



Forestry England

# Grizedale Forest Plan 2023

North Forest District



Forestry England forests and woodlands have been certified in accordance with the UK Woodland Assurance Standard (UKWAS)



## Planning and District Context

The Strategic Plan for the **Nation's Forests** 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 **the nation's forests**. North Forest District (NFD) 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 59 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 Forest District Strategy. Forestry England recognises its obligations under UK legislation and regulations such as the Natural Environment and Rural Communities Act 2006; as amended by the Environment **Act 2021 (Sec 102)**'.



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;
- we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value;

## Grizedale Forest Plan 2023

This is the fourth revision of the Grizedale Forest Plan which was last revised in 2008. The plan follows a largely comparable approach to the previous revision. It has been brought up to date in terms of work achieved over the last plan period, and ongoing implementation of the management objectives. The impacts and threats associated with emerging pests and diseases, particularly *Phytophthora Ramorum*, have necessitated the largest changes, with many larch crops already felled prior to this revision under Statutory Plant Health Notices. The need to make our forests more resilient in the future has prompted changes to species composition in the restocking plan.

For the first time this revision includes Low Dale Park, a 57ha woodland to the east of Grizedale, as part of this Forest Plan. Previously Low Dale Park was subject to a separate forest plan. Low Dale Park has been brought into the main Grizedale plan owing to similar stocking, management, and future ambition to the Grizedale main block. All figures and text in this plan which refer to 'Grizedale' include Low Dale Park.

## Part 1 Background Information

### Introduction

Grizedale lies to the east of Coniston Water and south west of the town of Ambleside, some 12km away. It lies wholly within the Lake District National Park. It is its own valley with forestry planting on both sides. The forest block contains 2106ha of woodland, and 240ha of tenanted agricultural land. Most of the forest was purchased in 1937 from the Brocklebank estate and is owned freehold. The main planting programmes were completed between 1939 and 1955, with further acquisitions and planting continuing through the 1960s. Felling and restocking commenced in the 1980s. Grizedale, Low Dale Park and Striceley together occupy an area of 2512ha.

Recreationally, Grizedale is managed for multi-purpose objectives, and in recent years various companies have invested in partnership with the Forestry England to provide recreation facilities for the public, as a result Grizedale is now a major visitor destination in the Lake District National Park.

### Current woodland composition

- Total area: 2512ha 100%
- Woodland: 2106ha 83.7%
- Agricultural: 240ha 9.5%
- Open: 166ha 6.5%
- Built: 8.23ha 0.3%

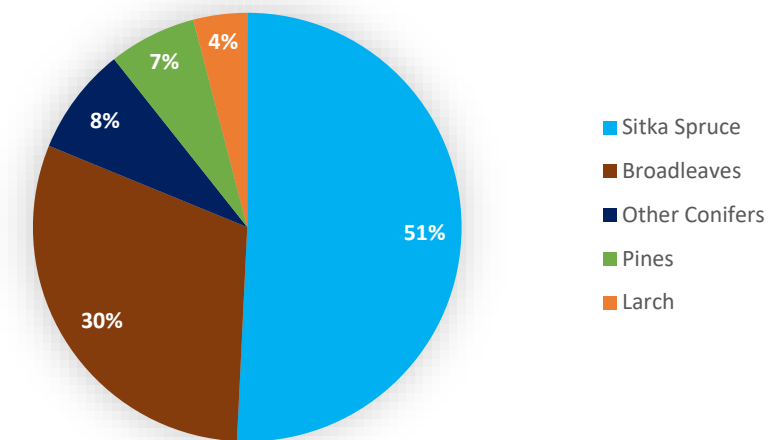
The species composition, (Figure 1), reflects **Grizedale's** position as a productive forest. Coniferous tree species dominate Grizedale, with Sitka spruce making up just over half of the wooded area. Historically larch provided useful variety in the landscape, although outbreaks of *Phytophthora Ramorum* in the last decade have proven this species to no longer viable in Grizedale. Plant health notices and associated felling have resulted in larch falling from 15%

of the forest in 2020, to under 5% by 2023. Figure 2 shows that most of the current trees in Grizedale were planted post 1990, representing the second rotation of forestry here.

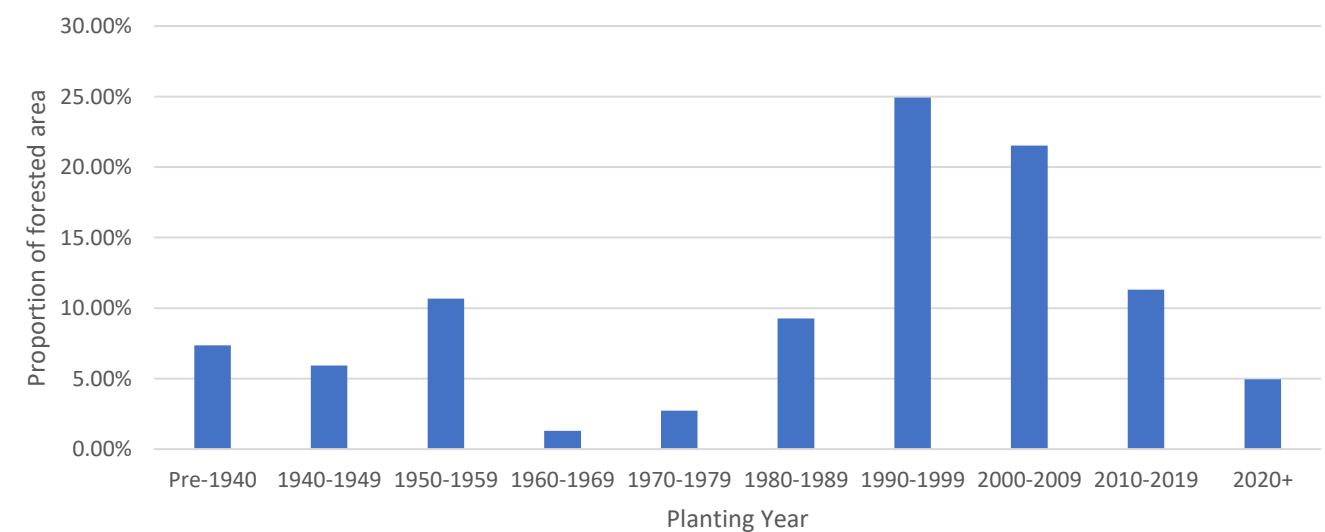
Yield class is way of measuring the productive potential of trees. Average yield class across the productive species in Grizedale is 14. Sitka Spruce averages over yield class 18, with 18% of Sitka Spruce being yield class 24 or above. Most of the lower yield classes in Grizedale are found within the mixed broadleaf crops, (Map 2).

The average wind hazard class is 3 (Map 4), which is medium, although there are significant areas of high risk in the west of the forest, where wind hazard ratings of 5 are common on the more exposed areas at higher elevations. As such parts of Grizedale are relatively vulnerable to high wind events. Because of this clearfell coupes are the preferred management method for these areas of the forest. The eastern side of the forest has a low wind hazard rating, averaging 2, allowing for greater options for silvicultural systems based on thinning which are best suited to wind hazard classes 1-3.

**Figure 1. Grizedale Forest Current Species**



**Figure 2. Age Distribution of Grizedale Forest**



## Designated areas

Grizedale is situated wholly within the Lake District National Park and the English Lake District World Heritage Site, which was inscribed as a cultural landscape in 2017. The National Park and World Heritage Site provide 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 create greater public benefit through sustainable land management delivering for people, the landscape, nature and the economy. For example, this can be achieved through conserving and enhancing the landscape, scenic beauty, and cultural heritage of the Lake District, whilst **also providing wider ecosystem services to support communities' social and economic wellbeing** in a sustainable way.

Grizedale is located within the Coniston section of the WHS nomination document, and the forest can be seen to contribute to the agropastoral landscape of the area, with the area noted in the nomination for silvicultural industries in a working landscape. The nomination document acknowledges commercial forestry plantations as part of the valley landscape. Grizedale also helps contribute to the discovery and appreciation of a rich cultural landscape through opportunities for quiet enjoyment, and the role of Grizedale Arts which is based within the forest is also recognised for inspiring artistic activity.

There are several sites identified as either Ancient Semi-Natural Woodland (ASNW) or Plantations on Ancient Woodland Sites (PAWS) in Grizedale (Map 7), combined these cover an area of 341ha. These areas primarily follow the central valley either side of the grazing land, but other areas of ancient woodland are also to be found to the east of the forest at Slack Wood, and to the west at Kye and Lags woods. Where these areas currently contain non-native conifers, this plan continues previous ambitions, seeking for slow conversion to native broadleaves in line with Forestry England and UKFS policy on native woodland restoration.

Ancient Woodland sites are measured using Semi-Natural Woodland scores. SN1 refers to Ancient or fully restored woodland with 80% of species native, either planted or natural regeneration, SN2 50-80% native species, SN3 20-50% native species, and SN4 less than 20% native species. The Ancient Woodland areas of Grizedale are scored as 43% SN1, 30% SN2, 18% SN3, and 9% SN4 as of 2021, as shown in Map 7.

## Natural environment

Wildlife interest in Grizedale is varied, owing to the great variety of habitats in the forest. These range from coniferous forest to mixed and broadleaf woodland, moorland, areas of peat and bog, riparian habitats, rocky crags, and more than 25 tarns. Species to be found across these habitats include a wide variety of birds such as buzzard, kestrel, sparrowhawk, tawny and barn owls. The Grizedale valley is the focus of a population of red kite which were reintroduced into the area in 2010 and now boast a breeding population. Grizedale is home to red squirrel, with sightings recorded by Red Squirrels Northern England. Grizedale is regarded a potential habitat for pine marten and confirmed sightings in 2022 suggest a population establishing here. The extent of mature tree cover in the forest has created habitat for bats, and areas suspect of hosting roosts are inspected prior to operations to minimise any potential disturbance.

The Grizedale beck runs through the centre of the valley and is fed from several minor watercourses from the forest. Watercourses in the forest are to benefit from the creation of 10m riparian buffers of mixed broadleaf species, managed under LISS principles. These riparian corridors are being created with the intention of improving connectivity across the forest and increasing the variety of habitats found. This process has been underway over the last ten years following the previous Forest Plan, with this plan building on these good works. All works adjacent to, or with the ability to impact watercourses will be worked according to forest and water guidelines to preserve and protect water quality during operations. The multitude of tarns not only provide watering opportunities for many species, but also help contribute to wetland habitats which foster wildfowl, insects, and amphibians.

Table 1: EPS, BAP Species and actions supported by this forest plan

Species	Objective	Actions supported by this forest plan
Red Squirrel, Schedule 5 & 6 WACA 1981	Maintain habitat suitable for breeding & feeding.	Forest structure provides breeding opportunities. Coupe checks prior to operations & apply appropriate mitigation.
Bats, EPS	Enhance & maintain roosting opportunities.	Through coupe checks or other recordings during site visits, integrate protection of breeding/roost sites by retaining deadwood/feature trees during woodland management operations. Maintain bat boxes.
Great Crested Newt, EPS	Record any sightings. Maintain suitable habitat.	Increased areas of low impact silvicultural systems around tarns will reduce disturbance for this species. Coupe checks prior to operations & apply appropriate mitigation.
Badger, Badger Act 1992	Protect existing setts.	Coupe checks prior to operations & apply appropriate mitigation.
Adder, Schedule 5 WACA 1981	Record any sightings. Maintain suitable habitat.	Open space and glade network provides good habitat.
Pine Marten, Schedule 5 WACA 1981	Record any sightings. Maintain suitable habitat.	Mature forest structure provides denning sites, improved riparian habitats and scrub areas provide habitat for prey species. Coupe checks prior to operations & apply appropriate mitigation.
Red Kite, Schedule 1 WACA 1981	Formal monitoring scheme in place following release programme. Protect existing nests, maintain suitable habitats.	Mature forest structure provides nesting opportunities. Coupe checks prior to operations & apply appropriate mitigation.
Buzzard, Schedule 1 WACA 1981	Protect existing nests, maintain suitable habitats.	Mature forest structure provides nesting opportunities. Coupe checks prior to operations & apply appropriate mitigation.
Barn Owl, Schedule 1 WACA 1981	Maintain barn owl boxes.	Mature forest structure provides nesting opportunities. Coupe checks

		prior to operations & apply appropriate mitigation.
Tawny Owl, Schedule 1 WACA 1981	Maintain barn owl boxes.	Mature forest structure provides nesting opportunities. Coupe checks prior to operations & apply appropriate mitigation.
Small pearl-bordered fritillary, UK Priority Species	Maintain suitable habitat.	Provision of areas of open ground including grass, woodland clearings and glades provide habitat for this species.

## Landscape and topography

Grizedale is located **within the ‘Grizedale and Satterthwaite’** Landscape Character Area (LDNPA 2021). As the areas dominant feature is the forest itself, most of the areas distinctive characteristics are influenced by the forest. These include the ‘vast, dense expanse of mostly **coniferous woodland’**, the ‘strong sense of enclosure and remoteness within the Forest’, and a ‘**strong sense of enclosure and remoteness within the Forest’**, as well as reference to the importance of the environmental art and sculptures in the forest, and popularity for recreation.

The physical character guidelines for managing landscape change in the LCA of relevance to the Grizedale Forest Plan refer to the practical points of pulling conifer plantations back from the watercourses, which this plan contributes to through the addition of broadleaf riparian zones. The guidelines also call for encouragement of natural regeneration of deciduous woodland within the forest. This plan also works towards the LCA guideline of restoring ancient woodland sites within the forest.

Grizedale is elevated between lakes Windermere and Coniston, as such it forms the backdrop to views from these lakes, and is visually prominent from many popular destinations, forming part of many important views. Relative to other woodland in the Lake District, Grizedale is a large forest with prominence on the landscape.

In addition, the high intensity of visitor access places considerable importance on the internal landscape, both in terms of variety and interest, and of provision of views in and out of the forest. To this end diversity of future species choices, restoration of ancient woodland areas and areas of conifers worked under Low Impact Silvicultural Systems (LISS) help to create internal diversity. This is supplemented by considerable areas of open space, tarns, bogs, rocky outcrops, riversides, and forest edge adjacent to open moorland.

The variety added to the landscape of larch must be noted, and its recent widespread loss across the forest owing to infection of *Phytophthora Ramorum* has had a significant impact to the visual diversity of the forest in the landscape. The seasonal colour changes of larch have been substituted in this plan with mixed conifer and broadleaf planting, with intimate mixes of alternative conifers such as Western Hemlock, Norway Spruce, Douglas Fir, Lodgepole and Macedonian Pine proposed to site alongside Aspen, Birch, Oak and Cherry. These mixes will help increase resilience back to the forest, while also providing similar visual diversity as the former larch crops.

## Historic environment

Grizedale contains no scheduled monuments, however there are 68 undesignated archaeological features and other items of historical interest which require consideration during forestry operations, and sympathetic forest design (Map 6).

The earliest historic sites known in Grizedale are a series of Bronze age cairns and earthworks.

Notably Grizedale contains many potash kiln and charcoal pitsteads, these were used to produce potash and carbon prior to the industrial revolution and relied on the surrounding woodland for material to burn, adding to the history of the valley having woodland cover for hundreds of years.

Historic maps point towards Grizedale also being the site of multiple bloomery sites, which were charcoal furnaces used for the reduction of iron ore to produce wrought iron, a sign of **the area’s past industrial** heritage, as are the various quarries still evident in Grizedale.

Several historic barns and associated farm buildings can be found throughout the forest, as well as the remains of drystone walls and other field boundaries associated with the agricultural history of the valley.

On Hawkshead Moor is the site of a 19<sup>th</sup> century firing range, used for the training of troops to create a home defence force **while much of the country’s military was garrisoned overseas** or engaged in the ongoing Crimean War. While the target plates are no longer present, a small shelter used by troops still stands in the forest.

The non-scheduled historic features present within the area of this plan will be routinely protected during operations and opportunities taken to enhance as appropriate. In addition during operational planning historic environment data will be consulted in order to identify potential features previously undiscovered.

## Communities and recreation

Grizedale Forest is a major visitor attraction in the Lake District, welcoming 185,000 visitors each year. It is open year-round to the public for free for those accessing on foot. Recreation and access are very important to the forest, with the scale and diversity of the area allowing for a variety of recreational activities. The focus of recreation is the Grizedale Forest Visitor Centre, a popular attraction featuring a café, shop, art gallery, meeting facilities, cycle hire, Go Ape rope courses. Leading from here are 8 waymarked walking trails, 5 cycle routes, and two mountain bike trails. There are 18 miles of bridleway in the forest, and Grizedale has open access for horse riders on the forest road network in addition to these routes.

In addition, the entire forest is dedicated under The Countryside and Rights of Way Act 2000 as open access, which enables extensive use of the forest by walkers.

Permissions have been issued over the period of the last forest plan for many organised events including orienteering, management training, cycle events, running events, wellbeing classes, art projects, animal treks, motorsport, and filming for television and cinema.

There is a large car park at the **visitor's** centre, along with additional car parks around the forest at Moor Top, **High Cross, Machell's Coppice**, Blind Lane, Low Bowkerstead, Bogle Crag and The Kennels, allowing multiple entry points to the forest.

In addition, **Grizedale is recognised as the UK's first forest for sculpture, part of a legacy** dating back to 1977 when the then Forestry Commission collaborated with Grizedale Arts. In the years which have passed, Grizedale has become home to over 60 sculptures, some of which recognised internationally for their artistic value, building a reputation as an artistic destination.

The upcoming Grizedale **Visitor's Centre Masterplan will outline the future management of the forest** from a recreation perspective.

### Pests and diseases

Grizedale is home to an indigenous red deer population. Roe deer are also present throughout and, with both populations monitored to ensure that deer numbers do not compromise other objectives of management, particularly the promotion of natural regeneration. Deer have created difficulties in establishing restock sites in the past, so population control by wildlife rangers is a vital management tool.

Deer are culled by Forestry England wildlife staff, and to aid their efforts this plan has a renewed focus on the creation of deer glades from which safe wildlife management can be undertaken. In addition, the use of fences during restock operations should be considered where necessary to aid the establishment of new planting.

Grey squirrels are present in the forest and have the potential to cause damage to trees and displace native red squirrels. Sightings are reported to Red Squirrels Northern England (RSNE). Grey squirrel control is practised by a local RSNE group, and we will continue to provide opportunities for engagement for grey squirrel management into the future.

Larch is under threat from the disease *Phytophthora Ramorum* and following several smaller outbreaks in the preceding years Grizedale has seen a large increase in infection post-2020. These outbreaks are subject to a process of swift response work following the issuing of Statutory Plant Health Notices by the Forestry Commission, of which Grizedale forest has now issued with 11 in the previous 5 years, necessitating the removal of 316ha of larch. These notices enforce the felling of infected trees to reduce the spread of the disease within the forest and to neighbouring woodland. The majority of larch areas in Grizedale have either already been felled under these notices or have been placed into felling coupes in the next two felling periods to facilitate their felling in a structured manner. The process of felling infected trees following plant health notices has not been successful, with continued outbreaks across the valley. Subsequently we expect to see the total removal of larch as a timber tree from Grizedale.

Consequently, there will be no future restocking of larch and there will need to be ongoing vigilance from staff in thinned areas of continuous cover where larch occurs as natural regeneration. Larch is an important species in the landscape in terms of providing seasonal changes in colour and texture across the forest. As part of our strategy to deal with the impact

of the disease, Forestry England is actively seeking the use of alternative species which provide a positive outcome in terms of increasing opportunity for diversification and improved future resilience.

### Access and roading

Access to Grizedale is via minor roads from Rusland to the south, and Hawkshead from the North. At peak holiday times and weekends these routes can be congested. Timber hauliers are required to use a less direct route via Greenodd and Oxen Park to the south, or through from High Cross in the north.

Grizedale is served by an extensive internal road network which is well maintained. No significant roading requirements have been identified in this plan review. While initially constructed for timber haulage, the internal road network is now equally used for recreational uses (Map 9).

## Part 2 Review of Previous Plan

Table 2: Previous plan objectives

Objective	Comment
<p>Natural environment Continue management to protect and extend ancient semi natural oakwood by removal of conifers from ancient woodland sites particularly where they adjoin ancient semi natural woodland.</p> <p>Develop continuous cover areas on suitable sites by thinning to achieve a diverse structure, large visibly attractive conifers, and a more interesting experience for visitors.</p> <p>Produce a phased felling plan with coupes which reflect the scale and shape of landform, and which broadens the age class structure.</p> <p>Produce a restocking plan which provides for future windfirm coupe boundaries and diversity of age class and species structure.</p>	<p>Thinning operations to remove conifers from ASNW woodland have helped increased the native composition of these areas. This has been sped up through health notices requiring removal of larch species.</p> <p>Last plan expanded continuous cover areas in Grizedale. Thinning over last plan period has increased diversity in the forest. Small coupes designed to minimise landscape impact will balancing other objectives.</p> <p>Felling plan produced was phased and UKFS compliant, with felling operating well within this. Plant health felling in latter half of plan period has knocked this objective off course, with unplanned clearfells in a variety of locations around the forest, and increased volume from these operations causing previous planned operations to be delayed.</p> <p>Previous plan largely windfirm, limited damage to the wider forest during storm events, including the recent Storm Arwen, which only saw an estimated 5ha of damage in Grizedale. Restock operations were accelerated due to <i>P. Ramorum</i> infections requiring early felling of many coupes. In addition, larch restock operations were substituted with alternative conifers.</p>
<p>Quality of life Provide recreation facilities linked to the Lake District Tourism Economy</p> <p>Improve the environment around the Centre and the main accesses into the forest including the planting of new specimen trees.</p>	<p>Recreation facilities at the <b>visitor's</b> centre include the information point, gallery spaces, artisan crafts, Grizedale café and shop, Go Ape, and cycle hire facilities create an appealing attraction in the Lake District which welcomes 185,000 visitors per year.</p> <p>Select planting of individual feature trees including Alder, Walnut, Monkey Puzzle, Silver Fir and Macedonian Pine has occurred around the visitors centre and towards the forest.</p>

<p>Re-invigorate art in the forest through the appointment of an Arts Development Officer.</p> <p>Recruit volunteer Rangers to augment the Ranger team.</p>	<p>Arts manager in post.</p> <p>Successful volunteering team established who have assisted with infrastructure, arts, and forestry tasks.</p>
<p>Business and markets Provide sustainable employment and contribute to rural economy, either directly or indirectly through businesses connected with Grizedale.</p> <p>Produce a renewable resource of timber for harvesting.</p>	<p>Annual recreational site turnover of ~£2.5million and provides indirect employment of 60+ individuals through Grizedale MTB, Go Ape, Café and associated businesses.</p> <p>Grizedale Forest has produced an average annual volume of 12,128m<sup>3</sup> of timber over the last plan period.</p>

## Part 3 Analysis and Concept

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

Table 3: Analysis of opportunities and issues		
Factor	Opportunities	Issues
Management type	Expansion of Low Impact Silvicultural Systems (LISS) to include some previous clearfell coupes.  Smaller clearfell coupes in areas of high windthrow risk.	Substantial areas of Grizedale are subject to high windthrow hazard, LISS is not appropriate for these sections of the forest and instead needs to be targeted.
Biodiversity and heritage	Protection of features including veteran/feature trees, deadwood, or ground flora during operations to benefit biodiversity.  Restoration of PAWs sites, allowing for continued timber production through thinning.  Maintaining and protecting heritage features throughout the forest. Including protection during operations.	Pressure on PAWs restoration from browsing requiring continued deer management and fencing.
Access/Roading	Good internal network of roads with all current operational areas served well.	A short section of new road will be required at Moor Top to access an upcoming felling coupe.
Pests and disease	Potential for planting of new species to replace larch threatened by <i>P. Ramorum</i> .	Widespread <i>P. Ramorum</i> infection in larch crops has forced changes to the felling programme and production forecast, and has created additional pressures on the restock programme.  Deer browsing presents challenges for successful restocking and natural regeneration, requiring deer fencing to protect sensitive tree species.

		Grey squirrels threaten native red squirrels and timber quality.
Future Species	Transition away from larch species through proactive thinning regime and underplanting, or clear felling where plant health notices are issued.  Potential for more intimate mixes across greater areas of the forest, introducing conifer and broadleaf planting together to increase diversity and resilience in the forest.	Larch is not viable in the long term due to disease risk.  Mixed productive woodland requires greater emphasis on deer control for successful establishment on broadleaf and pine species.
Landscape	LISS management in more areas provide gradual change with limited landscape impact.  Planting of intimate mixes, pockets of Aspen and productive broadleaves across the forest to provide new landscape diversity.  Acquisition of neighbouring land could provide further opportunities to improve existing forest boundaries.	Clearfells associated with <i>P. Ramorum</i> health notices have potential to cause large, short term, landscape impacts.  Previous larch clearfells have already created some unplanned visual impacts,
Current species	Retention of conifer species which are generally growing well to provide a sustainable yield throughout plan period.	Presence of 75ha of remaining larch which is at risk from <i>P. Ramorum</i> will need regular monitoring.
Public access	Location within Lake District National Park and proximity to other Forestry England Sites.  Existing and popular attractions including visitors centre, Go-Ape, infrastructure including trails, paths and forest roads, and Grizedale Arts. Large building stock presents opportunities for the development of accommodation.  Lake frontage on east shore of Coniston offers recreational development potential.	Continued issues with unauthorised mountain bike trail construction in the forest.  Issues with antisocial behaviour in <b>Machell's Coppice</b> car park.



## Appraisal of Opportunities and Constraints

1. Present *Phytophthora Ramorum* infection which will require many of the larch areas to be felled under Statutory Plant Health Notices. While having a large, short-term impact, this provides opportunity to restructure the forest with alternative species over the period of the plan with the added benefits of increased diversity and the introduction of LISS management in more areas.
2. The high level of *Phytophthora Ramorum* infection in larch crops in the valley, and in the wider Lake District in general require that future restock is carefully considered, with other species such as Douglas Fir also susceptible to infection if planted closed to infected larch. Alternative conifer species such as Western Hemlock, Norway Spruce, Lodgepole and Macedonian Pine will help add diversity to the productive crops, as will productive broadleaf planting which will also help to add diversity in the landscape. The use of mixes utilised broadleaves across former larch areas will help add internal diversity while also building resilience into the forest.
3. Deer encroachment in the woodland threaten future restock and underplanting exercises. Control of the deer is an important part of future forest management and sufficient open space to allow for effective control is essential, however some sites may still need to be fenced to ensure successful restock. The desire to use natural regeneration and broadleaved species in parts of this Forest Plan requires successful deer control to succeed.

## Part 4 Objectives

The following objectives have been identified from Forestry England National Policy, 'Growing the future: 2021-2026'.

Table 4: Forestry England goals supported by this Forest Plan	
Growing the future vision	How Forest Plan delivers
<p>For Wildlife <b>'Continuing action to protect, improve and build the resilience of our most special habitats, including ancient woodlands and Sites of Special Scientific Interest.'</b></p> <p><b>'The rich, diverse and connected habitats in the nation's forests will continue to be improved and enhanced by our sustainable forest and land management.'</b></p>	<p>Phytophthora felling has resulted in many crops being felled early. Continue to retain stands of older crop where physically possible to help increase structural diversity in the forest, providing landscape and environmental benefits.</p> <p>Expansion of the LISS areas which are enhanced through thinning will increase light to the forest floor, resulting in improvements to diversity.</p> <p>Continued restoration of Ancient Woodland sites in Grizedale.</p> <p>Improved riparian zones supplemented with broadleaf planting</p> <p>Maintain habitats for species found in forest, including Red Squirrel and Red Kite.</p>
<p>For People <b>'We will increase the diversity of visitors to the nation's forests.'</b></p> <p><b>'we will provide public access to all our forests and woodlands where there are no legal or safety restrictions...'</b></p>	<p>Continue to maintain a desirable forest landscape for visitors, complementing the expectations of those visiting the forest. Continued commitment the development of a range of facilities, trails, and open access for visitors, cyclists, horse riders and walkers. Increased landscape diversity through new species planting will improve the visual appeal of the forest for visitors.</p> <p>Historic features will be routinely identified and protected during our planning and implementation of forest operations.</p>
<p>For Climate <b>'We will offer over one million cubic metres of sustainable timber to market each year, maintain world-class forest management practices, externally accredited to international standards.'</b></p> <p><b>'greater structural and tree species diversity in the nation's forests to support adaptation to climate change and securing a sustainable timber supply for future generations.'</b></p>	<p>While production has been skewed in recent years by large plant health derived larch clearfells, this Forest Plan sets the course to stable production over the next ten years, providing a sustainable yield of timber. To facilitate this clearfell sites of productive conifer are to be restocked with similar species mixes where appropriate.</p> <p>The scale and diversity of the forest continues to support and provide opportunity to increase recreational turnover and employment.</p>

## Part 5 Monitoring Plan

The objectives identified in section 4 will be monitored in the following ways:

Table 5: Monitoring plan		
Objective	Criteria for success	Assessment
For Climate Wood production	Delivery of Forest Plan felling/thinning proposals to offer to the market. Maintain timber harvesting access and infrastructure.	Contract and sales records
Sustainable economic regeneration	Successful restock sites and underplanting operations with minimised pest damage, successful natural regeneration where appropriate to utilise natural processes.	Five year Forest Plan review
Retain older stands where possible under LISS management to increase diversity	Greater areas of LISS management and increased age distribution in the forest.	Five year Forest Plan review
For wildlife		
PAWs/ASNW	Enhance ASNW condition. Improved semi-natural woodland scores, increased areas in SN1 & SN2.	Five year Forest Plan review
Red squirrel	Maintain suitable habitat for red squirrel, coupe checks prior to operations, support grey squirrel control.	Operational constraints, five year Forest Plan review
Red kite	Continue monitoring scheme	Red kite records
Water quality	Improved riparian zones through broadleaf planting	Five year Forest Plan review
For People Visual enhancement to visitors.	Expansion of the LISS areas to increase diversity, diversity in planting to replace lost larch areas, successful restock and beat ups and reduce impact of clearfells. Change in accordance with LCA guidelines for managing landscape change. Targeted tree selection around Carron Crag summit to preserve the view outward from the summit.	Five year Forest Plan review
Access, communities, health and well-being.	Continue to promote opportunities for the understanding and enjoyment of the special qualities of the forest within the Lake District National Park	Five year Forest Plan review

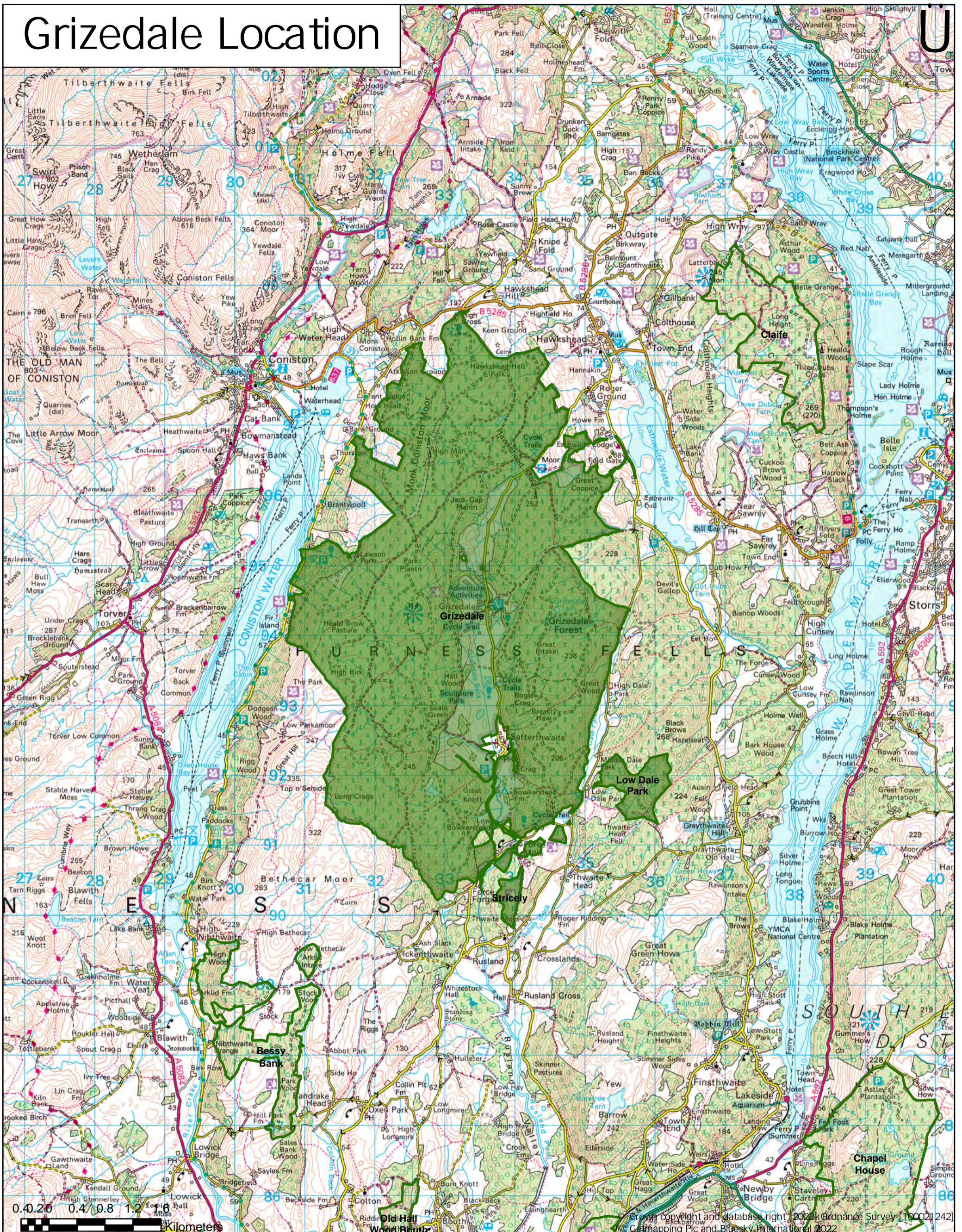
Condition of historic features	Protect and enhance heritage features.	Operational constraints and five year review
Replacement of larch with alternative species to regain lost diversity in landscape	Successful restock sites with alternative conifer species in previous larch areas, including targeted small enclosures of Aspen and other broadleaves to add colour back to the forest and fill the gaps left by larch.	OGB4 Surveys, five year Forest Plan review

## Part 6 Forest Plan Maps for Grizedale

- [Map 1 Location](#) - 1:50,000 scale showing location in context of other woodland in the local area.
- [Map 2 Current Species](#) - species composition in 2023.
- [Map 3 Yield Class](#) - representing the productivity of the current species.
- [Map 4 Wind Hazard Class](#) - indicating the windiness of the sites.
- [Map 5 Planting Year](#) - representing the age class distribution of the woodlands.
- [Map 6 Natural & Historic Environment](#) - statutory and non-statutory conservation and heritage features.
- [Map 7 Semi-Natural Scores](#) - areas of Ancient Woodland and Semi-Natural scores for the forest.
- [Map 8 Hazards and Constraints](#) - operational hazards and constraints.
- [Map 9 Access and Recreation](#) - formal public rights of way, Forestry England access and local services.
- [Map 10 Design Concept](#) - broad management prescriptions and zoning of the woodlands.
- [Map 11 Operations Proposals](#) - showing felling proposals and areas managed under Low Impact Silvicultural Systems or Continuous Cover Forestry.
- [Map 12 Future Species](#) - representing the 20-year vision for future species composition.

The maps contained in this plan are scaled at A3 size. Accuracy may vary depending on printer used.

# Grizedale Location



Grizedale Location  
 Current Time: 28/10/2022 13:46  
 User: andrew.wright  
 Scale: 1:50,000  
 Scale at A3

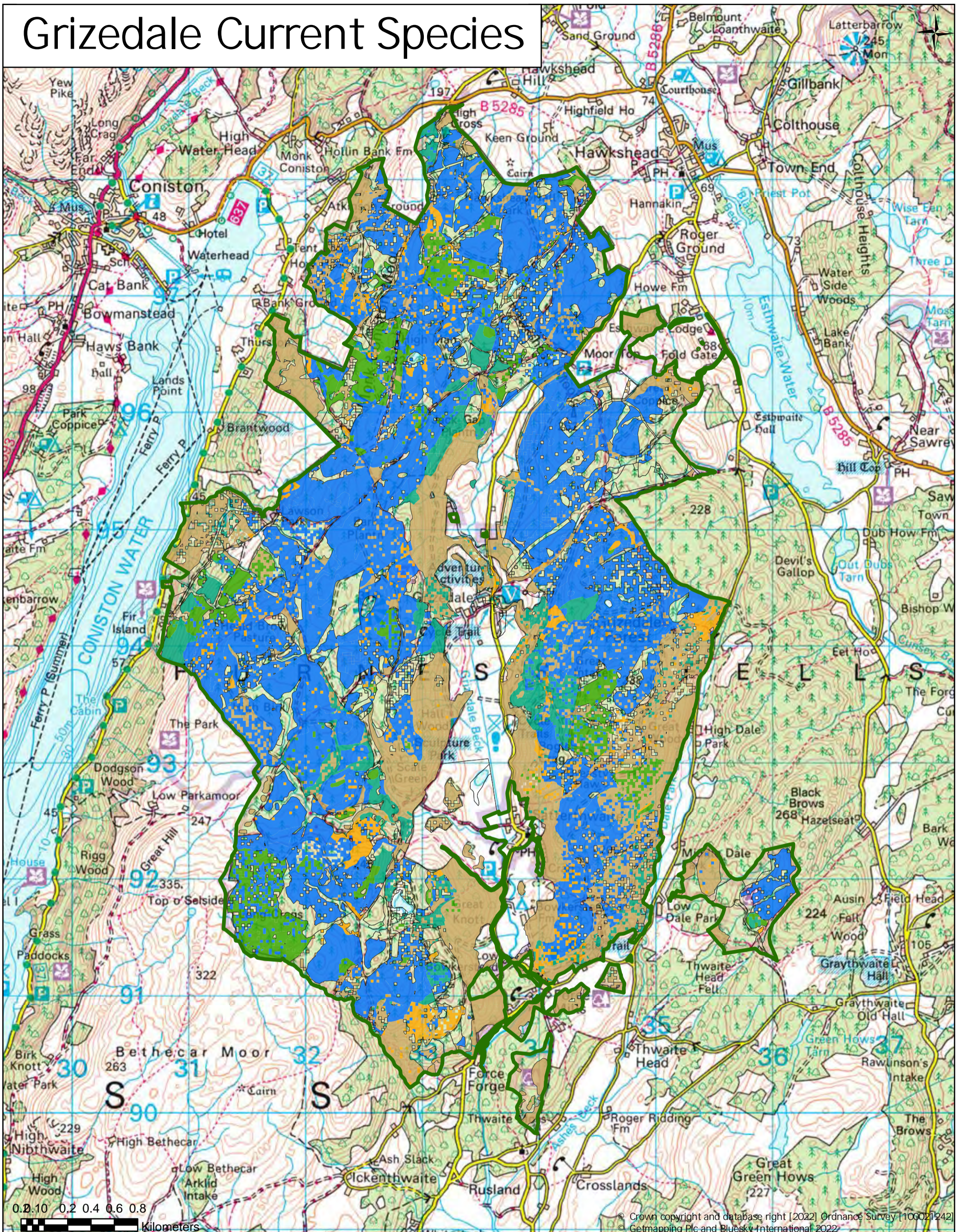
- Grizedale, Stricely & Low Dale Park
- Other Forestry England Woodland



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 Standard (UKWAS)



# Grizedale Current Species

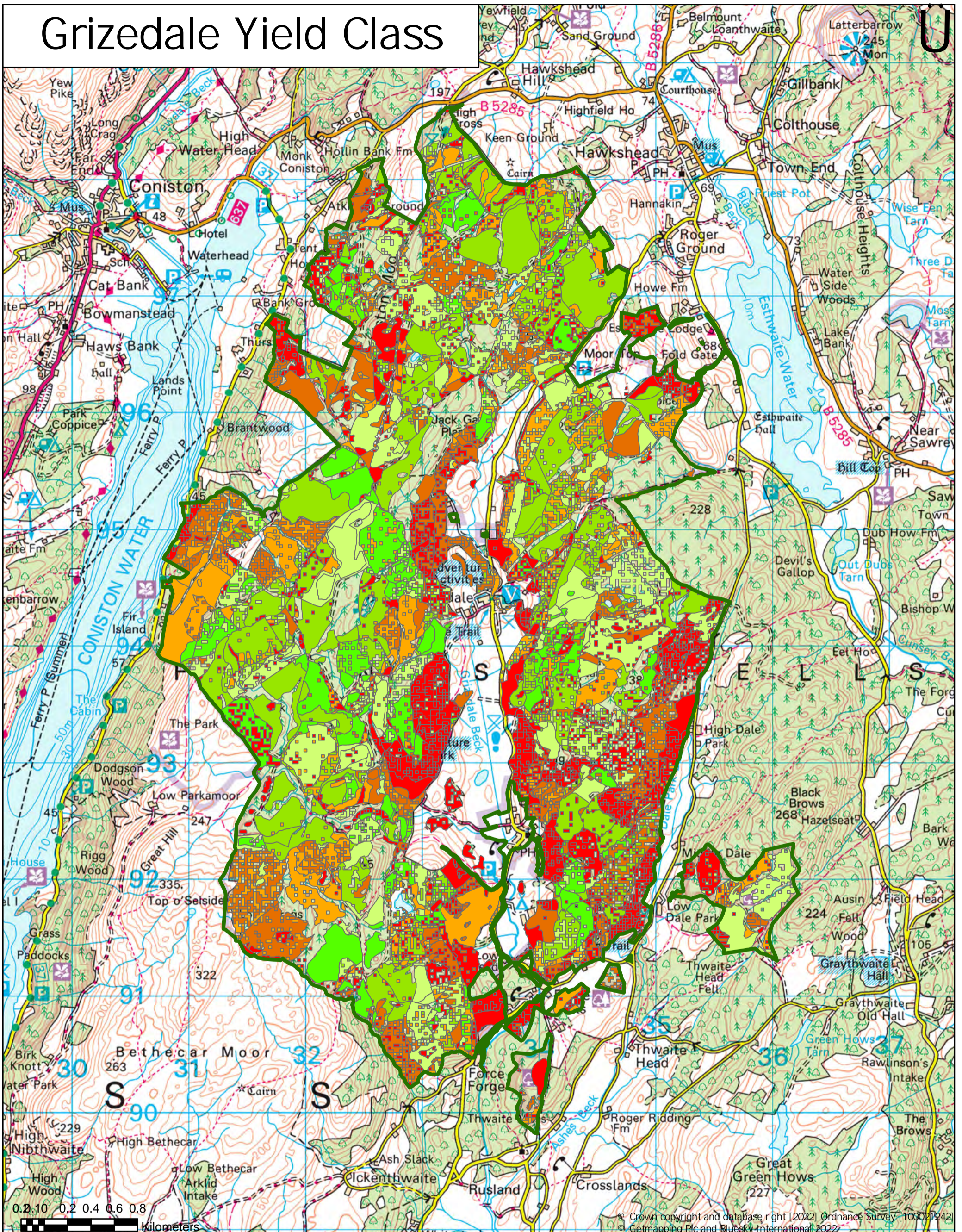


0.0 0.10 0.2 0.4 0.6 0.8  
Kilometers

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<p>Grizedale Current Species Current Time: 06/01/2023 08: 41 User: andrew.wright Scale: 1: 30,000 Scale at A3</p>	Grizedale, Stricely & Low Dale Park	Pines
	<p><b>Current Species</b></p> Larches Mixed Broadleaves Open	Sitka Spruce Other Spruces Other Conifers
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# Grizedale Yield Class



0.2 0.4 0.6 0.8 Kilometers

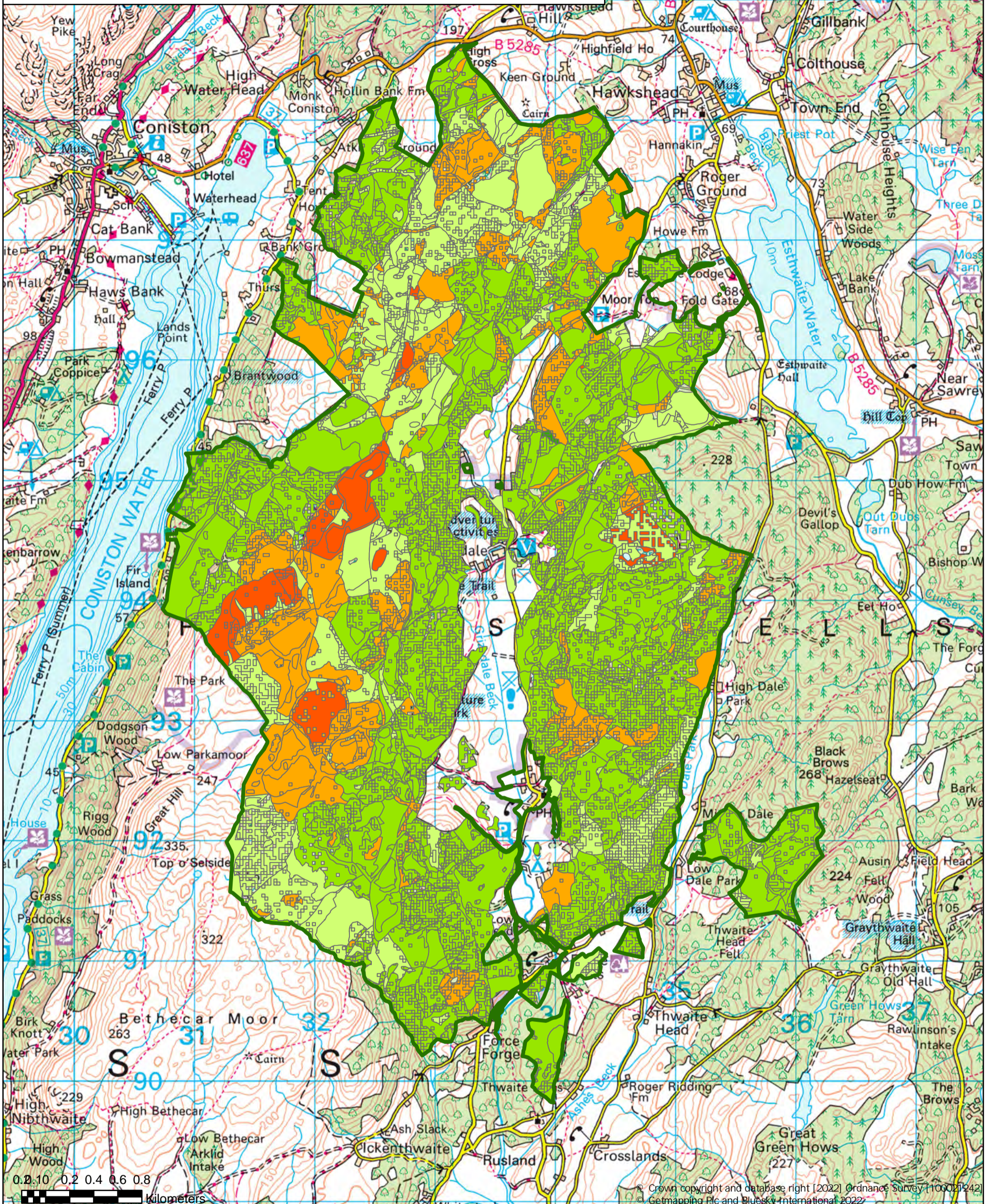
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<p>Grizedale Yield Class Current Time: 28/10/2022 13:52 User: andrew.wright Scale: 1:30,000 Scale at A3</p>	Grizedale, Stricely & Low Dale Park	10-12
	<p><b>Yield Class</b></p> 0-4 6-8	14-16 18-22 24+

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Promoting Sustainable Forest Management

# Grizedale Wind Hazard Class



Grizedale Wind Hazard Class  
 Current Time: 28/10/2022 13:54  
 User: andrew.wright  
 Scale: 1:30,000  
 Scale at A3

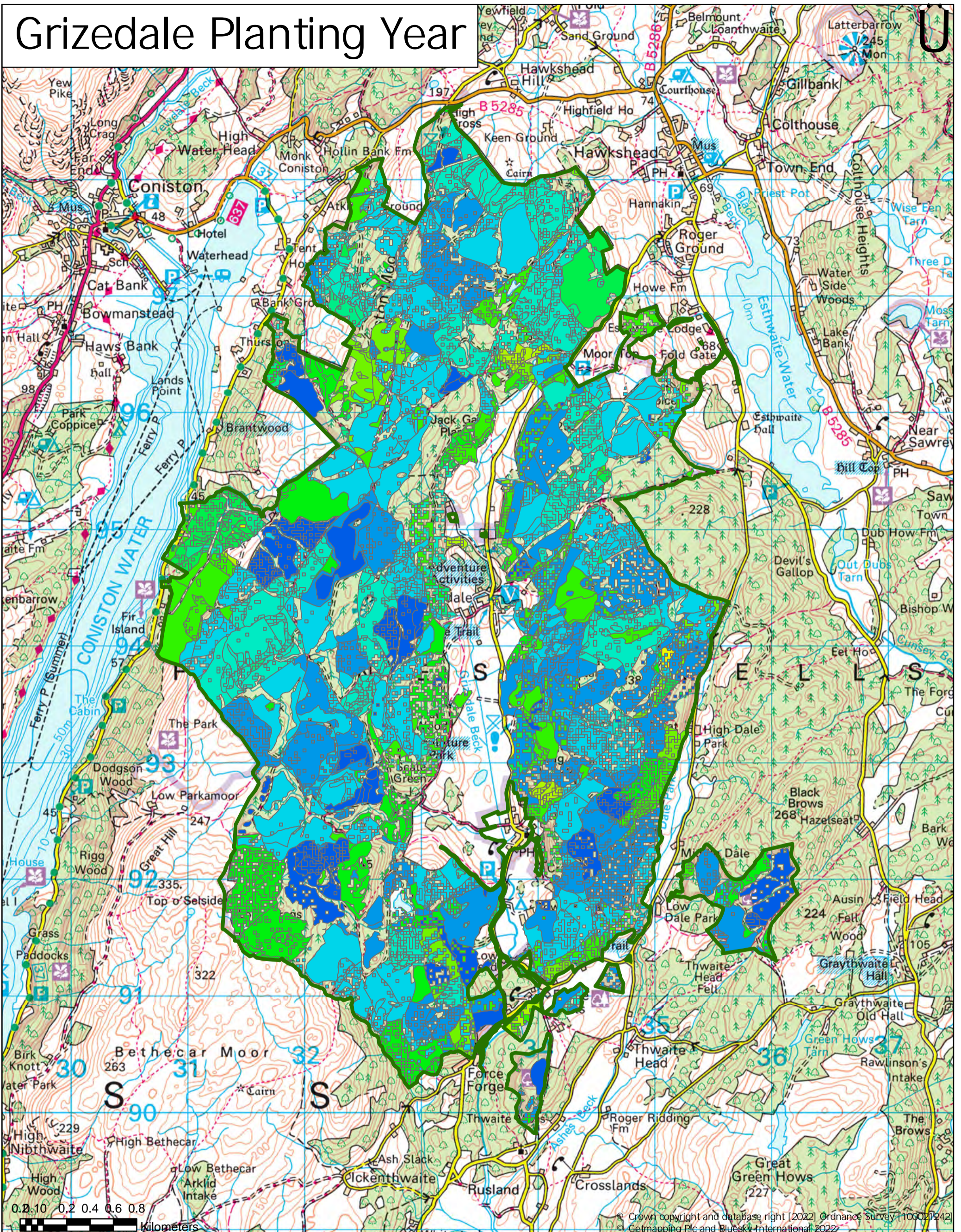
Grizedale, Stricely & Low Dale Park	3
<b>Wind Hazard Class</b>	4
1	5
2	6



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# Grizedale Planting Year



Grizedale Planting Year  
 Current Time: 28/10/2022 13:56  
 User: andrew.wright  
 Scale: 1:30,000  
 Scale at A3

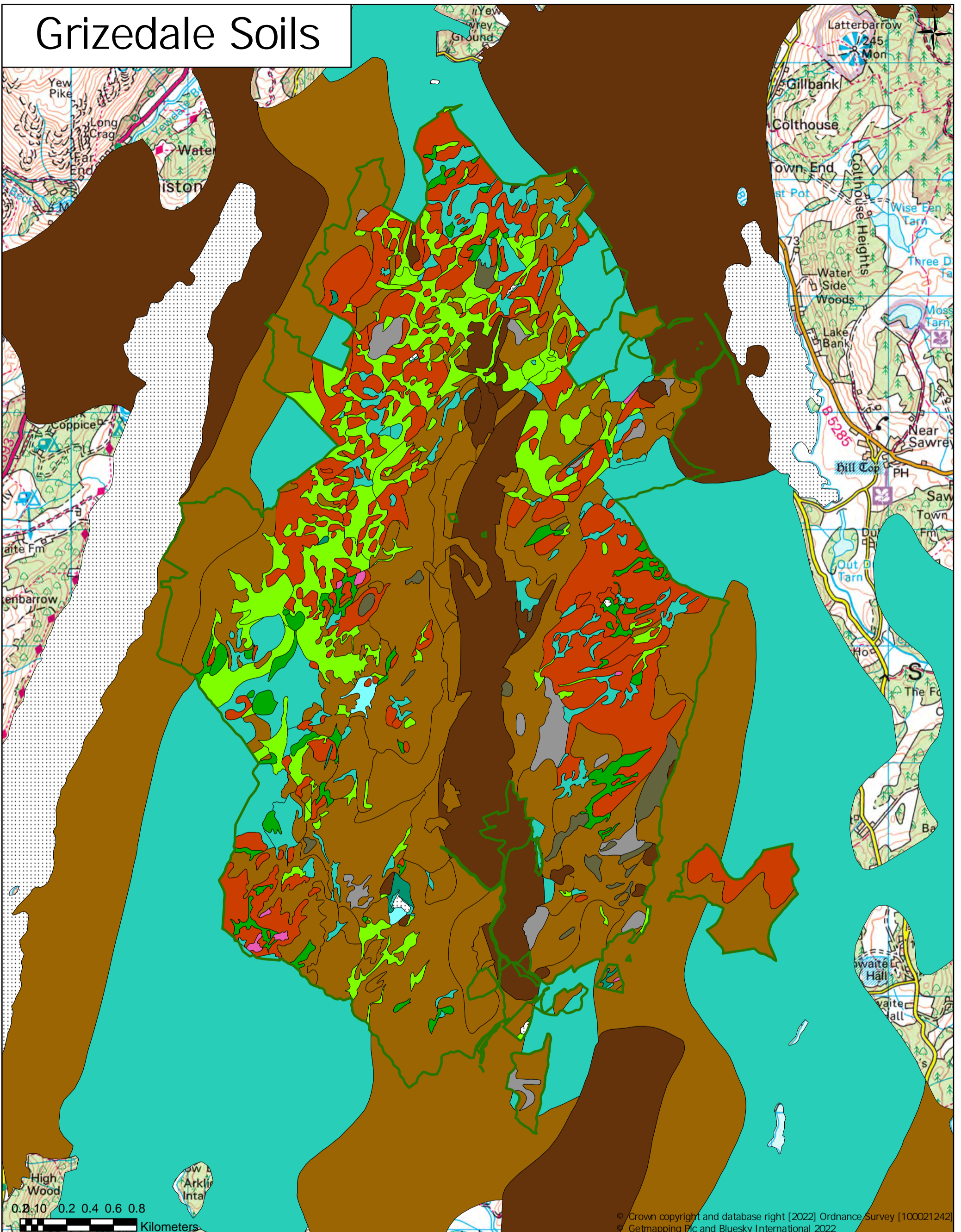
Grizedale, Stricely & Low Dale Park	
	Grizedale, Stricely & Low Dale Park
Planting Year	
	Pre 1700
	1701-1800
	1801-1850
	1851-1900
	1901-1920
	1921-1930
	1931-1940
	1941-1950
	1951-1960
	1961-1970
	1971-1980
	1981-1990
	1991-2000
	2001-2010
	2011-2020



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# Grizedale Soils

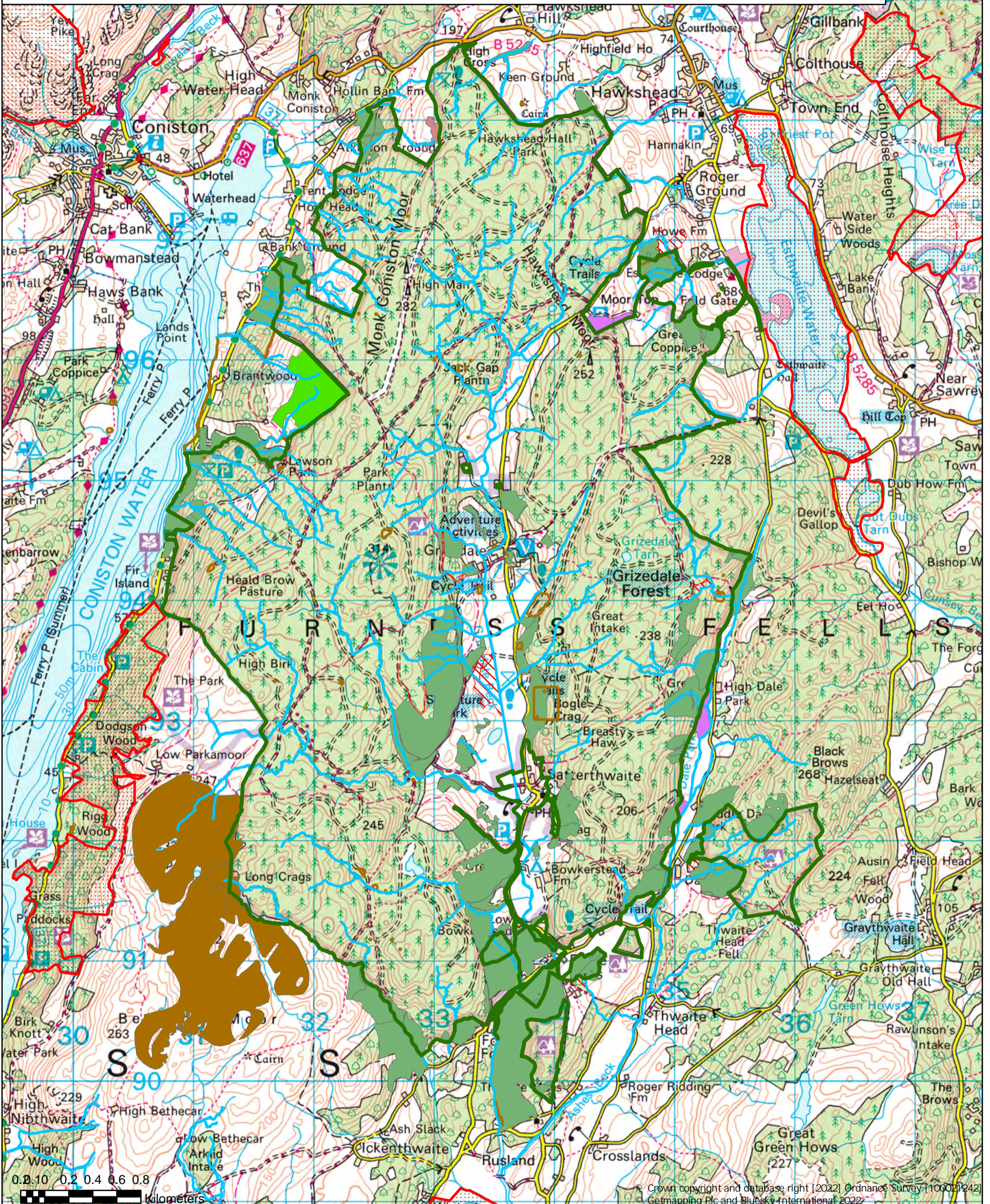


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<p>Grizedale Soils                  Current Time: 28/02/2023 15:18                  User: andrew.wright                  Scale: 1:30,000                  Scale at A3</p>	<p><b>Soil Type</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #8B4513; border: 1px solid black; margin-right: 5px;"></span> 1 [Typical brown earth]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #A0522D; border: 1px solid black; margin-right: 5px;"></span> 1u [Upland brown earth]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #C85134; border: 1px solid black; margin-right: 5px;"></span> 4 [Typical ironpan]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #D2691E; border: 1px solid black; margin-right: 5px;"></span> 4b [Intergrade ironpan]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> 5 [Typical ground-water gley]</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> 6 [Typical peaty surface-water gley]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADFF2F; border: 1px solid black; margin-right: 5px;"></span> 7 [Typical surface-water gley]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #008080; border: 1px solid black; margin-right: 5px;"></span> 8c [Juncus effusus bog]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #32CD32; border: 1px solid black; margin-right: 5px;"></span> 9a [Molinia, Myrica, Salix bog]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></span> 9b [Tussocky Molinia, Calluna bog]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></span> 9c [Tussocky Molinia, Erioph. vag. bog]</li> </ul>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #008000; border: 1px solid black; margin-right: 5px;"></span> 9d [Non-tussocky Molinia, Erioph. vag., Trichoph. bog]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FF69B4; border: 1px solid black; margin-right: 5px;"></span> 10b [Upland Sphagnum bog]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #A9A9A9; border: 1px solid black; margin-right: 5px;"></span> 13b [Brown ranker]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #A9A9A9; border: 1px solid black; margin-right: 5px;"></span> 13g [Gley ranker]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #654321; border: 1px solid black; margin-right: 5px;"></span> 13r [Rock]</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #d3d3d3; border: 1px dotted black; margin-right: 5px;"></span> &lt;all other values&gt;</li> </ul>	<p>Forestry England forests and woodlands have been certified in accordance with the UK Woodland Assurance Standard (UKWAS)</p> <p>Promoting Sustainable Forest Management</p>
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# Grizedale Natural & Historic Environment



Grizedale Natural/Historic Environment  
 Current Time: 28/10/2022 14:03  
 User: andrew.wright  
 Scale: 1:30,000  
 Scale at A3

- Grizedale, Stricely & Low Dale Park
- Watercourses
- Sites of Special Scientific Interest
- Special Areas of Conservation
- Heritage Feature
- Deciduous woodland
- Good quality semi-improved grassland
- Grass moorland
- Lowland fens
- No main habitat but additional habitats present
- Traditional orchard
- Upland hay meadow
- Upland heathland

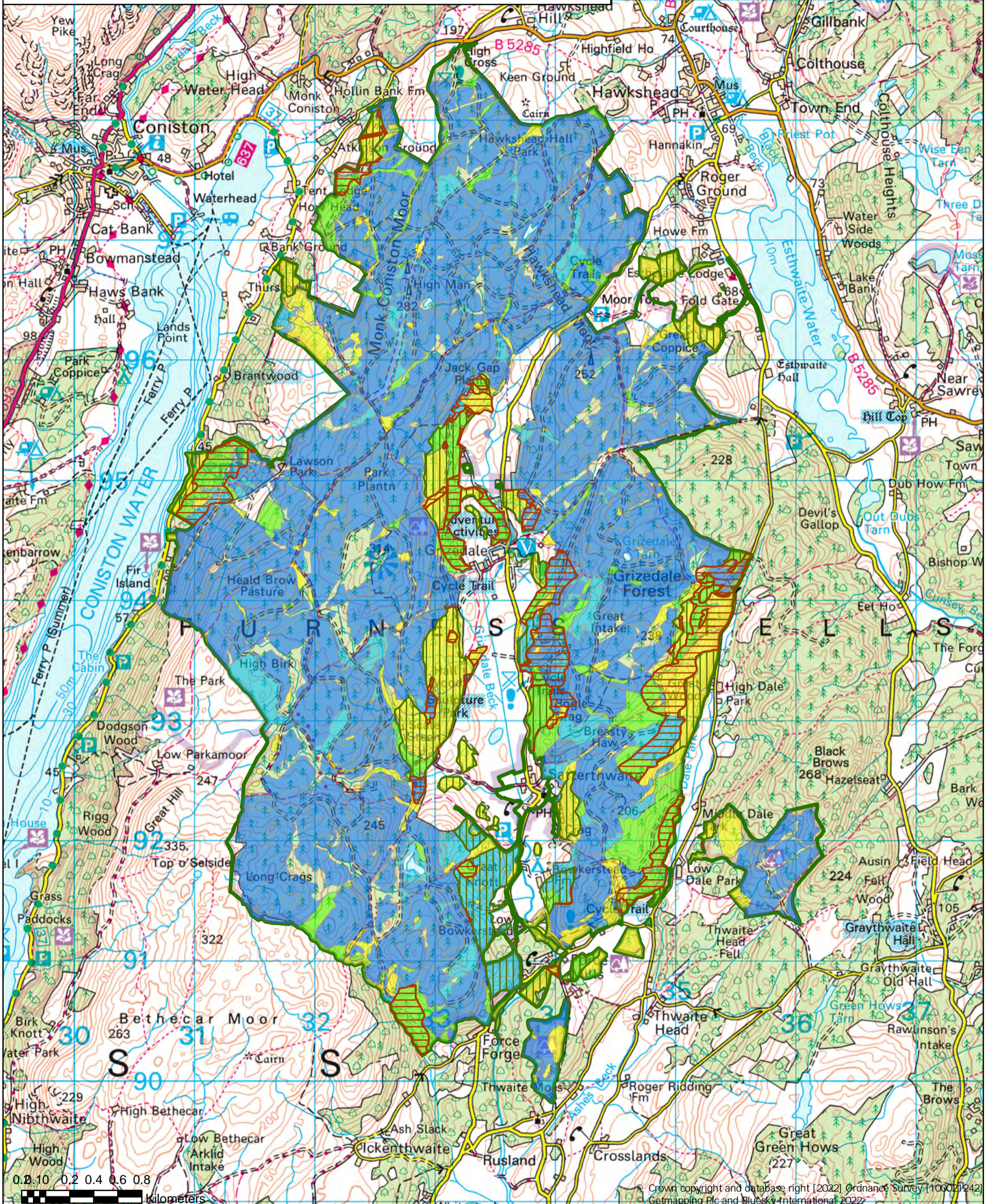


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


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# Grizedale Ancient Woodland



 Forestry England  
 Grizedale Ancient Woodland  
 Current Time: 28/10/2022 14:06  
 User: andrew.wright  
 Scale: 1:30,000  
 Scale at A3















-  Grizedale, Stricely & Low Dale Park
  -  Ancient & Semi-Natural Woodland
  -  Ancient Replanted Woodland
- Semi-Natural Score
-  1
  -  2
  -  3
  -  4



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# Grizedale Hazards & Constraints



 <p>Grizedale Hazards &amp; Constraints          Current Time: 28/10/2022 14:09          User: andrew.wright          Scale: 1:30,000          Scale at A3</p>	<ul style="list-style-type: none"> <li> Grizedale, Stricly &amp; Low Dale Park</li> <li> Water Supply Points</li> <li> Masts/Aerials</li> <li> Third Party Access</li> <li> Overhead powerline</li> <li> Underground powerline</li> </ul>	<ul style="list-style-type: none"> <li> Overhead telephone or fibreoptic</li> <li> Water Pipelines</li> <li> A Road</li> <li> Minor Road</li> <li> Forest Road</li> <li> Watercourses</li> </ul>	 <p>Forestry England          forests and woodlands          have been certified in          accordance with the UK          Woodland Assurance          Standard (UKWAS)</p>  <p>Promoting Sustainable          Forest Management  <a href="http://www.pefc.org">www.pefc.org</a></p>
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# Grizedale Access & Recreation



Grizedale Access & Recreation  
 Current Time: 28/10/2022 14:13  
 User: andrew.wright  
 Scale: 1:30,000  
 Scale at A3

- ▬ Grizedale, Stricely & Low Dale Park
- Go Ape
- Zip Trekking
- Car Park
- Art Features
- Public Right of Way
- Trails
- Cycling Trails
- Forest Road



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# Grizedale Design Concept

## Core Production Zone

While all the forest is managed for sustainable timber production, this zone will be the focus of the highest yields. Spruce species make up most of these areas, and a combination of soils, climate and topography make these sites best suited for production. Future management will continue to involve regular clearfell operations, scheduled in such a way to minimise impacts to recreational visitors.

## Western Fringes Zone

These areas have seen large scale felling in recent years to remove phytophthora ramorum infected larch trees. The loss of colour from here is to be supplemented with new planting of broadleaf species, aiming to restore the important element of colour which the larch used to provide on these slopes overlooking Coniston Water.

## Southern Zone

Satterthwaite moor is currently home to a substantial area of attractive mature Scots Pine, interspersed with spruce. As the spruce is felled, the mature Scots Pine will be retained for long term retention. The wider area on Satterthwaite Moor will be supplemented with additional Scots Pine and broadleaf planting, helping to expand this attractive landscape and habitat, linking with the existing mature broadleaf in the south of the forest. Small coupes of spruce will continue to be established here, making the most of a highly productive area.

## Eastern Zone

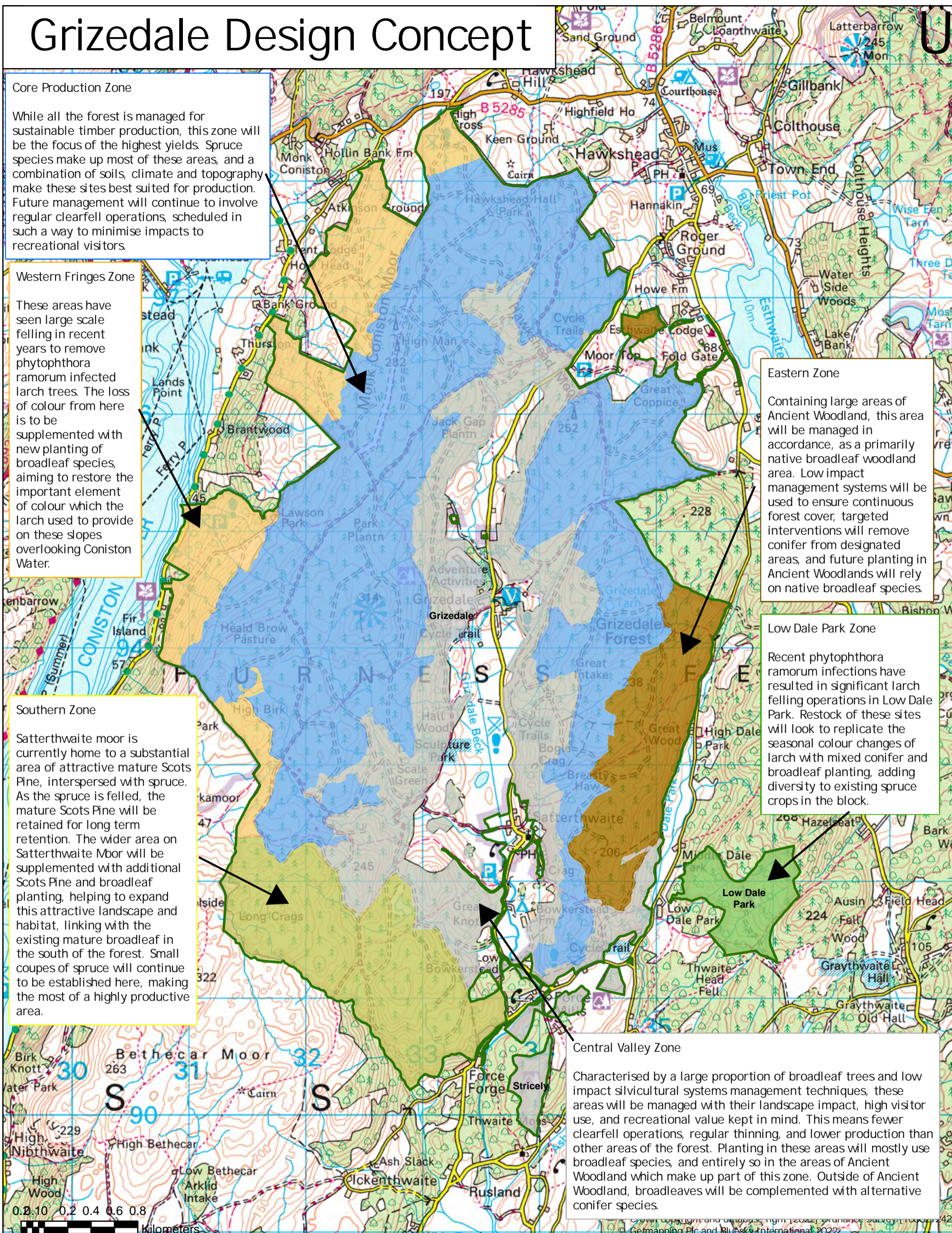
Containing large areas of Ancient Woodland, this area will be managed in accordance, as a primarily native broadleaf woodland area. Low impact management systems will be used to ensure continuous forest cover, targeted interventions will remove conifer from designated areas, and future planting in Ancient Woodlands will rely on native broadleaf species.

## Low Dale Park Zone

Recent phytophthora ramorum infections have resulted in significant larch felling operations in Low Dale Park. Restock of these sites will look to replicate the seasonal colour changes of larch with mixed conifer and broadleaf planting, adding diversity to existing spruce crops in the block.

## Central Valley Zone

Characterised by a large proportion of broadleaf trees and low impact silvicultural systems management techniques, these areas will be managed with their landscape impact, high visitor use, and recreational value kept in mind. This means fewer clearfell operations, regular thinning, and lower production than other areas of the forest. Planting in these areas will mostly use broadleaf species, and entirely so in the areas of Ancient Woodland which make up part of this zone. Outside of Ancient Woodland, broadleaves will be complemented with alternative conifer species.



Grizedale Design Concept  
 Current Time: 28/10/2022 14: 45  
 User: andrew.wright  
 Scale: 1: 30,000  
 Scale at A3

- Grizedale, Stricely & Low Dale Park
- Central Valley Zone
- Eastern Zone
- Low Dale Zone
- Productive Zone
- Southern Zone
- Western Zone

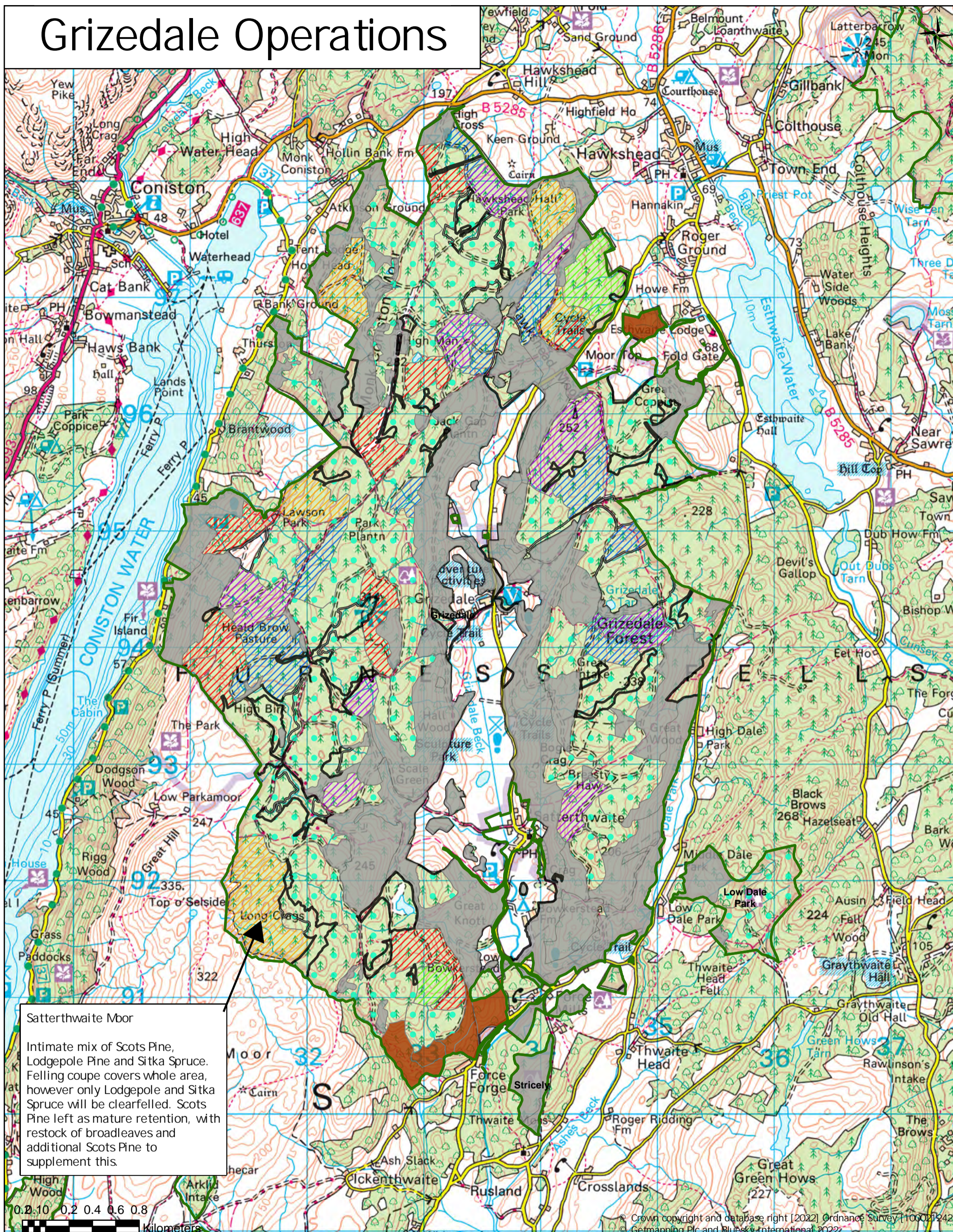


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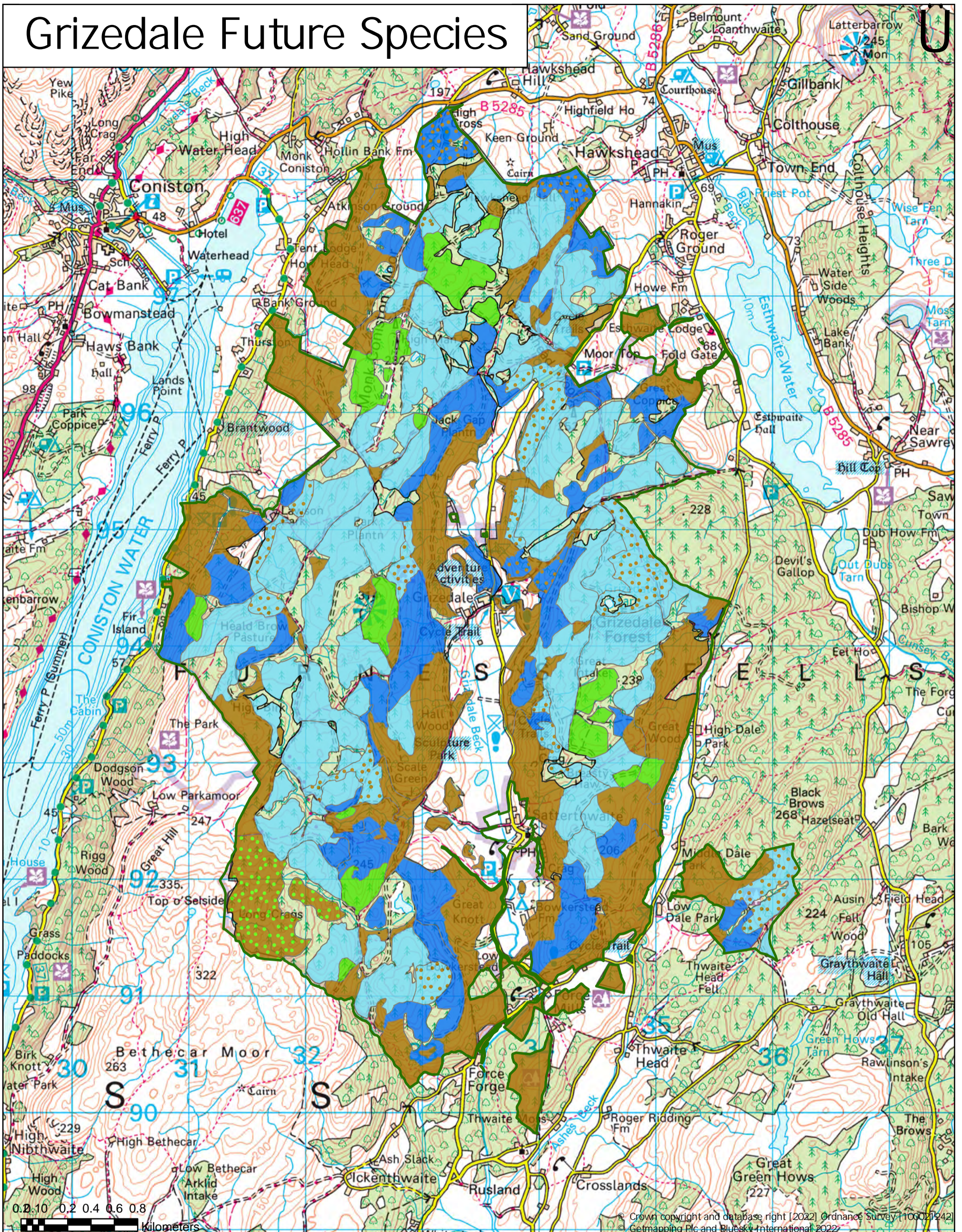
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# Grizedale Operations



<p>Grizedale Operations                  Current Time: 28/02/2023 13:56                  User: andrew.wright                  Scale: 1:30,000                  Scale at A3</p>	Grizedale, Stricely & Low Dale Park 2023-2026 2027-2031 2032-2036 2037-2041	2042-2046 2046+ LISS Minimum Intervention Open	Forestry England forests and woodlands have been certified in accordance with the UK Woodland Assurance Standard (UKWAS) PEFC Promoting Sustainable Forest Management
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# Grizedale Future Species



0.2 0.4 0.6 0.8 Kilometers

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<p>Grizedale Future Species Current Time: 28/10/2022 14:20 User: andrew.wright Scale: 1:30,000 Scale at A3</p>	Grizedale, Stricely & Low Dale Park	Other Conifers/MB
	Open	Pine
	Mixed Broadleaves	Sitka Spruce
	Mixed Broadleaves/Scots Pine	Sitka Spruce/MB
	Other Conifers	

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## Part 7 Forest Plan Outcomes

### Restructuring

Grizedale is already undergoing significant species change with many unplanned clearfells to remove larch which has been infected by *Phytophthora Ramorum* already underway or complete. The impact of this felling has been significant with many areas felled considerably earlier than planned. While unavoidable and necessary for plant health, it cannot be denied that this felling creates a negative effect on the diversity, structure, and appearance of the forest. The opportunity to create new mixed stands of alternative conifer and broadleaf species will improve the forest in the period of this plan. This plan and the restocking enabled by *Phytophthora Ramorum* response creates the opportunities to increase the areas managed under Low Impact Silvicultural Systems to the long-term benefit of the forest, through increased age, species, and structural diversity.

Controlling deer populations is a critical aim to support the restructuring of the forest and secure the future of restock sites with alternative species, and this plan aims to make this control easier through the allocation of open space within the forest for deer management, which additionally enhances the environments and habitats found in Grizedale.

### Timber production

The harvesting of timber remains a key element to the management of Grizedale as a productive forest. In the immediate term the felling of larch crops composes most of the timber harvested at Grizedale, and in the longer term the continued thinning and clearfells will provide a sustainable yield of timber into the future. We are forecast to harvest a volume of approximately 16,000m<sup>3</sup> over the 10-year period of this forest design plan. This is a significant reduction in volume when compared to recent years and is intended to allow the forest time to recover following extensive premature felling of larch crops. Production is then forecast to increase in the following periods to 31,000m<sup>3</sup> per decade. The restock proposals in this plan are estimated to produce approximately 5,695m<sup>3</sup> of timber per year, meaning the harvesting proposals presented in this Forest Plan represent a sustainable yield.

### Natural capital

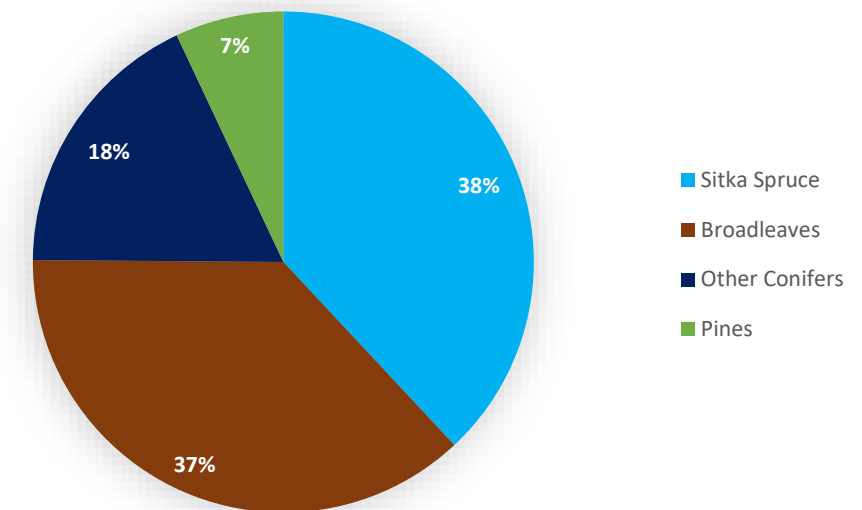
Timber represents only one of the products of a successfully managed forest. Natural Capital refers to the stock of all natural assets upon which the economy and society is built. **Natural capital produces value for people in the form of ‘goods’ such as timber or minerals and ‘services’ such as climate 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). The Grizedale 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.

### Future species

The future species indicated below represents how the composition could be in 20 years’ time based on the restock proposals contained in this plan.

**Figure 3. Grizedale Forest Future Species**



### UKWAS compliance table

Table 6: UKWAS Figures				
	Forest Plan Area (ha)	Forest Plan Percentage	Forest District Area (ha)	Forest District Percentage
Total area	2524	100%	85888	100%
Total wooded area	1941	76.91%	58069	67.61%
Area of conservation value*	832	32.96%	11322	13.18%
Long-term Retentions and Low Impact Silvicultural Systems	792	31.38%	10449	12.17%
Open space	583	23.09%	27819	32.39%
Natural Reserves	40	1.56%	873	1.02%

\*Area of conservation value is the sum of designated areas including Ancient Woodland, Long-Term Retentions, Low Impact Silvicultural Systems, and areas of Natural Reserve.



## 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 Grizedale Forest Plan is able to demonstrate that relevant aspects of sustainable forest management have been considered and the stated objectives in Part 3 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	Productive potential is optimised through the delivery of the clearfell and thinning programme, ecosystem services and other non-market benefits included in biodiversity, climate change mitigation, water, people, and landscape.
Structure	Long term future species composition: 37% broadleaf species and a 23% open ground meets UKWAS and UKFS requirements. Long term structure will improve through expansion and linking of permanent broadleaved and open habitats.
Silvicultural	Low Impact Silvicultural Systems (LISS) principles will be adopted with long term retention (LTR) of areas of broadleaved woodland as these develop. This will improve species and age class diversity over time.
Biodiversity	Ecological connectivity achieved by extending and linking areas of native broadleaved woodland and open space will be enhanced ensuring that the area is managed with conservation and biodiversity as a major objective.
Climate change	Increase of LISS areas will minimise soil disturbance. Natural regeneration where possible and species diversification will benefit forest resilience.
Landscape	The planning process refers to the Local Landscape Character Assessment to inform the appropriate woodland management and design.
Historic	Historic features are recognised, and their safeguard will be 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 area.

Water

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

## Longer term management proposals

The proposals in this plan continue to build on the success of previous plans to support the management of Grizedale. This plan seeks to build a more diverse, resilient forest through the introduction of additional species and a range of management types. Future management decisions will continue to evaluate the opportunity for increasing areas of LISS as crops age into the future, while continuing to provide timber to markets in the region.

Public access and recreational use, centred around the **visitor's** centre and its extensive facilities will remain a major objective for Grizedale. Visitor numbers to the Lake District National Park have increased over the last decade, and trends suggest this growth will continue. The upcoming Grizedale Visitors Centre Masterplan will outline how Forestry England will respond to these changes.