

Application for Forest Design Plan Approval

Forest District:	West England
Woodland or property name:	Rowberrow Warren
Nearest town, village or locality:	Churchill / Shipham / Cheddar
OS Grid reference:	Rowberrow Warren SO 460 580
Local Authority District/Unitary Authority:	Somerset County Council Sedgemoor District Council

Plan Area:	Rowberrow Warren: 220 Ha Containing: - SAM area of 0.65 Ha
Conifer Felling:	13.2 Ha
Broadleaved Felling:	5.5 Ha

1. I apply for Forest Plan approval for the property described above and in the enclosed Forest Plan.
2. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders that the FC agreed must be included. Where it has not been possible to resolve specific issues associated with the plan to the satisfaction of consultees, this is highlighted in the Consultation Record.
3. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
4. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed.....
Deputy Surveyor

Date.....

Signed.....
Regional Director

Date of approval.....

Date approval ends.....



Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.





WEST ENGLAND FOREST DISTRICT

**PROTECTING AND EXPANDING
ENGLANDS FORESTS AND WOODLANDS
AND INCREASING THEIR VALUE TO SOCIETY
AND THE ENVIRONMENT.**

FOREST PLAN

Rowberrow Warren

Bristol Beat
Plan period 2014-2024



Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.



FCE File Ref: OP10/52 (old 83)

FS File Ref: GL/1/5/2.66

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A pictorial vision for the future of Rowberrow Warren

From this...



Little diversity...

To this...



To a rich mix of structure and diversity

And from this....



Pure mature conifer with little diversity...

To...



Left fallow 4-5 years following felling...

This.



To a diverse range of conifer with much better integrated open habitat.

Introduction

▲ Viewpoint 1 ▲ Viewpoint 2



Rowberrow Warren is a leased wood and lies in the West of the Mendip Hills in a designated Area of Outstanding Natural Beauty. Rowberrow is a little over 2 miles north of Cheddar and 6 1/2 miles as the crow flies south-east from J21 of the M5 for Weston-Super-Mare.

Rowberrow is not an ancient woodland site and comprises of 220Ha of mixed woodland, originally planted in the 1940s-50s on previously bare ground. The site enjoys freely draining mineral soil averaging 800mm of rainfall per year. Parts of the wood are elevated and exposed with the highest point being 290m giving rise to its prominent and highly visible position within the landscape and as a result, the wood has a high wind blow risk on the higher slopes with poor form resulting from the wind especially in Beech stands, where squirrel damage is also apparent.

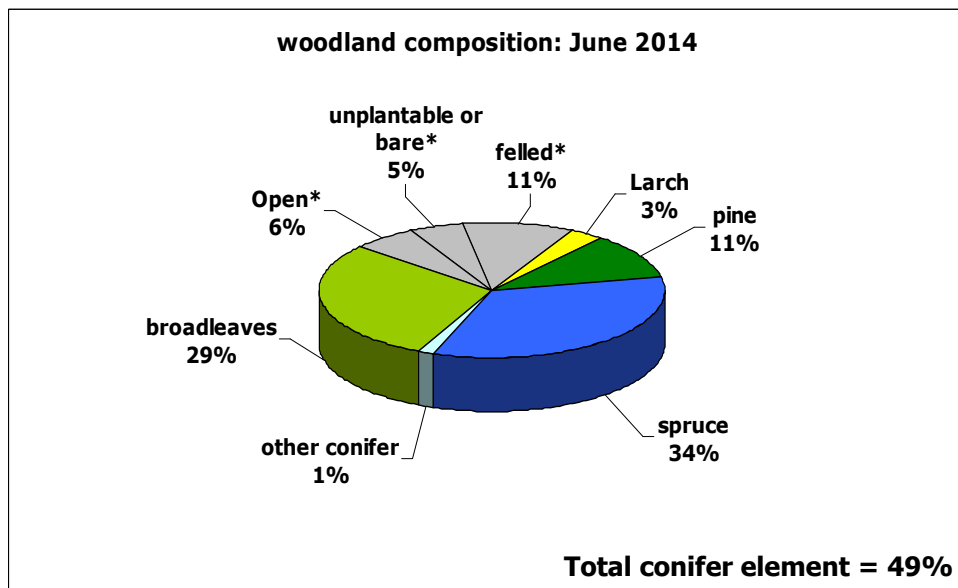
The 2003-2013 plan period saw the process of restructuring Rowberrow begin to transform the wood from one that used to be very dense with very little open space to one with a much higher proportion of well integrated open space that has bought in a higher degree of ecological benefit for species such as the Long-eared owl and ground nesting birds such as Nightjar, as well as butterflies moths and reptiles; whilst maintaining a healthy level of timber productivity.

Plan Summary

The main threads for the 2014-2024 plan are to:

- Conclude reordering broadleaves and conifers to better suited sites through continued sustainable timber production - process begun in the 2003-2013 plan.
- Improve the quality, quantity & sustainability of integrated open space, especially along ride edges.
- Begin improving future resilience and diversity by starting to plant a wider variety of tree species.

Woodland Structure



Previous structure

In the 1990s Rowberrow had very little open space being fairly typical of any conifer plantation planted in the 40s in this respect. By 2003 the woodland was comprised predominantly of Spruce, Pine and Larch species totalling just over 70% with the broadleaf component accounting for only 24% consisting mainly of Beech and Ash. Open space was scarce and sat at only 7%.

The 2003-2013 plan identified the need to maintain a higher degree of open space in order to:

1. Compliment surrounding designated sites.
2. Be of benefit to important local priority species.
3. Improve landscape integrity.

This was achieved through clearfelling conifer and delaying restocking for 4 years. This has led to a 4% increase in open space; an increase that jumps to 15% if one includes felled areas awaiting restock.

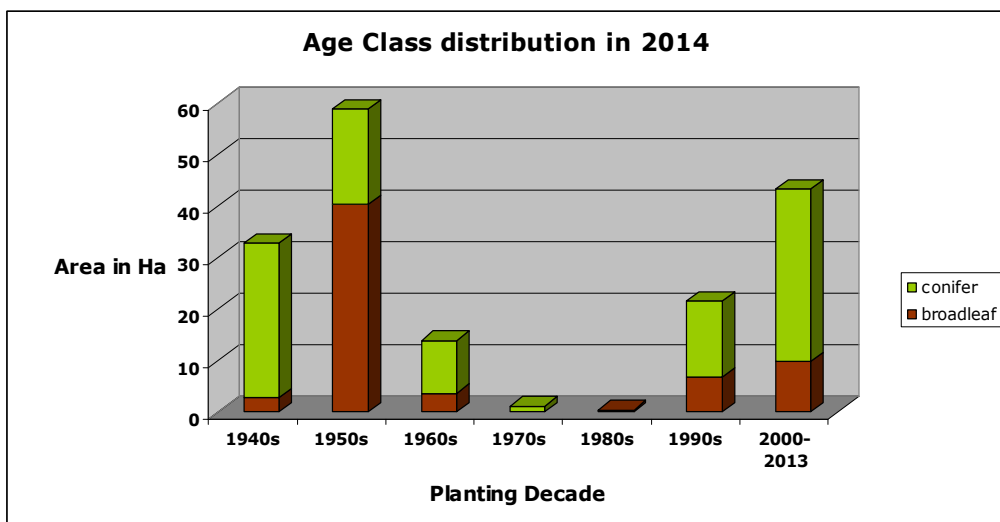
Future structure

Future continuity for the provision of available open space habitat to sustain objectives 1 and 2 (above) through felling is declining rapidly as the area of mature conifer available for felling is now reaching a finite point. The 2014-2024 plan looks to stabilise this situation by:

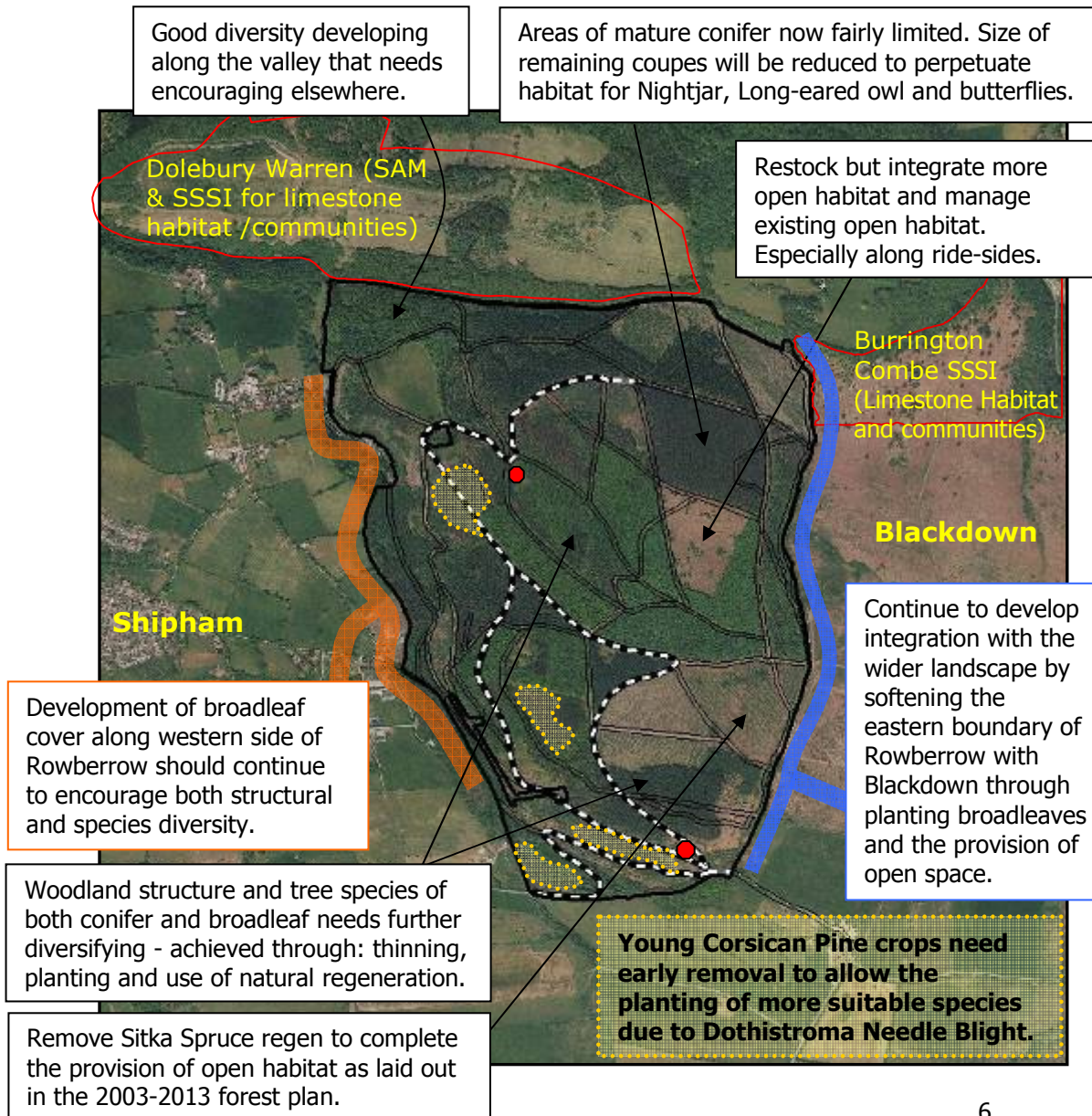
- Reducing the size of remaining clear falls that will extend the continuity of open space and habitat by around 10 years.
- Creating open habitat alongside rides and tracks through thinning and careful restocking.
- Better managing existing open space along rides and those integral to restock areas.

The next 10 years should see a 6% increase in broadleaf cover, and 6% reduction in conifer cover. Open space* will rise by 3.9Ha, but percentage will remain the same at 22%.

(*see pie charts on pages 5 & 13)



Management Objectives



- ❖ Management of the woodland will be to the standards required to maintain FSC and PEFC accreditation.
- ❖ Continued production of sustainable and marketable woodland products that also allows the delivery of a range of other public benefits and provides opportunities for economic growth.
- ❖ To undertake management that protects and enhances woodland and open habitats facilitating their resilience and adaptation to projected climate change and threat of disease.
- ❖ To conserve both cultural and heritage features within the plan area notably Rowberrow Camp SAM and Rowberrow Cavern SAM (shown on map as ●) according to management plans agreed with English Heritage.
- ❖ To undertake management that enhances the integration of Rowberrow into the surrounding landscape.
- ❖ To provide public access on designated Public Rights of Way only due to a leasehold tenure.

● **SAMs** - Rowberrow Camp and Cavern. These areas will be maintained in accordance with management plan prescriptions laid out in the SAM plans as agreed with English Heritage. Further information can be found in Appendix 2.

Enhancing Diversity



1



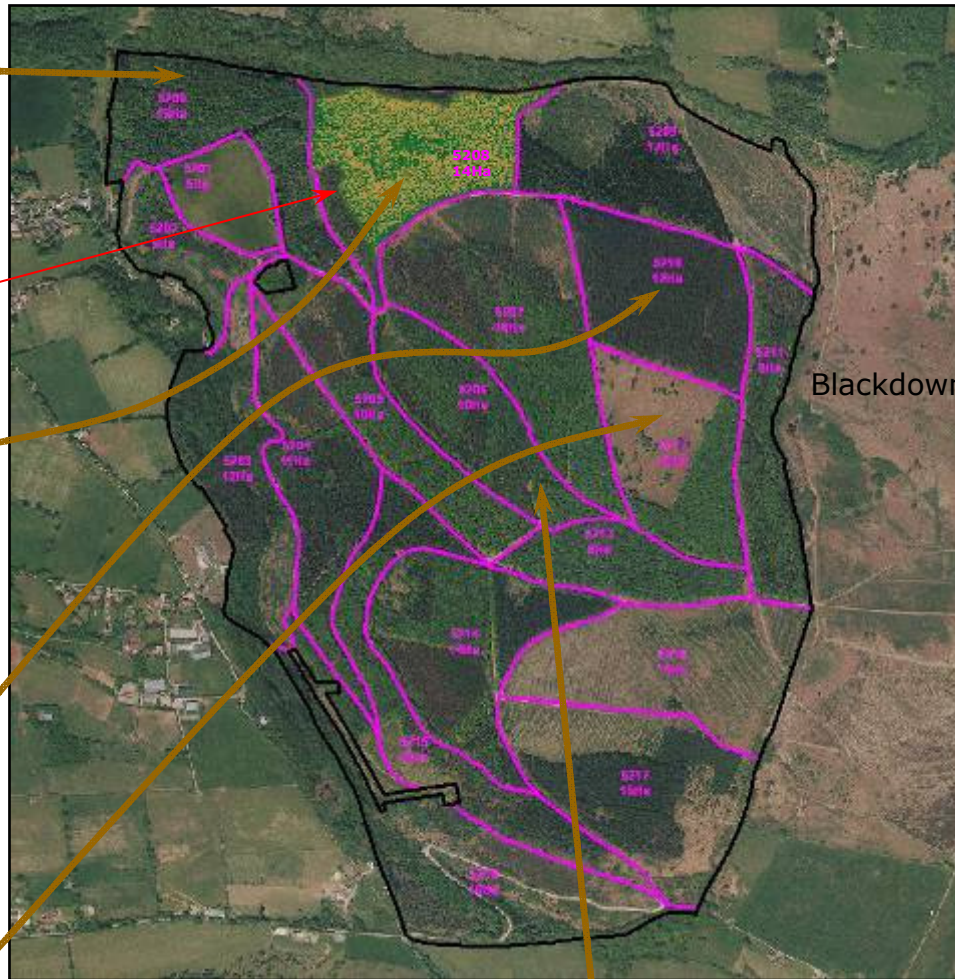
2



3



4



5

1. Good structural diversity. The overstorey is Beech Ash and Oak with an understorey of Beech and Ash, some Hazel, Willow and Elm.
Action: Monitor development of regeneration and the health of Ash and Elm. This is the kind of structure that would be good to see develop elsewhere within Rowberrow, see photo 5.

2. An example of a delayed restock area, due for restocking in 2017. A chance to add diversity.
Action: Future plantings will be varied and diverse to include Scots Pine and alternative species such as Oriental Spruce, some Douglas Fir, Red Cedar & Redwood. Broadleaf planting should be Oak and include a high proportion of minor species such as Hornbeam, Whitebeam, Cherry, Service, Rowan, and Hazel. Incorporate open space along rides.

3. One of the last few mature stands of conifer left that provides wildlife with shelter and food during winter months, but also open habitat when felled.

Action: Felling coupes for remaining conifer areas will be reduced in size increasing continuity of available open space into the future, benefiting Nightjar, Long-eared owls, butterflies and other wildlife for a further 10 years more than in the previous plan.

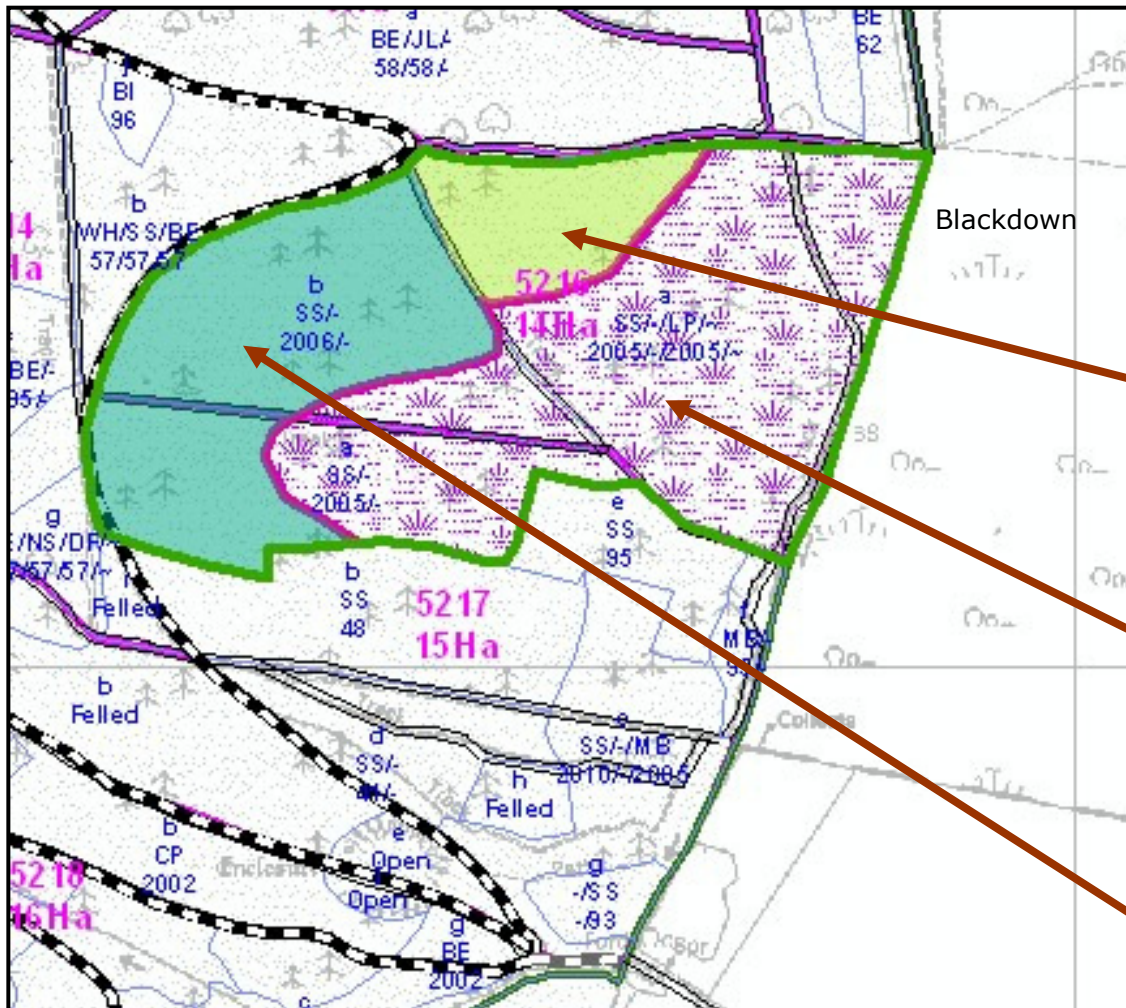
4. Delayed restock area.

Action: Replant with Spruce species and some native broadleaf and incorporate more open space.

5. Typical beech plantation within Rowberrow.

Action: As gaps develop through thinning, under-plant with a wide variety of native species in order to develop structure and future resilience.

Existing open habitat



In the old Forest Plan the area outlined in green was one coupe and is now three, totalling between 17.5 and 18Ha.

Management following felling was as per FP:

- 10Ha were kept as open heathland habitat.
- 6Ha were replanted with SS (5216b)
- Remaining 1.5–2.0Ha kept as open broadleaf woodland.

Coupe 52361 This area is a mix of open space and trees. Predominantly conifer, with a very small percentage of broadleaf.

Action:

Remove conifer over next 10 years.

Coupe 52182 This area is meant to be open space but has filled with a mosaic of quite dense SS nat-regen and heathland vegetation, including heather, young gorse, a variety of grasses and wild flowers.

Action:

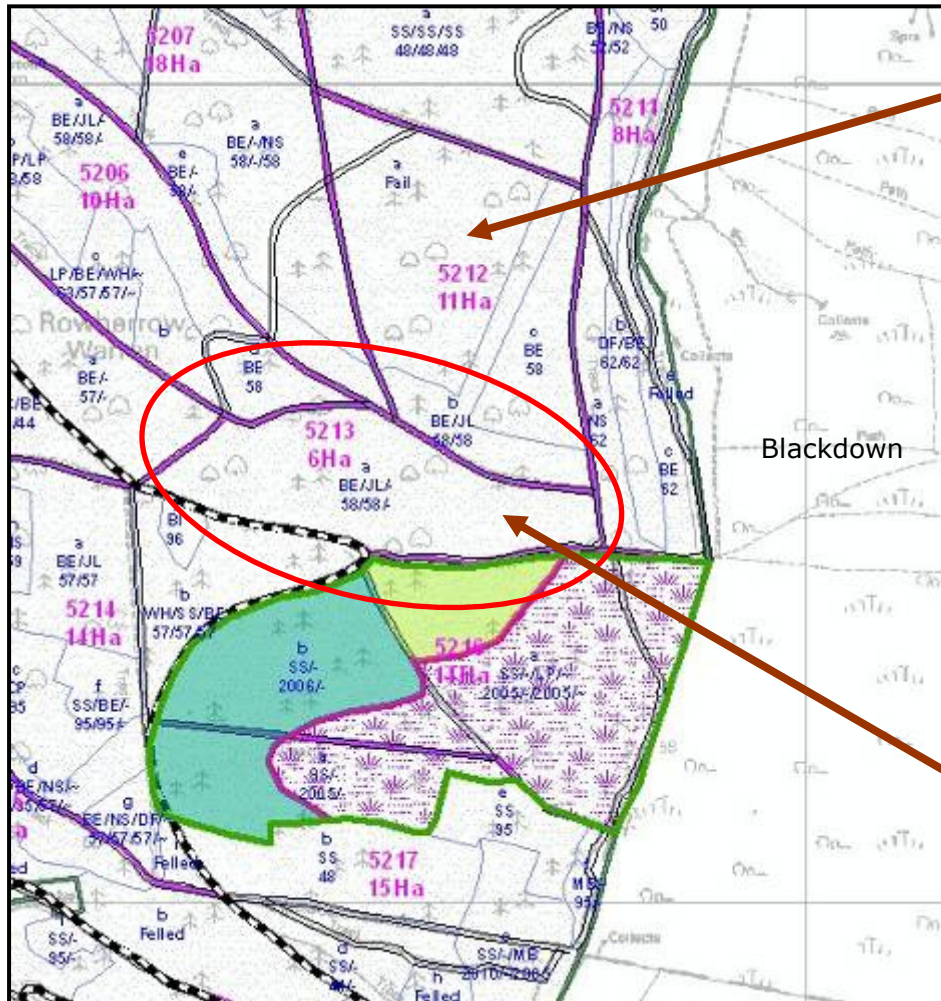
Staggered group removal of conifer over next 20 years, with the majority of the area then maintained as open space as per 2003-2013 plan.

Coupe 52049 The dark green area is as it should be: SS of around 8 years of age, with elements of open space along the northern edge and eastern boundary along the ride.

Action:

Manage as per felling plan for 2014-2024.

Existing open habitat (continued)



Compartment 5215a This is an area restocked with SS that failed due to grazing by ponies from Blackdown.

It is currently open with rough vegetation of grasses, bracken and bramble with a scattering of SS saplings and small groups/individuals of p58 Beech Sitka natural regen.

It is intended to restock this area a second time in winter 2014, to include other spruces SP, DF and some native broadleaf too.

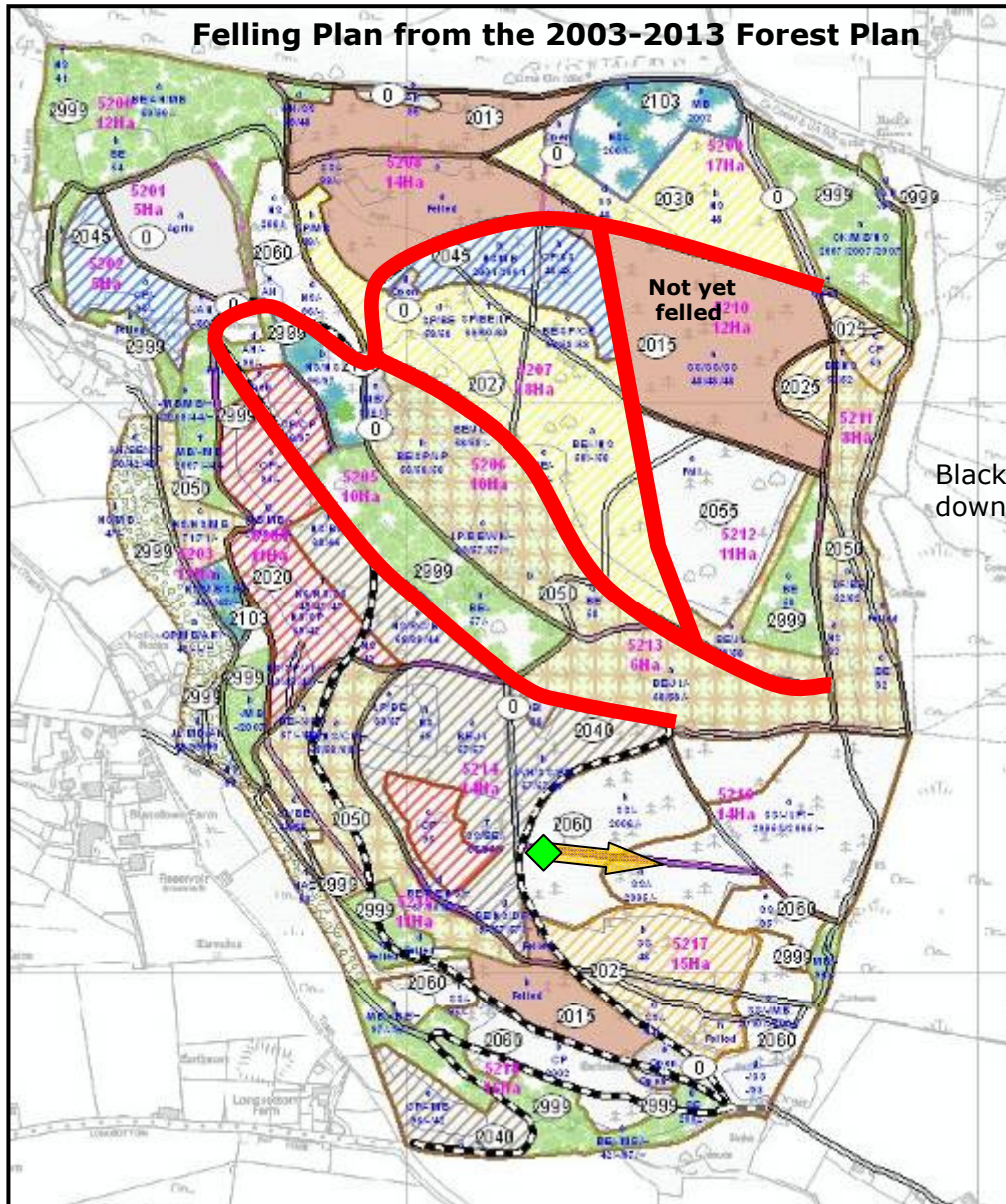
Following a meeting with H&OT on 24th June 2014, a more open ride structure should be incorporated along the northern and eastern boundaries and also include:

- Some elements of open space within the main planting area.
- Main planting area
- Some minor native broadleaf species that would include: Whitebeam, Service, Rowan, Hornbeam, possibly Holly and Hawthorn.

This area circled in red should have the conifer removed, and the remaining broadleaves thinned over 2 or 3 interventions so that stocking is reduced by around 50 % allowing for underplanting of minor native broadleaf species in small groups, achieving a future composition comprising of mature BE, younger broadleaves (esp. berry bearing spp such as Rowan) and open space.

This will create better links with the open habitat to the south and improve the provision of vital sources of food for wildlife during winter months.

Stabilising availability of open habitat into the future



Restructuring over the last 10-20 years means only a finite amount of clearfelling is left in Rowberrow, jeopardising the future potential to provide Habitat suitable for Long-eared Owl, Nightjar and the like.

This potential is further jeopardised if clearfelling continues at the pace and scale at which the original plan lays out, shown on the map opposite.

Slowing down the pace of clearfelling and resizing some of the coupes so they are smaller, will extend the time period that suitable habitat will be available by around 10 years.

During restocking rides should continue to be restructured by building in generous allowances of open space; whilst thinning will concentrate on opening up rides and tracks highlighted in red to create this space and provide connectivity.

This provision of integrated open habitat is important since the woodland is becoming younger and future clearfelling moves more beyond the event horizon, suitable habitat for Nightjar, Long-eared owl, butterflies and reptiles would otherwise become limited, threatening population stability.



NOTE: Continuity of success in providing integrated open habitat into the future relies on managing these areas as such, which the Hawk & Owl trust can advise on.

Left: A good example of integrating open habitat that would increase ecological gain enormously if used on other rides shown in red, on the map to far left.

Alternative Species



Adapted to warm summers, cold winters and is cold hardy and moderately tolerant of exposure; very late flushing species and so can be used on sites prone to late spring frosts. Tolerates dry conditions better than Norway or Sitka Spruce. Growth rates are similar to Norway Spruce and best suited to slightly dry to moist soil of poor to rich nutrient status.



Giant Redwood - *Sequoiadendron giganteum*

Can produce rapid early growth and high volumes on suitable sites. Tolerates dry summers, appearing somewhat more cold, drought and exposure tolerant than Coast Redwood. Best growth on poor to medium soils with slightly dry to fresh soil moisture such as acid sandy loams. Not suited to heavier gleys, peats or poor dry soils. Plantation stands can produce timber of similar quality to coast redwood.



Western Red Cedar - *Thuja plicata*

Shade tolerant, cold hardy, moderately frost tolerant species. Good vigour and volume production, early growth can be slow. Best grown on more sheltered sites and is moderately drought tolerant. Annual rainfall of >800 mm, prefers medium to rich soils with fresh to moist soil moisture. Not suited to poor, dry soils but will grow on gleys. Can be grown in mix with a range of conifer and broadleaf species.



Wild Service - *Sorbus torminalis*

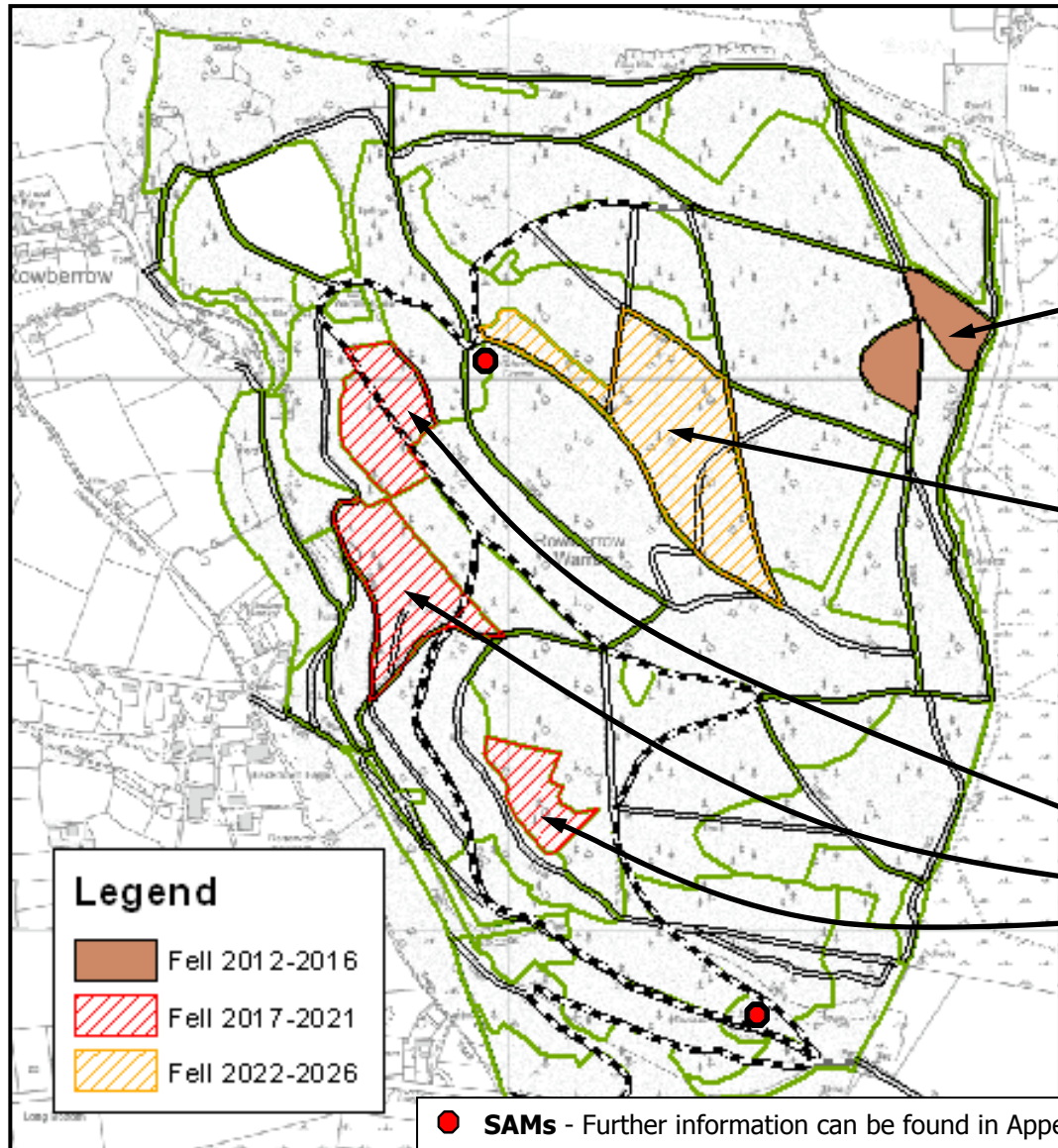
Light demanding, early successional species, generally found as isolated individuals or in groups in broadleaved woodland; large diameter trees are highly valued for their timber. Adapted to warm climates with > 600 mm rainfall and best growth obtained on sites of medium to very rich nutrient regime and fresh moisture status. Not suited to wet soils or those of poor nutrient status. Can tolerate drier conditions more than other broadleaves.

Silviculture

The Woodland will continue to be managed as a productive wood, producing material for a variety of markets.

The reordering of broadleaves and conifers to more suitable sites will continue as laid out in the 2003-2013 plan although a more diverse future woodland composition will be key:

- Establishment of **broadleaf** woodland in compartments 5205, 5206, 5211 and 5213 will be achieved through removal of remaining conifer by thinning. This will leave a predominance of Beech that will be thinned to encourage crown development and provide a more open structure that can be either under or group planted providing a good diversity of native broadleaf. (Rowan, Hornbeam, Service, Cherry, Oak and perhaps walnut in more sheltered valleys.)
- **Conifer** planting should encourage use of species that will be better suited to a warming climate. It is expected that by 2080 the site could be too dry for both Sitka and Norway Spruce. Climate modelling suggests that species such as Oriental Spruce, Giant Redwood, Western Red Cedar, Douglas Fir would be best suited. When thinning conifer areas, if that area is due to be replanted with conifer, any RC or DF should be retained.
- Although larch is suitable, due to the **disease *Phytophthora ramorum*** none will be planted, and *Dothistroma needle blight* means no Corsican pine planting. Little to no Ash will be planted in the short term due to the threat of *Chalara Fraxinea*.
- **Clearfell areas** will be left for 4 to 5 years providing suitable habitat for nightjar and Long eared owls.
- **Regeneration** of existing clearfells destined for broadleaf cover that regenerate naturally with broadleaf, will be assessed and species diversity increased if necessary by planting.



Rowberrow Warren Felling Plan 2014-2024

Felling Coupe 52019
Area 2.6Ha

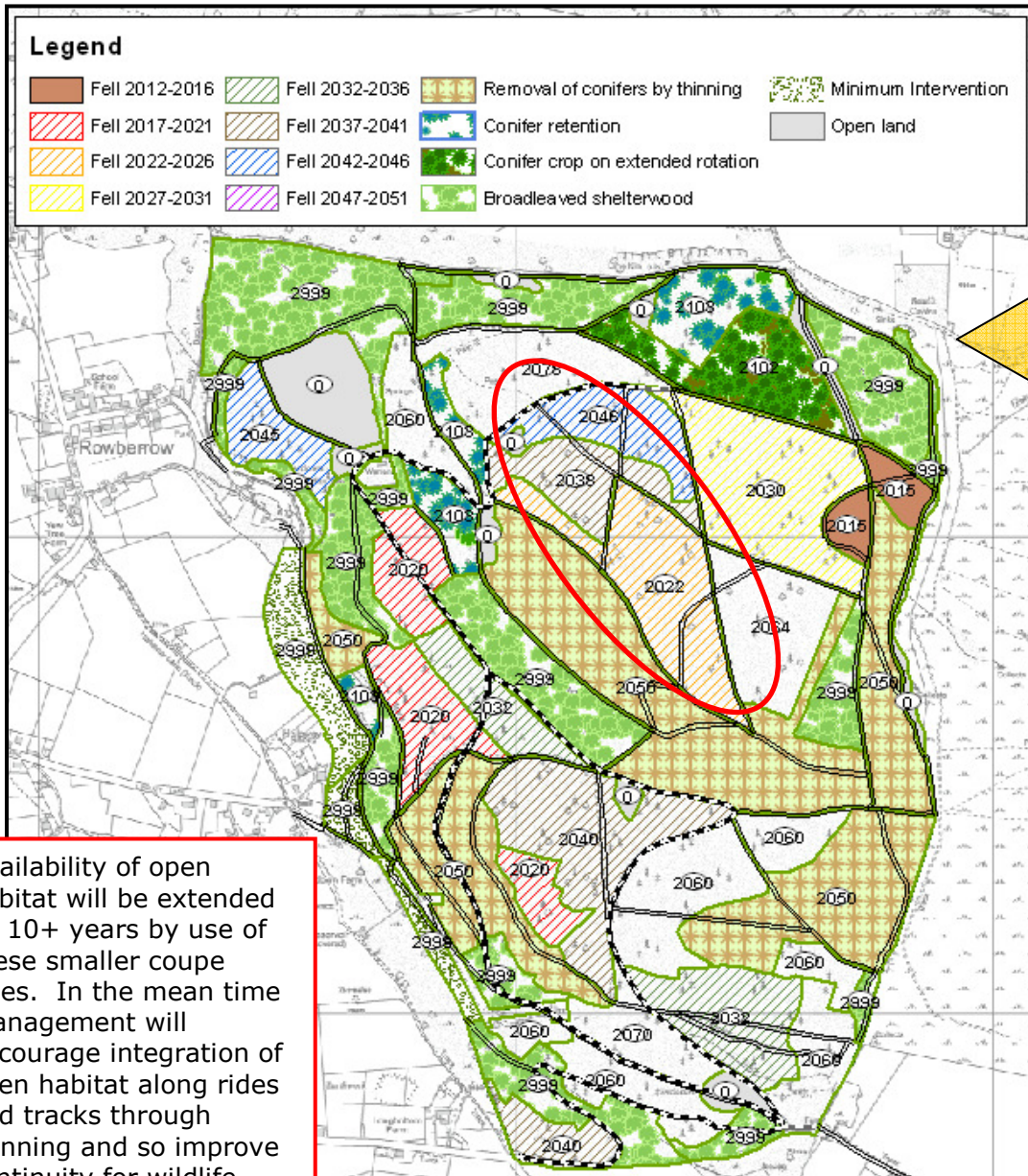
Restock Coupe 52019a
Mixed Broadleaves
- Ensure a good mix of native broadleaves is planted to enhance diversity and resilience.

Felling Coupe 52662
Area 9Ha

Restock Coupe 52662a
Oriental Spruce 40%
Norway Spruce 40%
Douglas Fir 20%

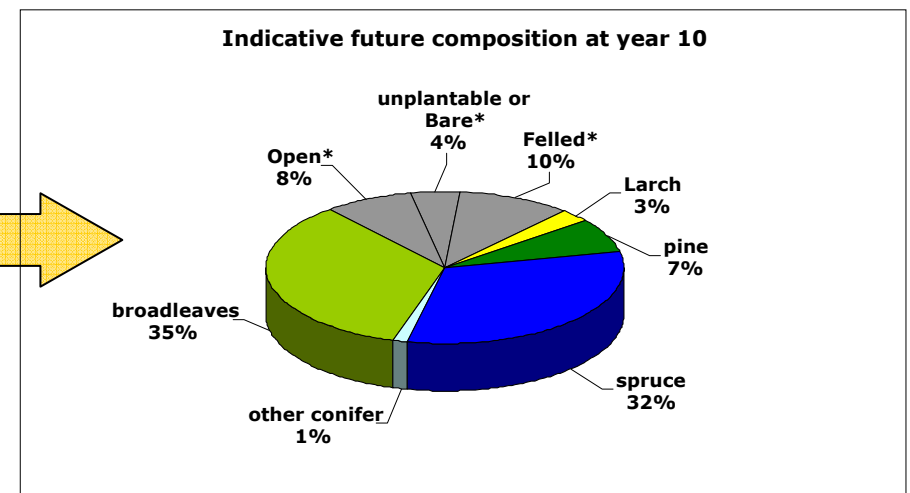
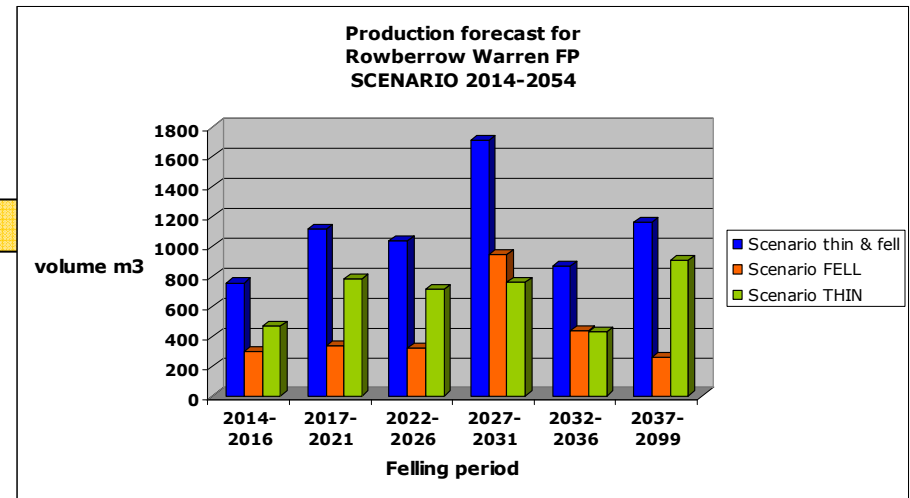
Felling Coupe 52029
Area 9.7Ha

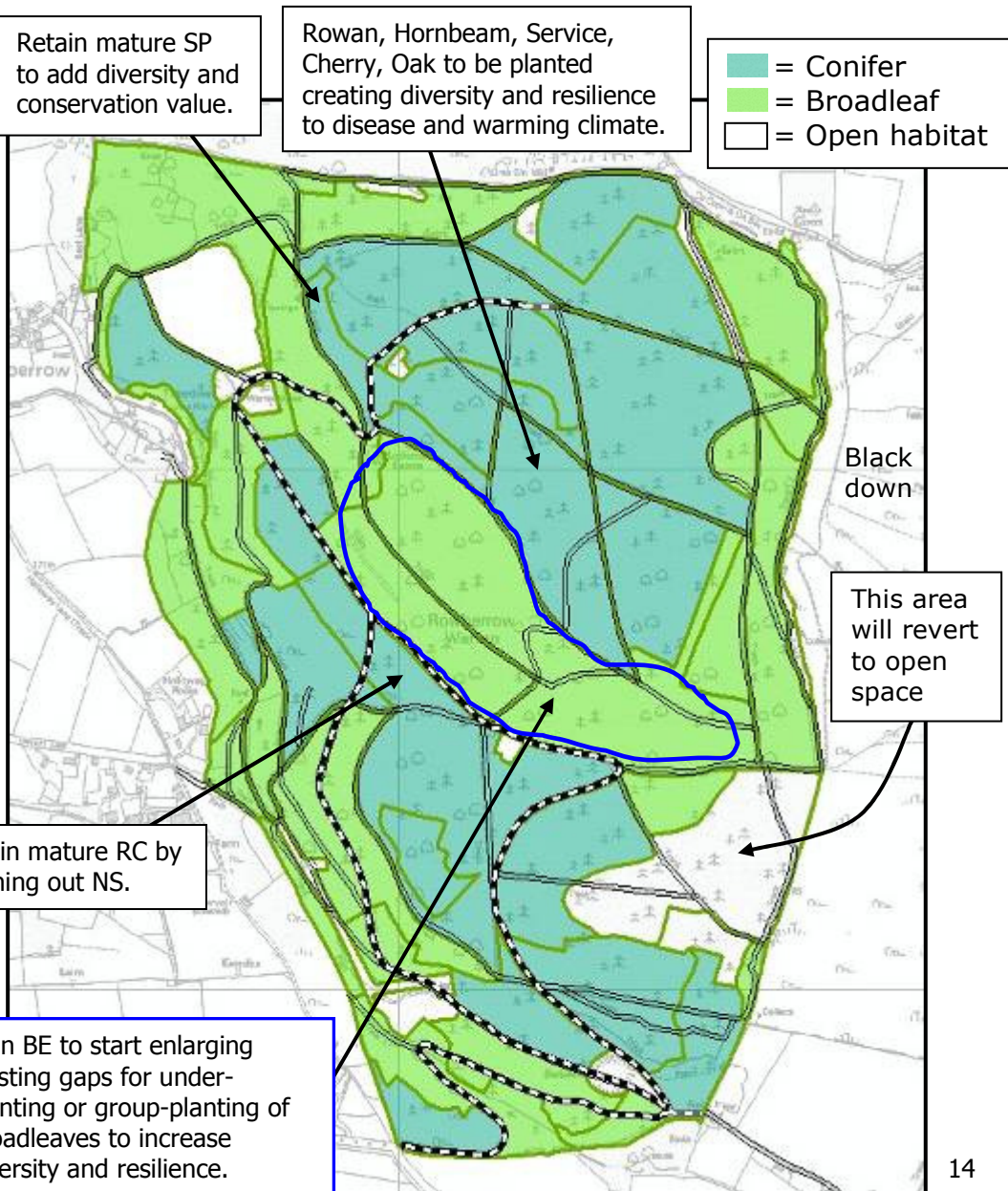
Restock Coupe 52029a
Oriental Spruce 40%
Western Red Cedar 30%
Douglas fir 20%
Norway Spruce 10%



Availability of open habitat will be extended by 10+ years by use of these smaller coupe sizes. In the mean time management will encourage integration of open habitat along rides and tracks through thinning and so improve continuity for wildlife.

Rowberrow Warren Felling Plan 2014-2054



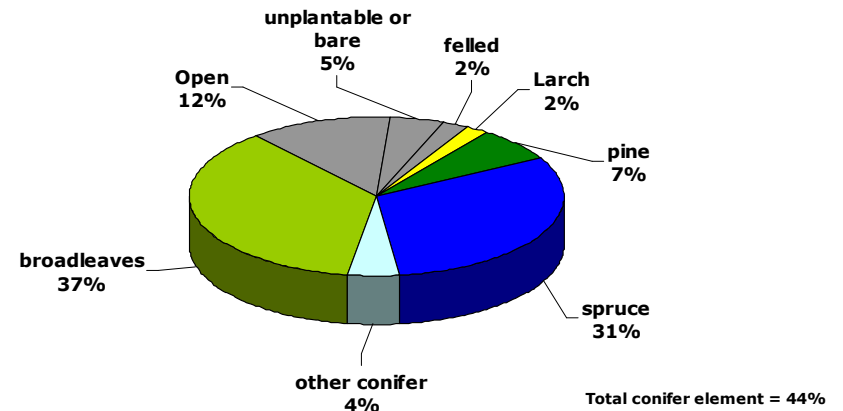


Indicative future woodland composition

The future woodland composition will not change in terms of the ratio of broadleaf vs. conifer as laid out in the 2003-2013 Forest Plan shown opposite, however what will change is the diversity of species being planted.

With the future challenge of managing woodlands to ensure resilience to climate change and pests / disease, a site based approach to species choice will see a more diverse species composition developing into the future.

Indicative future composition at year 40



Meeting Objectives

Management Objectives	Meeting Objectives	Monitoring
<ul style="list-style-type: none"> ❖ Management of the woodland will be to the standards required to maintain FSC and PEFC accreditation. 	<p>Management of the district's woodlands is undertaken to the standards required under UKWAS as endorsed by the Forest Stewardship Council and to maintain PEFC accreditation.</p>	<p>Compliance to these standards is monitored through various national and district policies, guidance, field surveys (including NFI), use of GIS and other IT software, internal support audits and external audits carried out by SGS (an independent auditing company) Monitoring can also be achieved through: site planning, contract supervision and the Forest Plan review process.</p>
<ul style="list-style-type: none"> ❖ Continued production of sustainable and marketable woodland products that also allows the delivery of a range of other public benefits and provides opportunities for substituting use of fossil fuels and other energy intensive materials with the use of wood products. 	<p>Management of the district's woodlands is undertaken to the standards required under UKWAS as endorsed and certified by the Forest Stewardship Council and to maintain PEFC accreditation.</p> <p>As part of the Forest District's business plan and the organisation's customers' charter, the forest district is committed to financial and sustainable timber marketing targets. Growing quality timber in so far as this is consistent with other objectives.</p>	<p>Sustainable production will be monitored as part of the forest district's marketing plan, five year production forecast and at the Forest Plan (FP) five-year review. This process is audited as part of the FSC forest certification process.</p> <p>Annual pre-thinning survey.</p> <p>Production forecast comparison with actual output to assess accuracy of forecast.</p> <p>Annual Customer Liaison meetings.</p>
<ul style="list-style-type: none"> ❖ To undertake management that protects and enhances woodland and open habitats facilitating their resilience and adaptation to projected climate change and threat of disease 	<p>Diversify the woodland so as to develop a better variety of species, age structures, habitat types and open spaces. Implementation of the plan will also see a better integration within the wider landscape and linking of habitat types</p>	<p>The sustainable programme of thinning and proposed felling together with a varied delayed restock program will continue to diversify stand and age structure, enhance the landscape and benefit a wide range of species. Results can be monitored during plan reviews.</p>

		<p>Operational site planning of harvesting and restocking operations should account for landscape enhancements where appropriate minimising the risk of adverse impact resulting from forest operations whilst at the same time highlighting opportunities where conservation benefits can be delivered.</p> <p>Appropriate reinstatement works will be carried out once operations have been concluded.</p>
❖ To conserve both cultural and heritage features within the plan area notably Rowberrow Camp SAM and Rowberrow Cavern SAM according to management plans agreed with English Heritage.	Management during the plan period will refer to the relevant management plans during the planning of operations and will if necessary consult with the county archaeologist and ensure consent from English Heritage has been granted prior to works being carried out.	<p>Operational site planning of harvesting and restocking operations will help monitor the effect of management.</p> <p>A SAM plan diary will detail all work undertaken and its impact. Impact of harvesting work will also be recorded here.</p>
❖ To undertake management that enhances the integration of Rowberrow into the surrounding landscape.	Implementation of proposals within this plan will soften and better integrate the woodland with the surrounding landscape	Through the Forest Plan review process.
❖ To provide public access on designated Public Rights of Way only due to a leasehold tenure.	Signage needs to be maintained regarding tenure of the site as Rowberrow is leasehold. Signage will stipulate that PROW only are to be used.	Beat team will monitor usage and ensure the up keep of the signage.

Option Testing

Objective	
Option 1 (Current FDP)	Option 2 (Proposed FP)
<p>❖ Management of the woodland will be to the standards required to maintain FSC and PEFC accreditation.</p>	
<p>Felling coupes are primarily aimed at restructuring age class distribution at a landscape scale with delayed restocking that enhances and safeguards open habitat for numerous species. Restocking is with a limited number of species.</p>	<p>Rescale felling coupes to slow the pace of clearfelling. Resizing some of the coupes so they are smaller extends the availability of open habitat by around 10-15 years. Restocking will improve species diversity and integrate open space especially along ride-sides, giving more stability to available open space.</p>
<p>❖ Continued production of sustainable and marketable woodland products that also allows the delivery of a range of other public benefits and provides opportunities for substituting use of fossil fuels and other energy intensive materials with the use of wood products.</p>	
<p>Clearfelling and thinning are delivered in a sustainable manner and recognises the importance of open habitat by the creation of open habitat in the south-eastern quadrant of the Wood that adjoins Dolebury Warren.</p>	<p>Rowberrow would continue to produce timber on a sustainable commercial scale and recognises mature conifer is at a finite point that has implications for management of open habitat. Future thinning work would be used to provide part of the solution to stabilising the future provision of open space habitat.</p>
<p>❖ To undertake management that protects and enhances woodland and open habitats facilitating their resilience and adaptation to projected climate change and threat of disease.</p>	
<p>The primary silvicultural method used in achieving the establishment of future crops is that of clearfelling coupled with delayed restocking, although choice restock species does not take into account the impact of new diseases and climate change.</p>	<p>Clearfelling would continue to be a primary method of management, along with delayed restocking and some areas would begin using ATC techniques to add diversity and structure through thinning. E.g. for the enrichment of Beech crops. Those areas down for open space would be managed as such.</p>

❖ **To conserve both cultural and heritage features within the plan area notably Rowberrow Camp SAM and Rowberrow Cavern SAM according to management plans agreed with English Heritage.**

The plan recognises these features and refers to the relevant management plan for each site. Ops 1 assessments prior to work commencing identify work required and provide working solutions to such constraints.

Management will continue to operate around these sites in accordance with the relevant SAM plan.
Ops 1 assessments will continue identify and provide working solutions to ensure cultural heritage is maintained.

❖ **To undertake management that enhances the integration of Rowberrow into the surrounding landscape.**

Clearfelling was the prime key to achieving this objective.

Clearfelling and a more proactive approach to the management of open habitats will continue to soften and integrate Rowberrow with the surrounding landscape.

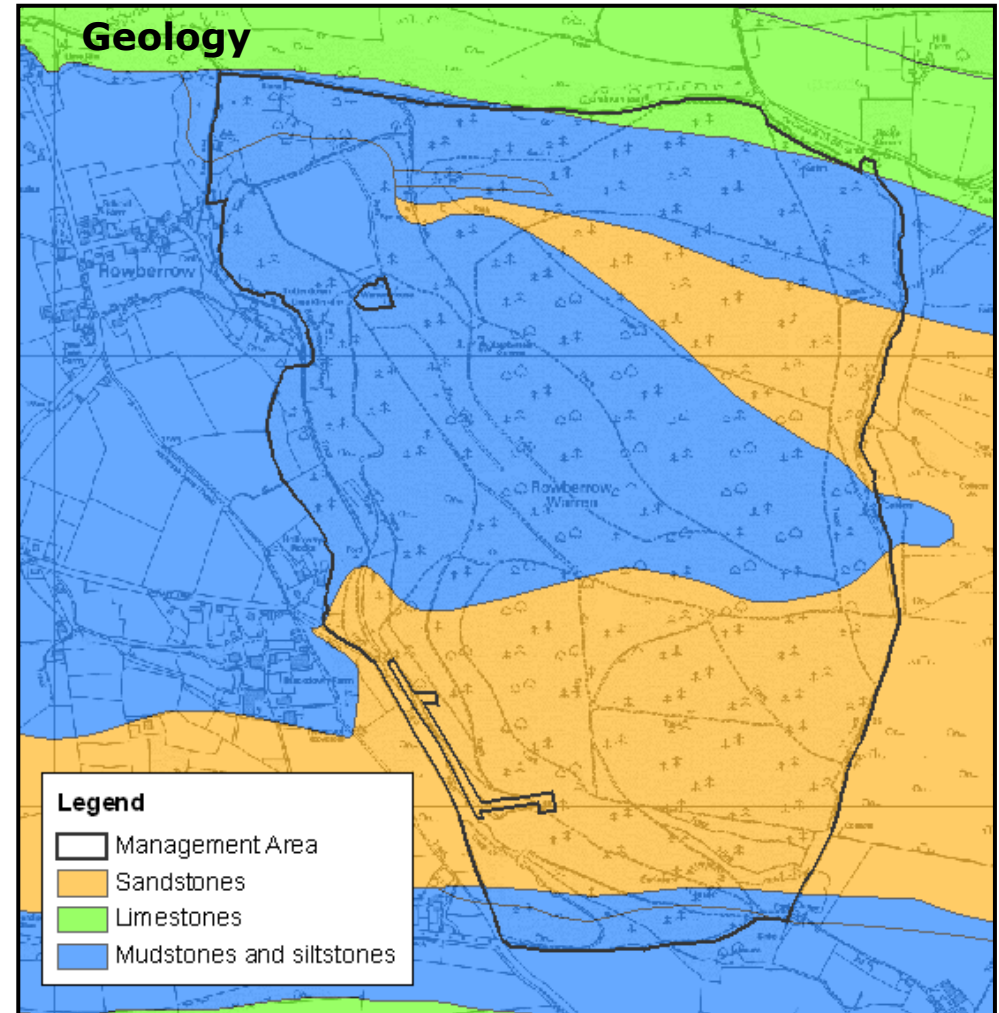
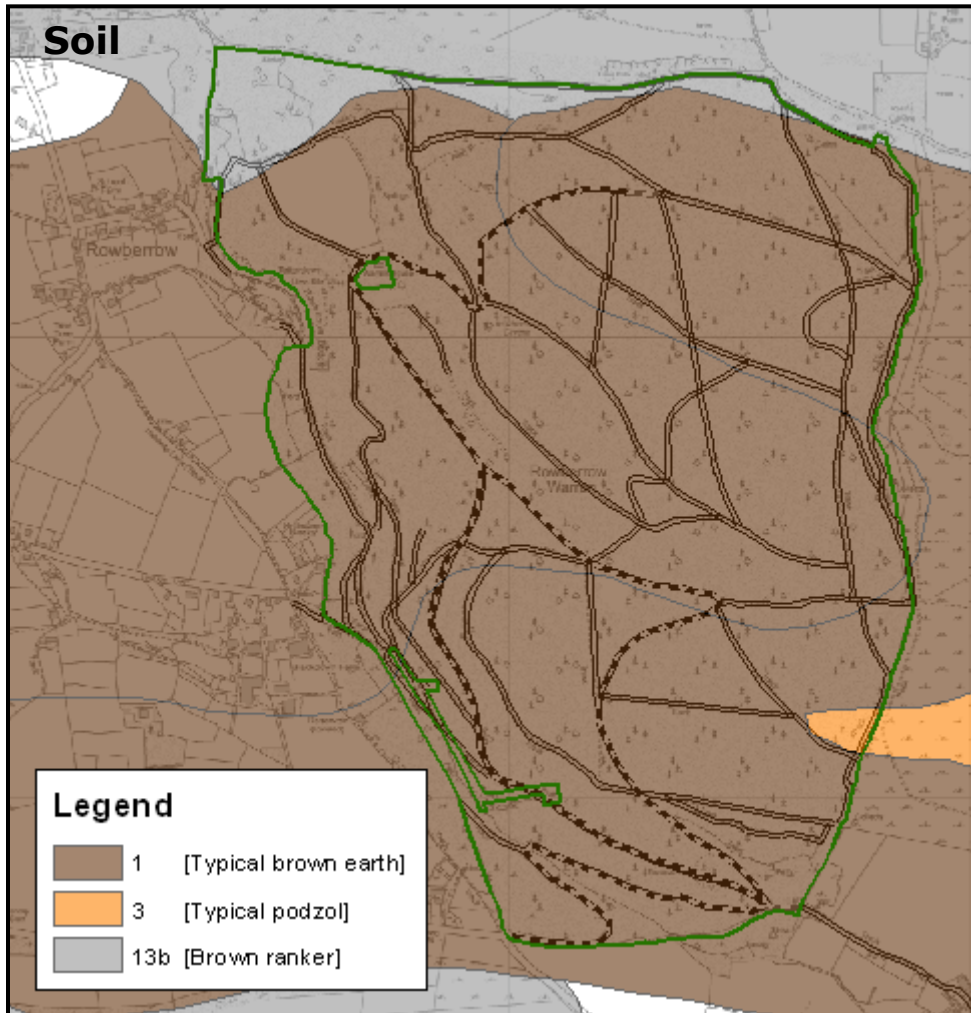
❖ **To provide public access on designated Public Rights of Way only due to a leasehold tenure.**

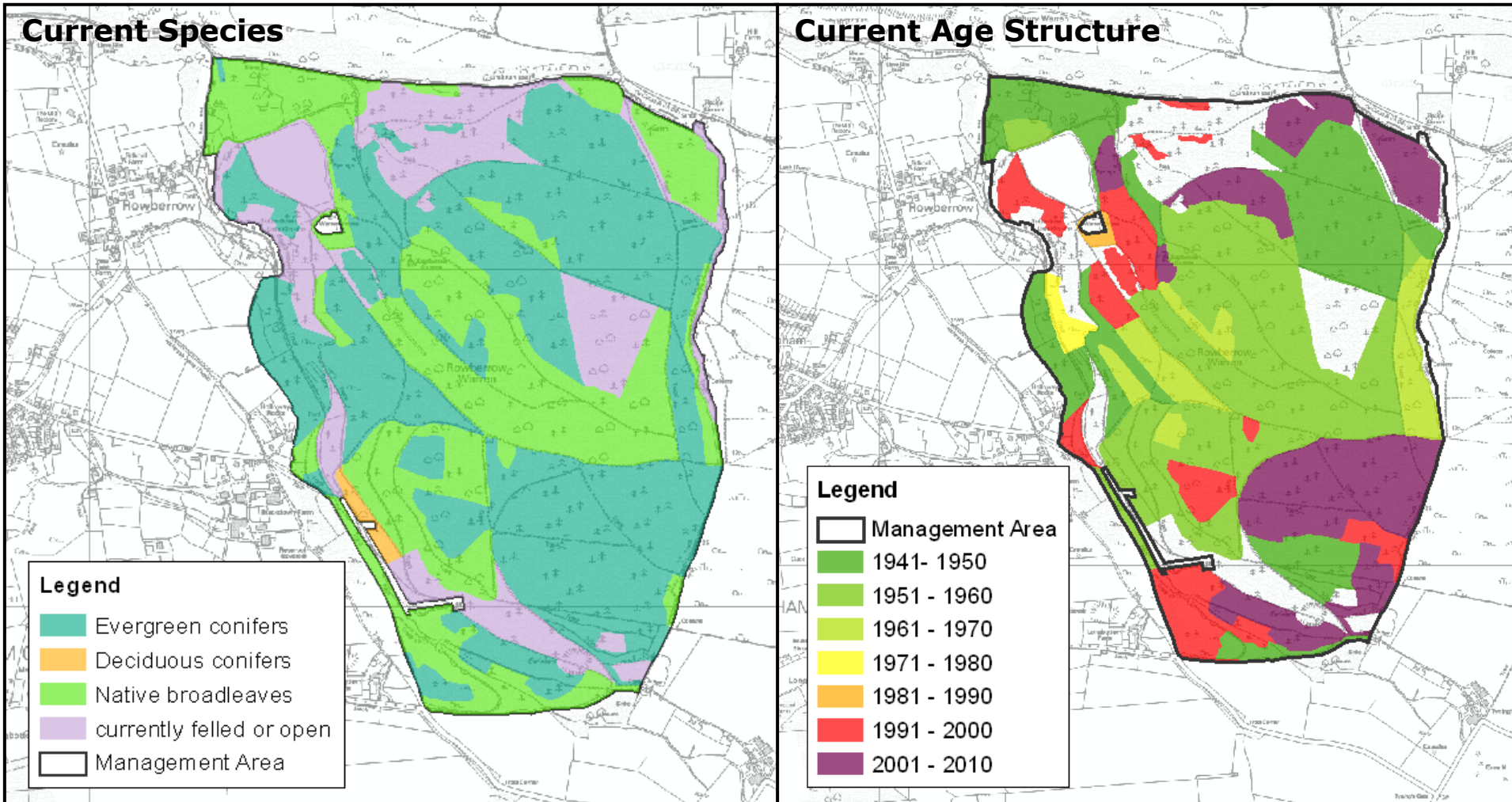
Achieved through peer to peer policing that includes the Mendip Warden service.

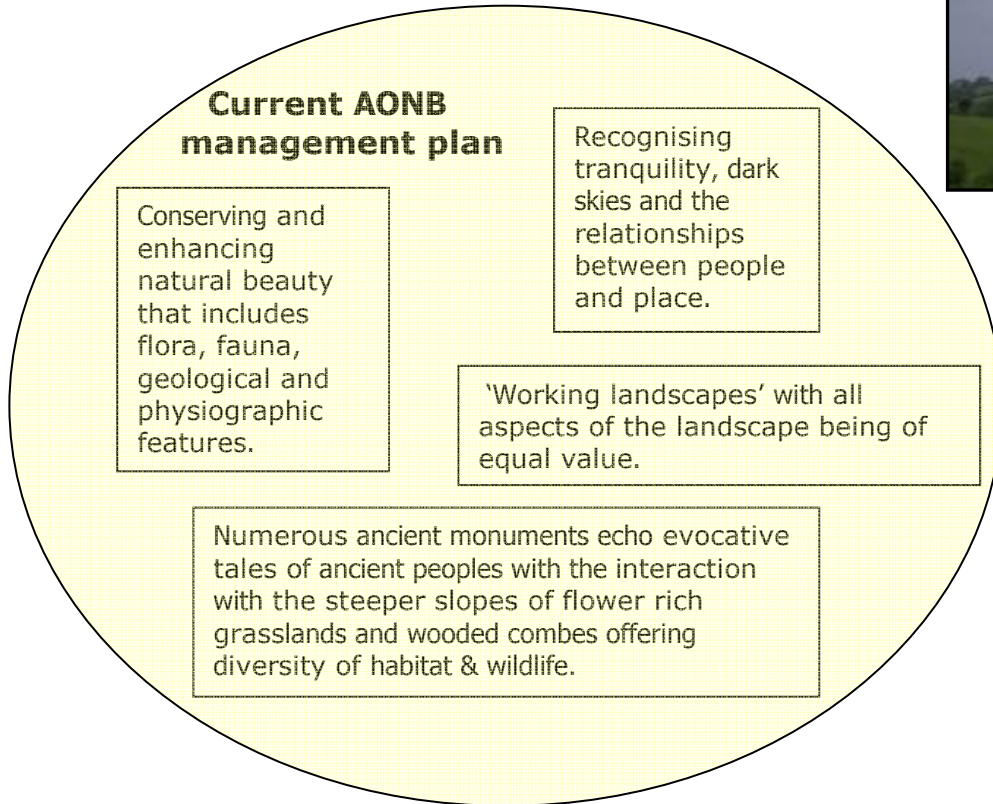
Signage will need to be maintained advising forest users that as Rowberrow is leased, access is permitted on PRow only.

Option 2 more fully addresses the current management priorities and is the preferred option

Appendix 1: Physical maps







The Forest Plan in relation to characteristics from the National Character area profile

- ✓ A chain of prominent limestone hills, cored by Devonian and Silurian rocks, extending inland from the coast and rising up sharply from the surrounding lowlands. An open limestone plateau with karst features including complex underground caves and river systems gives the area a unique character. Sandstone outcrops form the highest features. Dramatic gorges, cliffs and escarpment slopes surround the plateau. To the west the land breaks into individual hills.
- ✓ The plateau and hill tops are largely treeless, except for a few old ash pollards, wind-shaped shelterbelts and conifer plantations. The slopes and valleys surrounding the plateau have a wide range of woodlands forming an attractive mosaic with calcareous grassland and agriculture.
- ✓ Variable enclosure patterns with larger, rectangular 18th-century field patterns bounded by drystone walls on the plateau and smaller, irregular fields with hedgerows on the scarp slopes and eastern Mendips.
- ✓ The plateau has an outstanding assemblage of heritage assets from prehistoric features, such as burial mounds and hill forts, through to Second World War remains.



The Forest Plan will work to compliment the ANOB plan to...

- Conserve, enhance and sustainably manage the rural agricultural landscape and network of nationally and internationally important sites and semi-natural habitats to create a coherent and resilient ecological network, enabling ecosystems to adapt to climate change and for the benefits to biodiversity, water flow, water quality and protection of the aquifer, soil quality, regulating soil erosion, rural heritage and culture.

Landscape analysis - Current



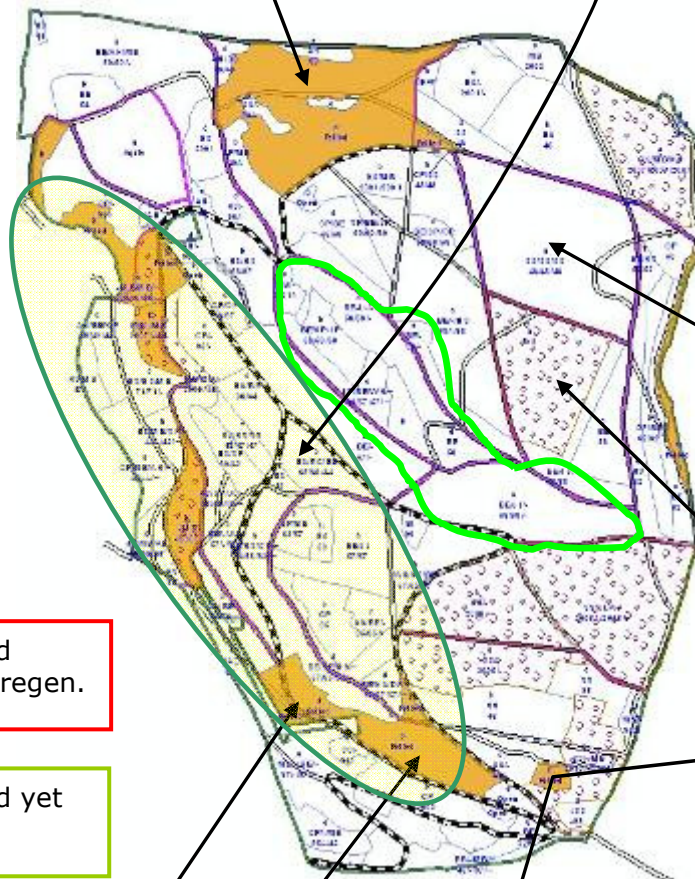
View Point 1

The felling of coupe 52012 was completed in March 2012. A current fallow regime of 4 years means restocking in 2017.

The south west slopes of Rowberrow are beginning to be broken up through felling and a mixture of restocking and use of nat-regen.

Coupe **52040** felled and filling in with Broadleaf regen.

Coupe **52041** felled and yet to be restocked.



Thinnings within the central area of Rowberrow will remove conifer elements and create gaps for planting moving species composition towards being a diverse mix of broadleaf.

Felling of this coupe will be moved to 2027-2031 to avoid adjacency issues, and help in stabilising future availability of open habitat.

Replant winter 2014 with mixed spruce and broadleaf, integrating open space too for long eared owl and night jar etc.

Part of coupe **52047** felled due to wind-blow and yet to be restocked.

NOTE: areas shaded brown on map denote clearfelling in the last 10 year plan period with the purple mottled areas denoting restocking / regeneration.



View Point 2

Landscape analysis – Future Structure

Viewpoint No.1:
Long Term Structure

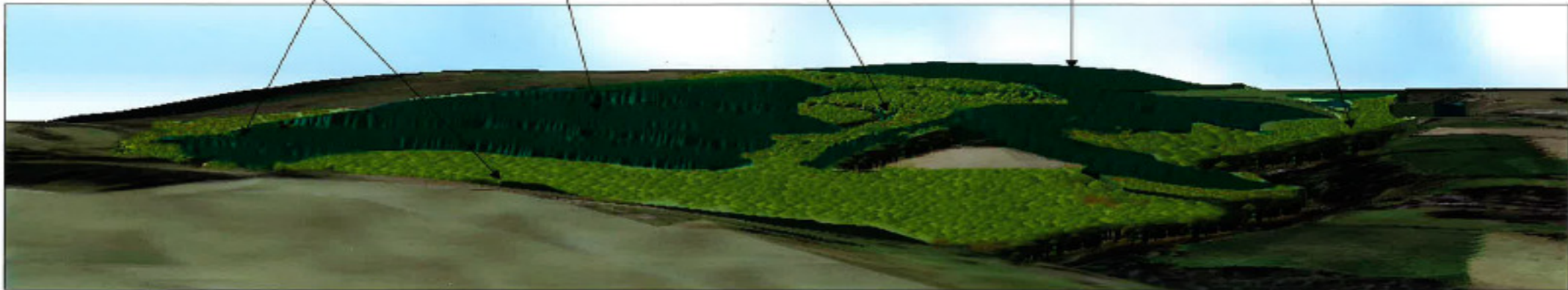
Broadleaves against northern boundary tying into important ash woodland to the north.

Conifers (spruce and pine) occupying the middle slopes with improved boundaries interlocking with broadleaves

Pure broadleaves stands pushing up along the valleys. These are predominantly derived from mixed beech and conifer mixed stands.

Conifers (spruce and pine) occupying the cap of the hill.

Broadleaves dominating the Rowberrow Bottom with occasional stands of mature conifers retained for diversity.



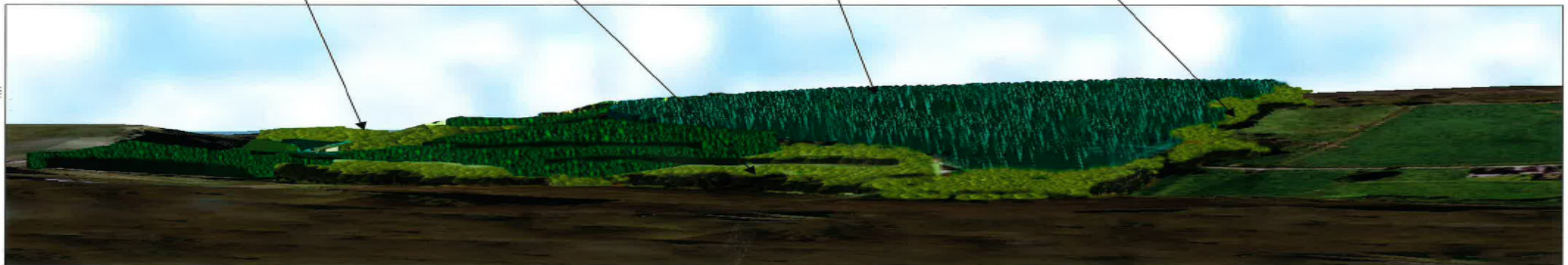
Viewpoint No.2
Future Structure

Broadleaves predominate along the Valley of Rowberrow and Holloway Rocks.

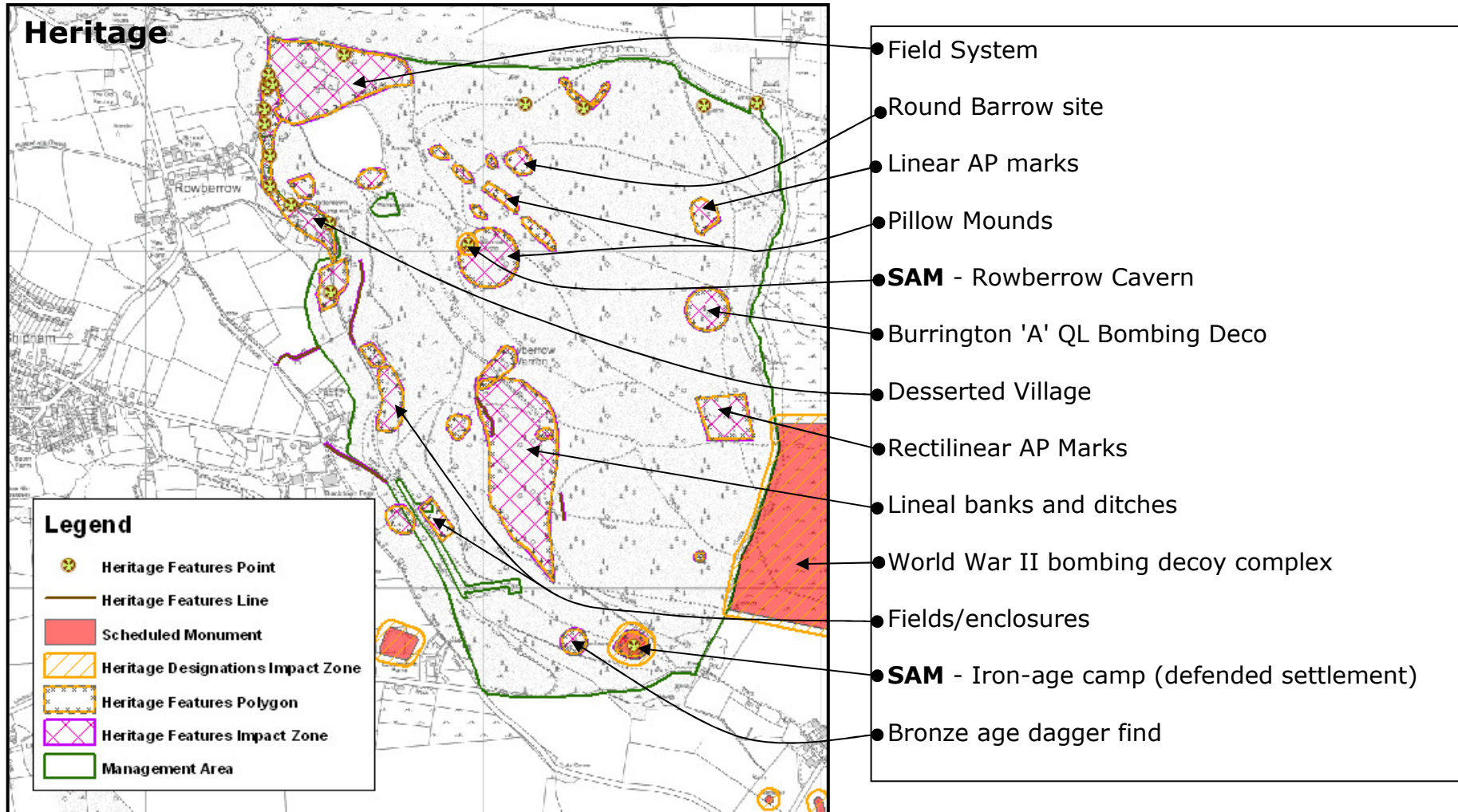
Broadleaves continue along the streamside in the valley and tie into the mature broadleaves on non-FE land.

Conifers remain dominant on the upper ridges.

The edge becomes increasingly diversified through the development of scrub along the rideside boundary and on the adjacent farmland.



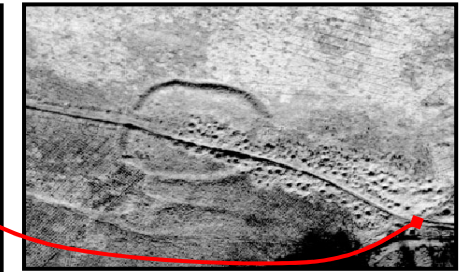
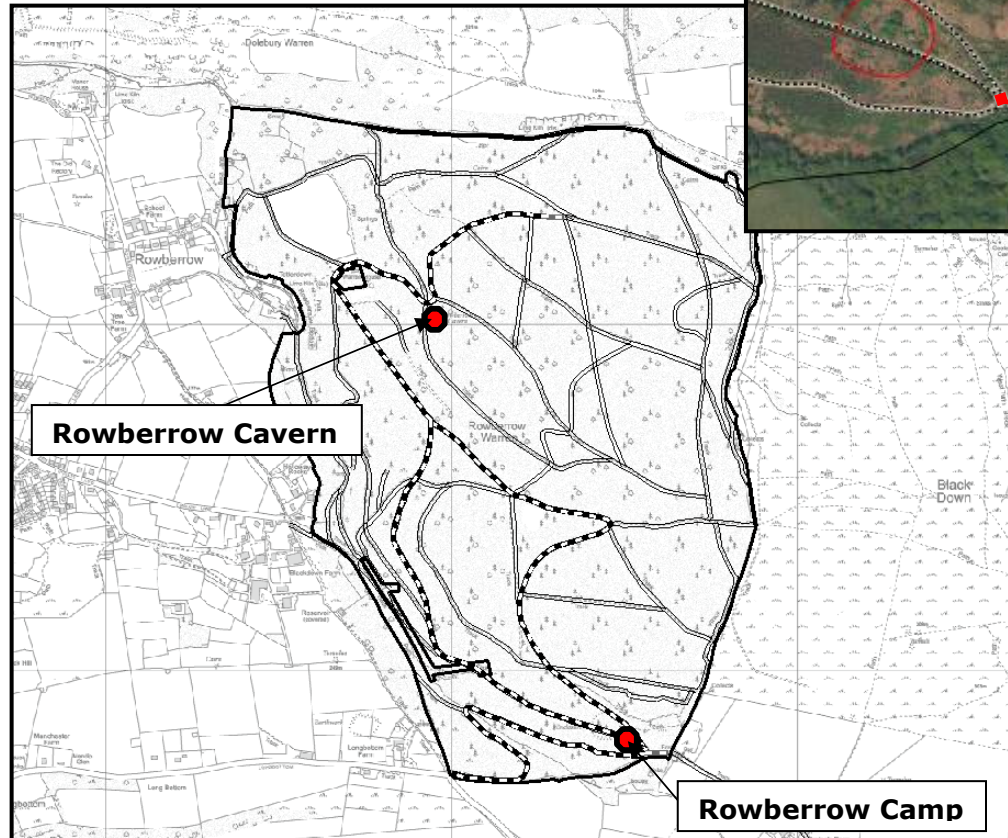
Appendix 2: Management considerations



SAM management



Rowberrow Cavern is a wide-entranced cave with an extensive platform outside thought now to be a collapsed extension of the cave. It is regarded as important for its rare Palaeolithic hearth material and extensive nature of remaining deposits both inside and outside the cave. Caves and rock shelters like this one are therefore of major importance for understanding this period providing some of the earliest evidence of human activity in the period from about 400,000 to 10,000 years ago; often located near the cave entrance. Rowberrow Cavern is one of twenty-one sites within Somerset forming the densest most important concentration of monuments of this type in the country.

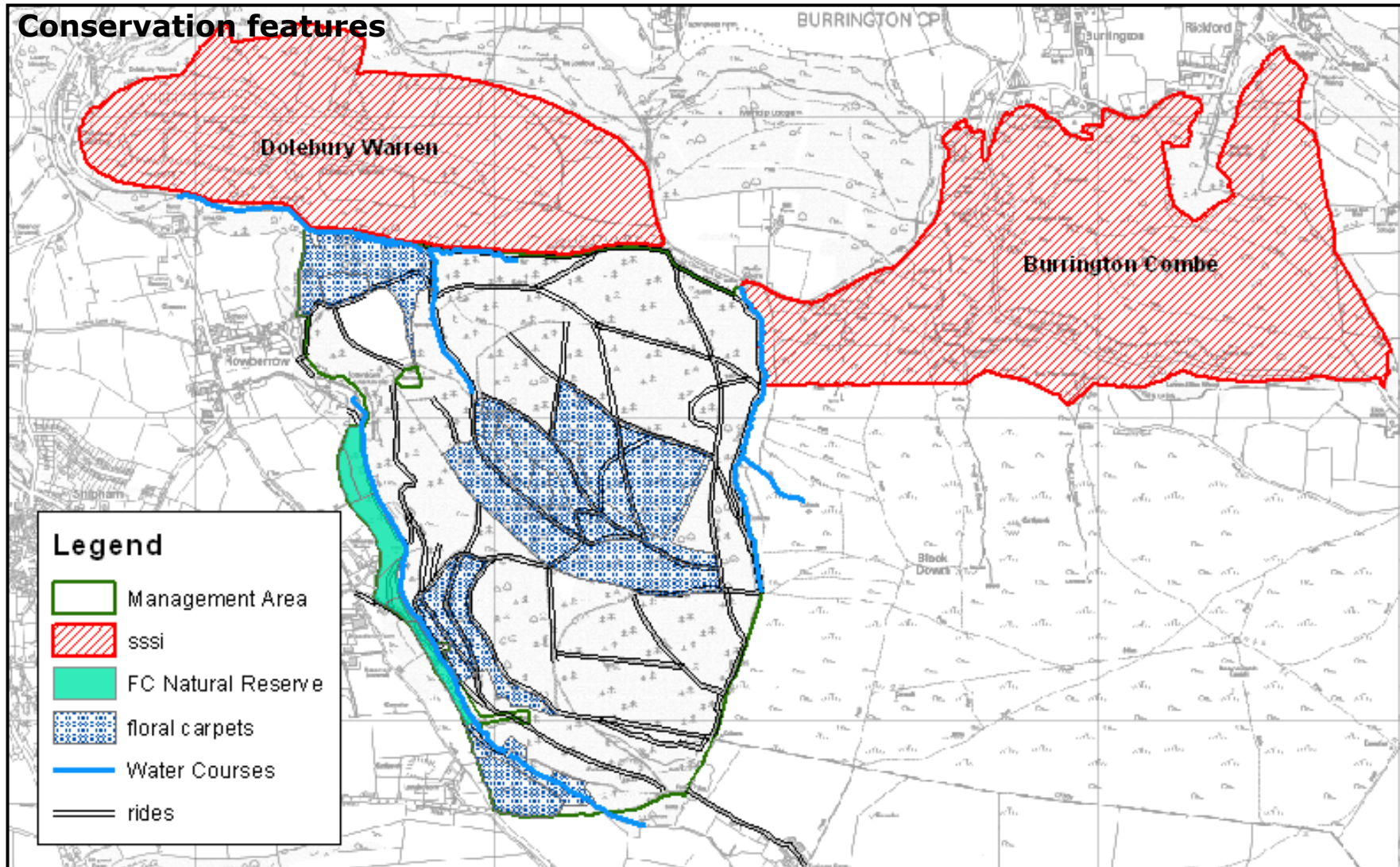


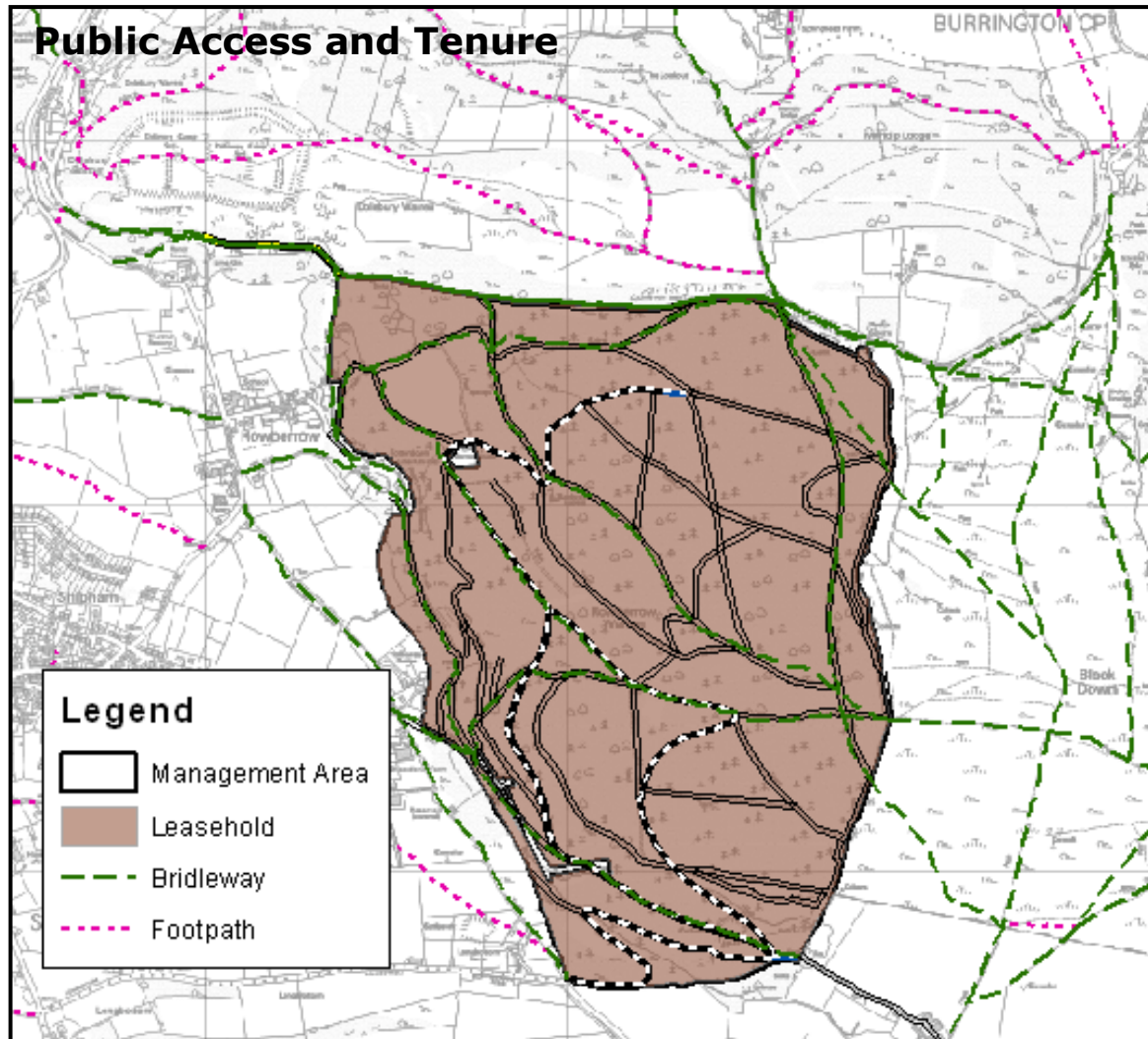
b/w aerial photo courtesy of English Heritage, taken by RAF in 1946

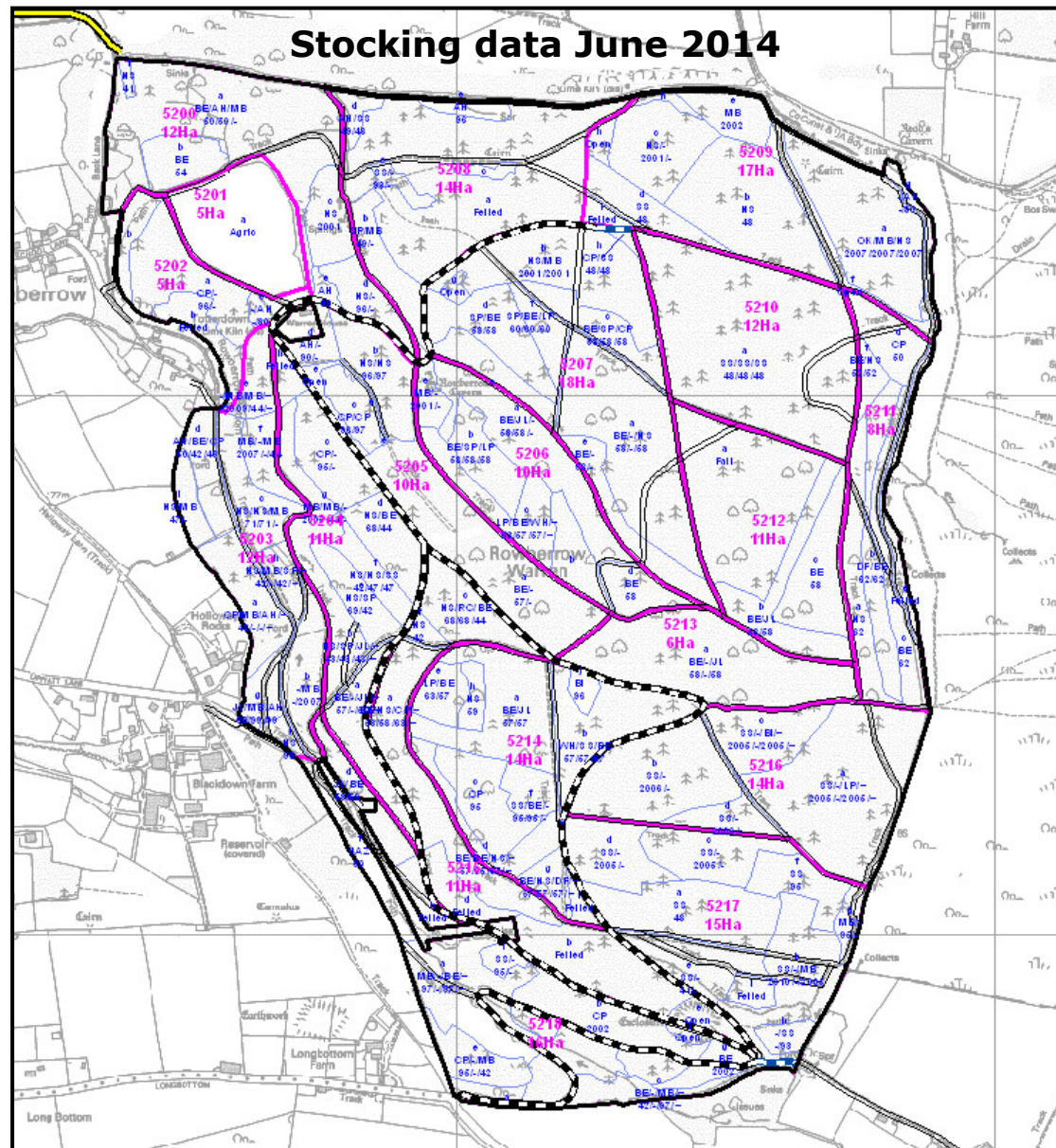
The following extract is taken from the English Heritage web-site:
“Rowberrow Camp; a small Iron Age enclosed settlement photographed by the RAF on 13-JAN-1946. The interior is about 60m² and may have contained a farmstead. Rowberrow Camp may have been reused as a sheep enclosure in the medieval period. The pits inside the camp and extending to the east appear to be mining remains, possibly prospection pits for lead.”

Rowberrow Cavern – Known as a roost for Daubentons and Lesser Horse shoe bats that must be taken into account when planning work.
2014-2024 Action: A 5m buffer of open ground will be maintained around the cave entrance. Naturally occurring trees will be cut within this zone. Outside this area, maintain trees around the entrance, linking the lesser horseshoe bats to their feeding grounds.

Rowberrow Camp – Trees have been removed to open up the camp during the previous plan period.
2014-2024 Action: Maintain as an open with no woody vegetation. Access for harvesting machinery is restricted to the periphery of the monument and the hard stone track through the middle of the site. Brash will be left on site to rot down naturally.







Pests and Diseases

- **Name:** Dothistroma Needle Blight (DBN)

First appearance: mid 1990s

Attacks: Pine species

Often referred to as Red Band Needle Blight (RBN) and can reduce growth rates by between 70 and 90%. Effects of RBN are managed through thinning the wood more heavily than you would normally to introduce higher levels of air flow through the remaining crop.

- **Name:** Phytophthora ramorum (PR)

First appearance: 2012

Attacks: Oaks and Larches

Found originally in Cornwall in 2009, attacking Oak, and in 2012 found to of infected Larch. It is a notifiable disease dealt with by felling the infected area under a statutory plant health notice (SPHN) issued by DEFRA. At present there is no PR on Oak in this part of the West England Forest District, however, around 12% of all larch within the Dean was felled in 2012 to eradicate the disease with regular aerial flyovers to keep track of hot spots. Luckily flyovers in 2013 have shown no reinfection. This is not to say there will not be a need for further fellings of infected larch required in the future.

- **Name:** Oak 'dieback' or 'decline'

First appearance: unknown

Affects: Oak

Oak 'dieback' or 'decline' is the name used to describe poor health in oak trees and can be split into Chronic decline and Acute decline. Chronic decline is protracted taking effect on the Oak over a number of decades whilst Acute decline is much swifter acting over much shorter periods usually five years or so. Symptoms can be caused by a range of living agents e.g. insect and fungal attack, or non-living factors, e.g. poor soil and drought. Factors causing decline can vary between sites, as can the effects of the factors through time. Oak decline is not new; oak trees in Britain have been affected for the most part of the past century. Both native species of oak are affected, but Pedunculate oak (*Quercus robur*) more so than Sessile oak (*Quercus petraea*). Successive exposure any of these agents on a yearly/seasonal basis further reduces the health of the tree and predisposes it to other living (Biotic) agents that can often spell the final death knell for the tree.


- **Name:** Chalara fraxinea

First appearance: currently N/A


Attacks: Ash

Pretty rampant in Europe, showing up in 2012 mainly in East Anglia and along the East coast of England. To date no infection has been found within this part of the West England Forest District and let us hope it stays that way!

Glossary of terms (in alphabetical order)

Term	Abbreviation	Description
Ancient Semi-Natural Woodland	ASNW	An ancient woodland site, where trees and other plant species appear to of established naturally rather than having been planted. Predominantly these sites will contain 80% or over of site native species or species native to the surrounding area.
Ancient Woodland Site	AWS	A site that has technically been wooded since 1600AD and is unlikely to have been converted to farmland in the last few centuries.
Clearfell or clearfall	C/F or CF	To cut and remove all trees from a certain area of woodland.
Crop		A stand of trees. Often associated with stands completely or partially managed for its timber. Just as farmers manage crops so does forestry the only difference is a farmers' rotation is shorter and often realised in 1 year. Trees are a much longer term crop with rotations varying from 6 years to 400 years. (also see definition for rotation)
Enrichment planting		Planting different species within areas of regen that helps diversify the range of species in a wood and in doing so can make it more resilient to future climate change and future threats from disease. Enrichment may be desirable in areas where success of regeneration is uneven, patchy or where a regen crop is limited by the number of species present.
Forestry Stewardship Council	FSC 	An international non-profit organisation dedicated to promoting responsible forestry. FSC certifies forests all over the world to ensure they meet the highest environmental and social standards. Products made with wood and paper from FSC forests are marked with the FSC 'tick tree' logo. When you see this logo, you can be confident that buying it won't mean harming the world's forests.
Group felling / group planting		This is where small areas of woodland are felled hence the name "group felling" and then either allowed to develop through the use of nat-regen or in this case planted hence "group planting". These techniques can help to develop structure* within a wood over a given length of time and is often used in conjunction with continuous cover. *Either in terms of age or number of tree species present, since shelter and shade are provided by the remaining

		upper storey one can consider a larger number of tree species when deciding what to plant.
Hectare	Ha	Unit of area equating to 2.47 acres.
Mixed Wood		Woodland consisting of both conifer and broadleaf species.
Native (and honorary native)		The trees making up the woodland are part of England's natural, or naturalised flora. Determined by whether the trees colonised Britain without assistance from humans since the last ice age (or in the case of 'honorary natives' were brought here by people but have naturalised in historic times); and whether they would naturally be found in this part of England.
Natural Regeneration	Regen or nat-regen	<p>Trees growing on a site as a result of natural seed fall, and can be used as a management process and can allow cleared areas of woodland to germinate, grow and develop naturally. This process can happen anywhere and woods can be managed to encourage nat-regen although there is no guarantee of success. In these instances, or if nat-regen is unlikely for a variety of reasons, one can use enrichment planting or group planting to achieve the same affect.</p> <p>The process usually relies on an overstorey of "parent trees" being present or on parent trees being close by to provide the seed. These parent trees will usually have been thinned and managed with natural regeneration in mind.</p> <p>Existing areas of nat-regen are then usually developed through carefully thinning the surrounding woodland over a number of years, to give more light and space to ensure the young trees can establish themselves into larger trees eventually allowing them to be incorporated ('recruited') into the main crop for the next rotation at some point in the future.</p> <p>Usually done in small groups or in strips this system can allow a varied woodland structure to develop over time. Protection from competing plant species and mammal browsing might be required in the early stages by fencing or using tree shelters.</p>
Operational guidance 1	Ops 1	A site analysis, assessment and methodology statement carried out during the planning of harvesting operations. It outlines management considerations, looks at other

		influences on proposed work and states how the proposed work will be carried out.
Programme for the Endorsement of Forest Certification	PEFC 	PEFC is an international non-profit, non-governmental organization dedicated to promoting Sustainable Forest Management (SFM) through independent third-party certification. It is an umbrella organization and works by endorsing national forest certification systems developed through multi-stakeholder processes and tailored to local priorities and conditions.
Rotation		<p>Generally a commercial term used to describe the length of time an area of trees is growing for, from the time of planting to the time of felling. For broadleaves a rotation is generally a lot longer than that of conifer species* and can broadly speaking be anywhere between 80 years to 3-400 years, as opposed to conifer crops whose rotation is generally shorter but can vary from 20-25 years to 120 years plus.</p> <p>*The exception being that of coppice where rotation length can vary from 5 or 6 years up to 30 years plus depending on management objectives.</p> <p>“First rotation” would refer to an area of wood planted on open ground not previously wooded. And so “second rotation” is one where woodland has been cleared and replanted.</p>
Shelterwood		<p>A management system that is applicable to conifer or broadleaf, where tree canopy is maintained at one or more levels without the need to clearfell the whole site. Felling can occur, but generally in small “groups” whose size shape and spatial distribution will vary depending on site conditions. The “groups” are then either: allowed to develop and establish by the use of natural regeneration, are planted or are established using a mixture of both techniques. This known as a “group shelterwood system”</p> <p>A variation on this is “Single tree selection”. This variation removes individual trees of all size classes more or less uniformly throughout the stand to maintain an uneven-aged stand and achieve other stand structural objectives. While it is easier to apply such a system to a stand that is naturally close to the uneven-aged condition, single tree selection systems can be prescribed for even-aged stands, although numerous preparatory thinning interventions must be made to create a stand structure where the system can truly be applied.</p>

Silviculture		A term coined during late 19th century from the Latin <i>silva</i> meaning 'wood' and the French <i>culture</i> meaning 'cultivation' and so Silviculture is the art and science of controlling the establishment, growth, composition, and quality of forest vegetation to achieve a full range of forest resource objectives.
Silvicultural systems		These refer to a wide range of complete regimes for the regenerating, tending, and harvesting of forests and are called "silvicultural systems".
Stand		A group or area of trees that are more or less homogeneous with regard to species composition, density, size, and sometimes habitat.
Thin	TH	<p>Selective removal of trees from a wooded area, giving remaining trees more space to grow into larger trees. Thinning is done to:</p> <ol style="list-style-type: none"> 1. Improve the quality and vigour of remaining trees. 2. Remove trees interfering with mature or veteran broadleaf trees. 3. Give space for tops (or "crowns") of broadleaf trees to develop and potentially act as a future seed source. 4. Give space for natural regeneration to grow and develop with the intention of recruiting these younger naturally grown trees as a part of the future woodland structure. 5. Create gaps for group planting or enrichment. 6. Remove species of tree that may compromise the intended management objective of the woodland eg: non-native or invasive species such as Sycamore, Western Hemlock or birch. 7. Improve the economic value of a wood. 8. Help realise opportunities to enhance ecological value. <p>NOTE: This list is not in any order of priority and will vary depending on management objectives.</p>
Yield Class	YC	A method of measuring the growth rate or "increment" of a crop of trees by age and height; measured in m ³ per Ha per annum. E.g. A crop with a YC of 16 is one that has an annual increment of more than 16m ³ but less than 17m ³ , although generally only even numbers are used when stating YC.

