production

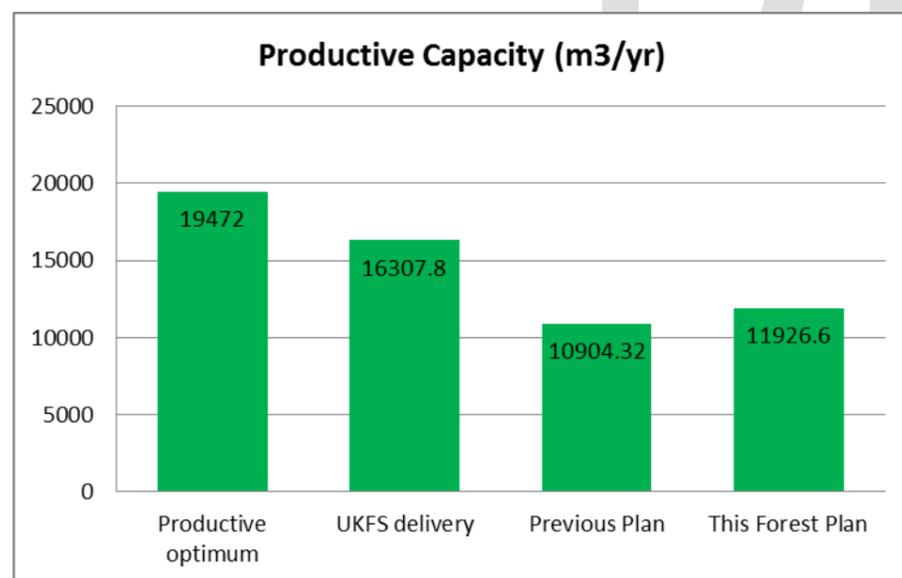
Average timber production, including thinnings, per five year period is shown below. Over the 10 year approval of the plan we will harvest approximately 71,000m³ of timber from approximately 112ha.



Productivity

The productive potential of the forest is optimised through timber production achieved through delivery of the harvesting plan. This is represented in the Productive Capacity Analysis below which shows the relative productive capacity (m³/year) of the forest based on average yield class as a comparison between the following scenarios;

1. Productive optimum – productive capacity assuming that the total productive area (10% open) is planted with the optimum commercial species suited to the site (i.e. Sitka spruce YC 16).
2. UKFS delivery – productive capacity achievable through minimum compliance with a species percentage mix comprising 65% primary species (SS YC 16), 20% secondary species (MC YC 14), 5% broadleaved (YC 4) and 10% open space.
3. Previous Plan - productive capacity based on the proposed percentage species mix from the previous plan with 33% open.
4. This Forest Plan – productive capacity based on the percentage species mix from this plan with 27% open.



Natural Capital and Ecosystem Services

The productivity analysis refers to timber production and gives a general indication of the productive capacity of the forest. However, timber represents only part of the picture and Natural Capital refers to the stock of all natural assets upon which the economy and society is built. Natural capital produces value for people in the form of 'goods' such as timber or minerals and 'services' such as climate regulation and air purification. To realise the benefits of some natural assets, humans need to intervene (e.g. harvesting timber) but in other instances natural capital produces value through natural processes (e.g. trees reducing flooding).

Forest Enterprise England (FEE) published its third organisational Natural Capital Account (NCA) in 2018 as a transparent way of quantifying the value of natural assets beyond what is seen in a typical financial account. Whereas income from car parking and timber are available in FEE's annual accounts, the NCA also recognises values for natural services, such as the well-being our woods bring to people, and the atmospheric carbon our trees are storing, thereby providing a more representative picture.

A key feature of a natural capital approach is that it is looking at the asset value rather than the value of the services provided now, i.e. it takes the value of the services that will be provided into perpetuity (and whether they are going to increase or decline) and assigns a current 'net present value' to give a total asset value. FEE's NCA looks at the whole of the public forest estate (PFE) and calculates the value of all the natural capital FEE is custodian of in a 'top down' way. This is useful for the organisation to understand whether it is strategically delivering its mission, and to evidence the value of the work we do to others. However it is at such a large scale that it doesn't provide practical information that can help individual decisions within the organisation.

FEE is exploring whether using a natural capital approach could help decision making for land use choices for specific sites and forest design planning and is in the process of developing and testing a natural capital tool to do this. The Whinlatter forest plan delivers ecosystem services and other non-market benefits included in biodiversity, climate change mitigation, water, people and landscape including public health and well-being, productivity through increased carbon sequestration, species diversification and climate change resilience, landscape enhancement and increased native woodland and priority habitats. In the future we hope to be able to access these non-financial benefits using this tool to provide a breakdown of the natural capital costs and benefits associated with the plan to support the decision making process.

The United Kingdom Forest Standard (UKFS)

The UKFS is the reference standard for sustainable forest management in the UK. The UKFS is supported by a series of guidelines which outline the context for forestry in the UK, defines standards and requirements and provides a basis for regulation and monitoring. These include General Forestry Practice, Forests and Biodiversity; Climate Change, Historic Environment, Landscape, People, Soil and Water.

The Whinlatter Forest Plan is able to demonstrate that relevant aspects of sustainable forest management have been considered and the stated objectives in Part 3 and outcomes in Part 6 show how sustainable forest management will be achieved. The plan provides a clear means to communicate the proposals and to engage with interested parties and serves as an agreed statement of intent against which implementation can be checked and monitored.

In addition to conforming to general sustainable forest management principles UKFS is demonstrated in the following key areas:

Productivity	The productive potential is dictated by timber production achieved through delivery of the harvesting plan and delivery of ecosystem services and other non-market benefits included in biodiversity, climate change mitigation, water, people and landscape. This is represented in the Productive Capacity Analysis graph.
Structure	Future species composition; 50% Sitka spruce, 36% other conifers and 14% mixed broadleaved and 27% open space, exceeds UKFS requirements. Long term structure will improve through linking of permanent broadleaved and open habitats.
Silvicultural	A combination of clearfell and restocking will be continued with Continuous Cover of areas of mixed conifer and broadleaved woodland at lower elevations.
Biodiversity	Habitats and species are considered during the planning phase. Ecological connectivity achieved by extending and linking areas of broadleaved woodland and open space will ensure that the area is managed with conservation and biodiversity as an ongoing objective.
Climate change	Long Term Retention areas will minimise soil disturbance. Forest resilience will be enhanced over time through greater species diversity, particularly establishment of alternative conifer species with age and stand structure diversification to help

mitigate climate change and disease/pest outbreaks. Ecological Site Classification will be used to identify the most appropriate species at the time of restocking.

Landscape

The planning process refers to the Local Landscape Character to inform the forest design. Visual sensitivity and consideration to visibility and the importance and nature of views of the woodland from key viewpoints is used to inform shape, landform and scale. Particular emphasis is made on mitigating geometric shapes, symmetry and distinct parallel lines in the landscape through species choice, forest edge and coupe design.

Historic

Historic features are recognised and their safeguard will be routinely incorporated into operational management.

People

The Forest Plan is consulted with individuals, the local community and organisations with an interest in the management of the forest.

Water

Quality will be protected through adherence to Forest and Water guidelines as a minimum during harvesting and forest management operations.

Longer term management proposals

Forest management in the UK is facing many challenges both now and for the future with issues and threats associated with climate change, disease and economic uncertainty. As custodians of the nation's public forest estate for 100 years Forest Enterprise have sustainable forest management at its core with the aim of delivering wide ranging objectives for people, nature and the economy. The proposals in this plan will lead to a more diverse and resilient woodland, with a greater range of species and habitats. Substantial areas of alternative conifer species will have been established, and the range of broadleaved species and more diverse open habitat will have been extended particularly on the transitional boundary between forest and open fell.

Timber production of home grown quality timber remains a priority and will continue through a combination of clearfelling and continuous cover silvicultural techniques with the focus on maintaining and possibly expanding productive woodland with species best suited to site conditions including a wider range of conifers and broadleaves at the lower elevations. This strategy will also contribute toward climate change mitigation, flood alleviation and long term forest resilience.

Public recreational use of the forest will remain a major focus of our management for the future and by continuing to evolve and adapt our offer we will continue to provide a high quality experience for the enjoyment, health and well-being of all our visitors for the next 100 years.

DRAFT