

# Duncombe Park Estate Woodland Management Plan



To be completed by the plan author:	
Woodland or Property name	Duncombe Park Estate
Woodland Management Plan case reference	628541
The landowner agrees this plan as a statement of intent for the woodland	Yes
Plan author name	Chris Grice: Tilhill Forestry

For FC Use only:			
Plan Period <i>(dd/mm/yyyy - Ten years)</i>	Approval Date:		Approved until:
Five Year Review Date			

Revision No.	Date	Status (draft/final)	Reason for Revision

**UK Forestry Standard management planning criteria**

Approval of this plan will be considered against the following UKFS criteria.

UKFS management plan criteria		Minimum approval requirements	Author check <input checked="" type="checkbox"/>
1	<b>Plan Objectives:</b> Forest management plans should state the objectives of management and set out how an appropriate balance between social, economic, and environmental objectives will be achieved.	<ul style="list-style-type: none"> <li>Management plan objectives are stated.</li> <li>Consideration is given to environmental, economic and social objectives relevant to the vision for the woodland.</li> </ul>	✓
2	<b>Forest context and important features in management strategy:</b> Forest management plans should address the forest context and the forest potential and demonstrate how the relevant interests and issues have been considered and addressed.	Management intentions communicated in <b>Sect. 6</b> of the management plan are in line with stated objective(s) <b>Sect. 2</b> . Management intentions should take account of: <ul style="list-style-type: none"> <li>Relevant features and issues identified within the woodland survey (<b>Sect. 4</b>)</li> <li>Any potential threats to and opportunities for the woodland, as identified under woodland protection (<b>Sect. 5</b>).</li> <li>Relevant comments received from stakeholder engagement and documented in <b>Sect. 7</b>.</li> </ul>	✓
3	<b>Identification of designations within and surrounding the site:</b> For designated areas, e.g. National Parks or SSSI, particular account should be taken of landscape and other sensitivities in the design of forests and forest infrastructure.	<ul style="list-style-type: none"> <li>Survey information (<b>Sect. 4</b>) identifies any designations that impact on woodland management.</li> <li>Management intentions (<b>Sect. 6</b>) have taken account of any designations.</li> </ul>	✓
4	<b>Felling and restocking to improve forest structure and diversity:</b> When planning felling and restocking, the design of existing forests should be re-assessed and any necessary changes made so that they meet UKFS requirements. Forests should be designed to achieve a diverse structure of habitat, species and ages of trees, appropriate to the scale and context. Forests characterised by a lack of diversity, due to extensive areas of even-aged trees, should be progressively restructured to achieve age class range.	<ul style="list-style-type: none"> <li>Felling and restocking proposals are consistent with UKFS design principles (for example scale and adjacency).</li> <li>Current diversity (structure, species, age structure) of the woodland has been identified through the survey (<b>Sect. 4</b>).</li> <li>Management intentions aim to improve / maintain current diversity (structure, species, and ages of trees).</li> </ul>	✓
5	<b>Consultation:</b> Consultation on forest management plans and proposals should be carried out according to forestry authority procedures and, where required, the Environmental Impact Assessment Regulations.	<ul style="list-style-type: none"> <li>Stakeholder engagement is in line with current FC guidance and recorded in <b>Sect. 7</b>. The minimum requirement is for statutory consultation to take place, and this will be carried out by the Forestry Commission.</li> <li>Plan authors undertake stakeholder engagement (ref FC Ops Note 35) relevant to the context and setting of the woodland.</li> </ul>	✓
6	<b>Plan Update and Review:</b> Management of the forest should conform to the plan, and the plan should be updated to ensure it is current and relevant.	<ul style="list-style-type: none"> <li>A 5 year review period is stated on the 1st page of the plan.</li> <li><b>Sect. 8</b> is completed with 1 indicator of success per management objective.</li> </ul>	N/A

**Section 1: Property Details**

<a href="#">Woodland Property Name</a>		Duncombe Park Estate	
Name	The Hon Jake Barnaby Duncombe	Owner	The Hon Jake Barnaby Duncombe
Email	james@duncombepark.com	Contact Number	01439 770213
Agent Name:		C Grice, Tilhill Forestry	
Email	chris.grice@tilhill.com	Contact Number	01653 696083
County	North Yorkshire	<a href="#">Local Authority</a>	Ryedale District Council
Grid Reference	SE603830	Single Business Identifier	107069919
What is the total area of this woodland management plan? (In hectares)		694.15ha	
You have included an Inventory and Plan of Operations with this woodland management plan?		Yes	
Maps associated with this woodland management plan		<ol style="list-style-type: none"> <li>1. Location</li> <li>2. Heritage</li> <li>3. Biodiversity and habitats</li> <li>4. Compartments</li> <li>5. Hazards and constraints</li> <li>6. Access</li> <li>7. Restocking</li> <li>8. Harvesting</li> <li>9. Age class</li> <li>10. Woodland Type (species mix)</li> <li>11. Yield class</li> </ol> <p><b>Supporting documents include:</b></p> <ul style="list-style-type: none"> <li>• PAWS survey spreadsheet</li> <li>• PAWS assessment maps</li> <li>• ON 46 Managing ash die back</li> <li>• NYMNP bio-diversity map.</li> </ul>	

Do you intend to use the information within this woodland management plan and associated Inventory and Plan of Operations to apply for the following?	Felling Licence	Yes
	Thinning Licence	Yes
	NYMNP funding for woodland support	Yes
You declare that there is management control of the woodland detailed within the woodland management plan?	Yes	
You agree to make the woodland management plan publicly available?	Yes	

## Section 2: Vision and Objectives

To develop your long term vision, you need to express as clearly as possible the overall direction of management for the woodland(s) and how you envisage it will be in the future. This covers the duration of the plan and beyond.

### 2.1 Vision

Describe your long term vision for the woodland(s). (*Suggest 300 words max*)

The long term vision for these woodlands is the care, enhancement and maintenance of an irregular high forest system incorporating a mixture of species with a varied age structure which supports and delivers a range of economic, environmental, public and sporting benefits. This management plan aims to continue the active management of the estate woodlands maintaining a continuity of active management meeting the aims and objectives of the owner.

### 2.2 Management Objectives

State the objectives of management demonstrating how sustainable forest management is to be achieved. Objectives are a set of specific, quantifiable statements that represent what needs to happen to achieve the long term vision.

No.	Objectives (include environmental, economic and social considerations)
1	To enhance the capital value of the woodlands creating a sustainable timber resource through sound silvicultural management. Maximise the sustainable timber yield to deliver the maximum sustainable financial return.
2	To maintain, protect and enhance the amenity, landscape, conservation values and cultural heritage of the woodlands. Increase species and structural diversity and resilience by introducing a more diverse restocking species matrix.
3	To develop and improve the sporting potential of the woodlands for the rearing and presentation of driven game.
4	To develop and maintain the biodiversity of the forest with the objective of creating a sustainable, resilient, balanced and dynamic woodland ecosystem.
5	To manage the forest in accordance with the UK Forest Standard and associated statutory obligations.
6	To safeguard and improve the quality and quantity of water flowing through watercourses contributing to the Water Framework Directive
7	To capitalise on potential support mechanisms to assist and enable proactive management



### Section 3: Plan Review – Achievements

Use this section to identify achievements made against previous plan objectives. This section should be completed at the 5 year review and could be informed through monitoring activities undertaken.

Objectives	Achievement

### Section 4: Woodland Survey

This section is about collecting information relating to your woodland and its location, including any statutory constraints i.e. designations.

#### 4.1 Description

Brief description of the woodland property:

**Location and access:** Duncombe Park woodlands form an integral part of the 4850ha Helmsley Estate which is comprised of agricultural land (arable and livestock), moorland and the historic parkland of Duncombe Park itself. The estate lies within the county of North Yorkshire and is adjacent to the small market town of Helmsley and is mostly situated within the North York Moors National Park

**Geology and soils:** Underlying geology is varied across the range of woodland areas. The valley and dale sides are underlain by soft Lias mudstones and Cleveland ironstone with thin limestone beds and the plateau sites by Lower calcareous grit (sandstone) and Ooidal limestone. Lower lying sites underlain by sandstone, mudstone, siltstone and limestone associated with Long Nab, Moor Grit, Scarborough and Cloughton formations.

Soils at Ashdale follow similar patterns to the geology, with a predominance of iron pan and podsol soils over the sandstone grits on the plateau, brown earths along the valley/dale sides. Typical pH ranges from 3.7 in the upland areas to pH in the region of 7.0 – 7.3 in the dales.

**Wind Hazard Classification (DAMS):** Detailed aspect method scores (DAMS), indicating exposure to wind range from 14-16 (moderate exposure) on the most elevated areas indicating, to 3-10 (relatively sheltered) in the dales and the area around the park. Windblow does not appear to be present at a level that would guide management prescriptions.

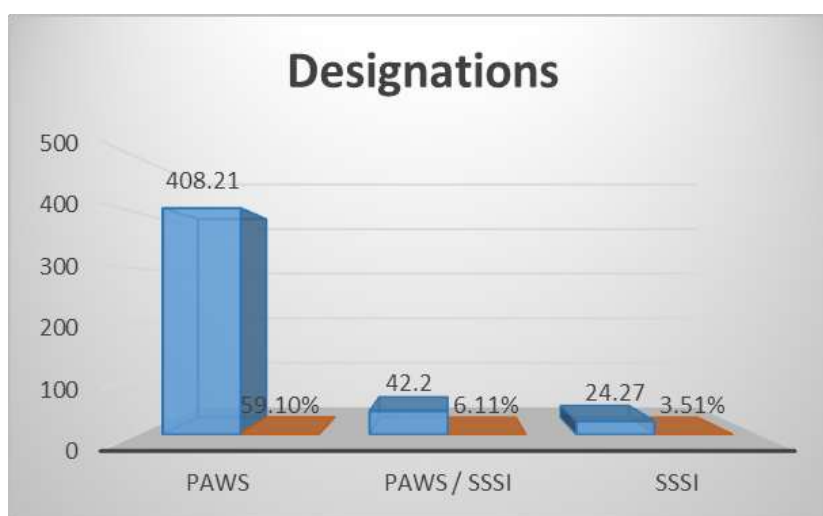
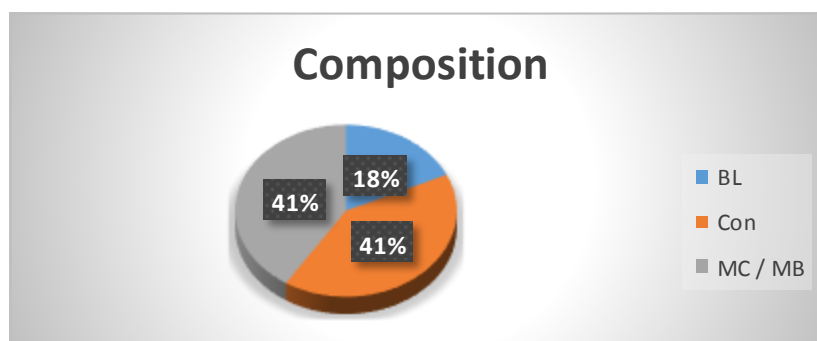
**Climate:** The climate in the area can be classed as warm and temperate. Average annual rainfall is in the region of 672mm and an average summer temperature of 15.4°C and an average winter temperature of 3.2°C.

#### Woodland designations

**Ancient Semi Natural Woodland (ASNW):** Approximately 39.96ha are designated as ASNW and are mostly situated around the Park area retain significant elements of native woodland species and flora. There are however minor elements of sycamore and beech to be found throughout but are not considered to be significant and do not threaten the integrity of the ASNW. Cpts160a, 1d,e, b(part), 5d,e,f (part) and 161c are all designated as ASNW.

**Plantation on Ancient Woodland (PAWS):** The estate has a significant element of PAWS woodlands throughout accounting for some 408ha (59%) of the total woodland area. The area of PAWS is extensive and is to be found within the dales and almost the entire woodland area surrounding the park is designated as such. Ash is the dominant native species with abundant natural regeneration throughout but is threatened by the presence of ash dieback (*Hymenoscyphus fraxinea*). Oak and sycamore are common within the PAWS area with minor (birch, Hazel) broadleaves present. Conifer dominated PAWS sites account for 109ha (27%) of the total PAWS area, mixed woodlands consisting of mixed conifer species and mixed broadleaved species account for the largest element of woodland structure within the PAWS area and accounts for 206ha (50%) with broadleaves accounting for 93ha (23%) of the total area.

**Coniferous:** Conifer species account for approximately 280ha (42%) of the forest area with an average yield class in the region of 8 with the lowest being YC 4 and the best performing crops at YC 18. The main species are SP,EL/HL, NS, SS with areas of DF and CP present. Coniferous species are present throughout the estate. Natural regeneration of SP on the fringes of Rievaulx moor plantation has created a naturalised woodland fringe which with prolific birch regeneration is an important natural ecotone habitat.





#### 4.2 Information

Use this section to identify features that are both present in your woodland(s) and where required, on land adjacent to your woodland. It may be useful to identify known features on an accompanying map. Woodland information for your property can be found on the [Magic](#) website or the Forestry Commission [Land Information Search](#).

Feature	Within Woodland(s)	Cpts	Adjacent to Woodland(s)	Map No
<b>Biodiversity- Designations</b>				
Site of Special Scientific Interest	Yes	Adjacent to Rievaulx plantation and includes 144f, 1b,c,de,2, 3a,b,c,4,1 60a,166a	Yes	3e,f
Special Area of Conservation	Yes	Adjacent to Rievaulx plantation and includes 144f	Yes	3e,f
Tree Preservation Order	No		Yes	See protected trees map
Conservation Area	No		Yes	
Special Protection Area	Yes	Adjacent to Rievaulx plantation and includes 144f	Yes	3e,f
Ramsar Site	No		No	
National Nature Reserve	Yes	1b,c,de,2, 3a,b,c,4,1 60a,166a	Yes	
Local Nature Reserve	No		No	
<b>Notes</b>				

Feature	Within Woodland(s)	Cpts	Map No	Notes
<b>Biodiversity - European Protected Species</b>				
Bat	Species: Noctule, Soprano Pipistrelle, Brown Long-eared bat	Yes	Likely to be present to some degree.	EPS best practice guidelines will be followed to ensure compliance with EPS regulations.
Dormouse	No			
Great Crested Newt	No			

Otter	No			Not known to be present, but should evidence of presence be found EPS best practice will be followed.
<b>Biodiversity – Priority Species</b>				
<a href="#">Schedule 1 Birds</a>	Species:	No		There are no known recorded sightings of schedule 1 bird species within the plan area. Surveys will be carried out and included in operational site assessments prior to the commencement of harvesting operations. All relevant legislation will be complied with.
Mammals: Brown Hare, badger	Yes	Potentially all		Brown hare are present on adjacent agricultural land and will be utilising the woodland habitat. Some minor issues arise from their presence particularly in cpt 164 (Xmas trees) which was protected by appropriate fence erection. Lethal control may be used where appropriate. Two potential badger setts have been identified within the woodland area. All management activities undertaken shall comply with 'the Protection of Badgers Act 1992.
Reptiles: grass snake, adder, common lizard	Yes	Potentially all		Adders and Grass snakes are likely to be present. Their presence will be recorded so that they can be considered and accommodated during site planning. UKFS Guidelines (6.1) Biodiversity shall be followed.
Plants	Yes	118, 111		Lily of the valley, Herb Paris
Fungi/Lichens: <i>Chaenotheca brachypoda</i>	Yes			Lichen rich deadwood assemblage
Invertebrates (butterflies, moths, beetles etc.)	Yes	162, 134, 152, 160a		Duke of Burgundy, White-letter hairstreak

Amphibians (pool frog, common toad)	Yes	Potentially all		No known recorded sightings of priority species but likely presence of common frog and common toad
<b>Historic Environment</b>				
Scheduled Monuments	Yes	134a	2c	There is one scheduled monuments located within the woodlands (Linear boundary earthwork No 32687). However there are numerous SM's adjacent to the woodland boundaries, map X identifies these features. UKFS Guidelines (6.3) Historic Environment shall be followed. SM Consent from Historic England will be sought prior to the commencement of operations.
Unscheduled Monuments	There are numerous heritage features known to be present, mostly around the parkland area.		2	UKFS Guidelines (6.3) Historic Environment shall be followed to ensure that all features (unknown and unrecorded at the time of the compilation of this plan) will be protected. Any suspected heritage feature will be recorded and appropriate advice and guidance sought as deemed necessary.
Registered Parks and Gardens	Yes	1a,b,c,d,e, 2, 3a,b,c, 4, 5a,b,c,d,e, 6a,b, 159, 160a, 166a	2f	Duncombe Park RP&G covers 285ha mainly encompassing the parkland but including adjacent woodland. Consent will be obtained with Historic England prior to the commencement of work within these woodlands.
Boundaries and Veteran Trees	Yes	Potentially all		Veteran and potential veteran trees will be identified and tagged prior to operations. Halo thinning and tree management where necessary will be carried out in order to protect and preserve these valuable

				features.
Listed Buildings	Yes		2g	
<b>Landscape</b>				
<p><b>National Character Area</b> : The majority of the estate woodland lies within NCA 25; North York Moors and Cleveland Hills, with a minor element also lying within NCZ 26 Vale of Pickering. SE05 States: <b><i>“Positively manage woodlands, trees, wood pasture and historic parklands for their contribution to the characteristic landscapes of the area, their priority habitats and the species that they support, as well as their potential for carbon storage, regulation of peak flood flows and provision of renewable materials”.</i></b></p>				
National Park	Yes	All with the exception of cpts:110, 161a,b,c		North York Moors National Park
Area of Outstanding Natural Beauty	Yes	161a,b,c		Howardian Hills AONB
<b>People</b>				
CROW Access	Yes	144b, c, e,f,g,h, 162b		
Public Rights of Way (any)	Yes			
Other Access Provision	Yes		6f	Permissive access is granted throughout the woodlands surrounding Duncombe Park
Public Involvement	No			
Visitor Information	No			
Public Recreation Facilities	No			
Provision of Learning Opportunities	No			
Anti-social Behaviour	No			
<b>Water</b>				
Watercourses	Yes	Various		There are a number of watercourses throughout the forest area, many of which feed directly into the reservoirs. UKFS Forest and Water guidance (6.7) will be adhered to, ensuring that water quality is not affected by forest operations.
Lakes	No			
Ponds	No			

#### 4.3 Habitat Types

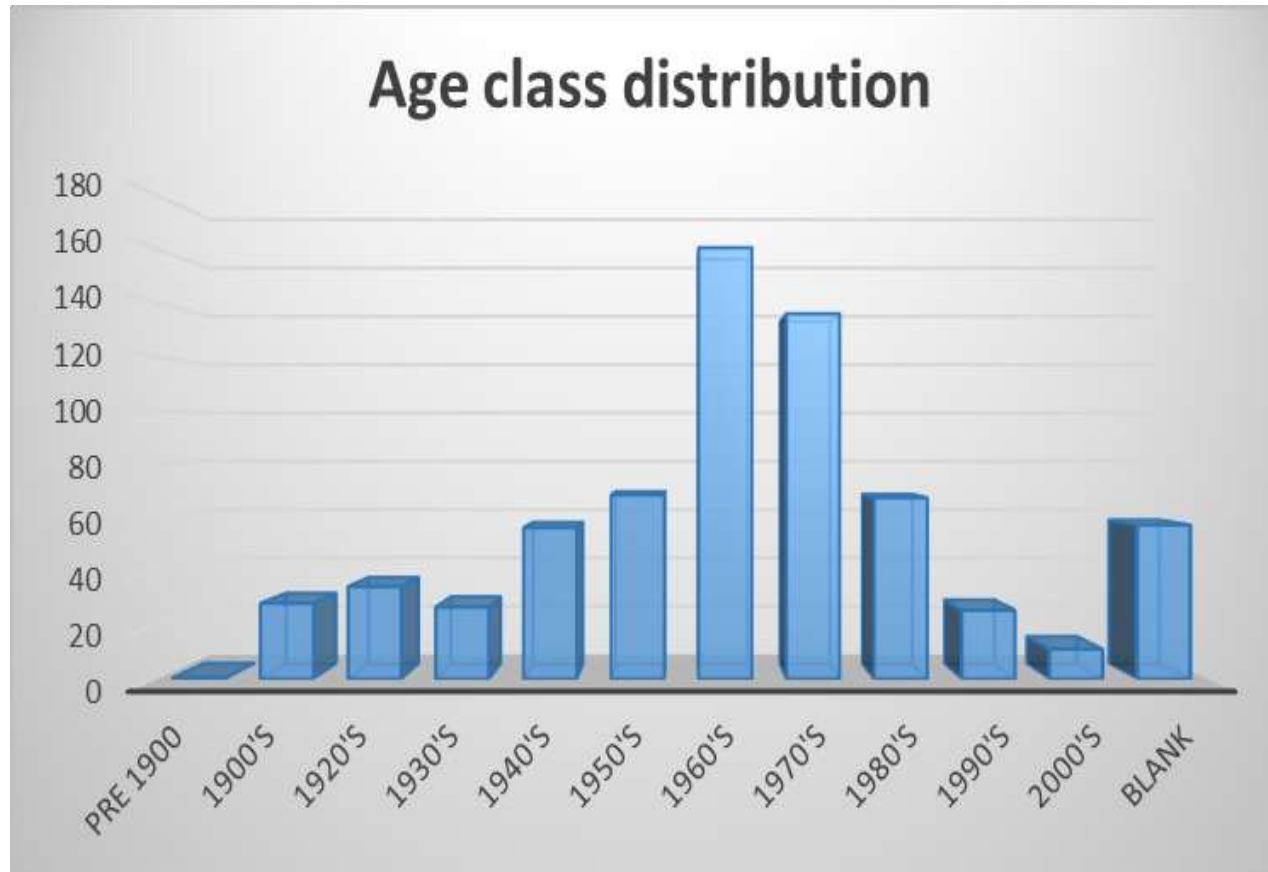
This section is to consider the habitat types within your woodland(s) that might impact/inform your management decisions. Larger non-wooded areas within your woodland should be classified according to broad habitat type where relevant this information should also help inform your management decisions. Woodlands should be designed to achieve a diverse structure of habitat, species and ages of trees, appropriate to the scale and context of the woodland.

Feature	Within Woodland(s)	Cpts	Map No	Notes
<b>Woodland Habitat Types</b>				
Ancient Semi-Natural Woodland	Yes	See plan of Operations	3a,b,c	
Planted Ancient Woodland Site (PAWS)	Yes	See plan of Operations	3a,b,c	
Semi-natural features in PAWS	Yes			
Lowland beech and yew woodland	No			
Lowland mixed deciduous woodland	No			
Upland mixed ash woods	Yes			
Upland Oakwood	No			
Wet woodland	No			
Wood-pasture and parkland	Yes			Parkland trees are present in the vicinity of the main house but are not in the scope of this plan as they do not meet the FC/NE definition of woodland.
<b>Non Woodland Habitat Types</b>				
Blanket bog	No			
Fenland	No			
Lowland calcareous grassland	No			
Lowland dry acid grassland	No			
Lowland heath land	No			
Lowland meadows	No			
Lowland raised bog	No			
Rush pasture	No			
Reed bed	No			
Wood pasture	No			
Upland hay meadows	No			
Upland heath land	Yes			Rievaulx Moor adjacent to cpt 144e, 162a,b
Unimproved grassland	No			
Peat lands	No			Non to be found within the woodlands, although there are significant areas of peat elsewhere on the estate
Wetland habitats	No			

#### 4.4 Structure

This section should provide a snapshot of the current structure of your woodland as a whole. A full inventory for your woodland(s) can be included in the separate Plan of Operations spreadsheet. Ensuring woodland has a varied structure in terms of age, species, origin and open space will provide a range of benefits for the biodiversity of the woodland and its resilience. The diagrams below show an example of both uneven and even aged woodland.

Woodland Type (Broadleaf, Conifer, Coppice, Intimate Mix)	Percentage of Mgt Plan Area	Age Structure	Notes (i.e. understory or natural regeneration present)
Lowland mixed broadleaf	18%	Uneven	Profuse natural regeneration of ash and sycamore is present. Ash dieback will impact adversely upon natural regeneration.
Mixed broadleaved with mixed conifer	41%	Various	A mix of rich and diverse ground flora is present throughout these compartments, trending from very limited (none) to good coverage.
Conifer	41%	Even	Little understorey or ground vegetation present although <i>caluna</i> , <i>vaccinium</i> and some birch regeneration is present within SP plantations. Areas of MC (unless un-thinned) have varying degrees of ground flora
PAWS	408ha – 59%	Uneven	Ash is the dominant naturally regenerating species but with signs of die back which will only become more severe with time.
SSSI	24.27ha – 3.51%	Uneven	
PAWS / SSSI	42.2ha – 6.11%	Uneven	



## Section 5: Woodland Protection

Woodlands in England face a range of threats; this section allows you to consider the potential threats that could be facing your woodland(s). Use the simple Risk Assessment process below to consider any potential threats to their woodland(s) and whether there is a need to take action to protect their woodlands.

**Note:** To add more tables, Copy the table and Paste below.

Threat	<i>Hymenoscyphus fraxinea</i> (Ash dieback), <i>Phytophthora ramorum</i>
Likelihood of presence	High / Medium
Impact	High
Response	It is proposed that suitable and sufficient biosecurity measures will be put in place to ensure that all vehicles and equipment utilised in the course of forest operations will follow best practice as advocated by Forestry Commission England (FC Keep It Clean).

### 5.1 Risk Matrix

The matrix below provides a system for scoring risk. The matrix also indicates the advised level of action to take to help manage the threat.

Impact	High	Plan for Action	Action	Action
	Medium	Monitor	Plan for Action	Action
	Low	Monitor	Monitor	Plan for Action
		Low	Medium	High
<b>Likelihood of Presence</b>				

### 5.2 [Plant Health](#)

Threat	<i>Hymenoscyphus fraxinea</i> (Ash dieback)
Likelihood of presence	Present, the disease is present in natural regeneration but has yet to be evident in mature trees although it is inevitable that this will become evident with time.
Impact	High
Response	Ash forms a significant proportion of the canopy cover within the woodlands. Chalara has been identified in young naturally regenerated ash (up to approximately 4m tall). Mature ash specimens are yet to show significant signs of stress or infection, however indications are that there may already be mature trees showing early signs of infection. Signs of naturally regenerating birch and sycamore will contribute to the woodland stocking. If the disease becomes established and threatens mature crop trees these will be felled so as to retain economic benefits where prudent to do so. The opportunity to increase standing deadwood will be taken where the situation permits without diluting the economic benefits. It is proposed to replace ash felled due to the disease with suitable broadleaved species to include oak, cherry, sycamore, and hornbeam, hazel and appropriate woody shrubs.



	FC Operations Note 46: Managing ash in woodlands in light of ash dieback (20/09/18) will provide guiding principles for the management of ash.
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Threat	<i>Phytophthora ramorum</i>
Likelihood of presence	Medium (within FC risk zone 2)
Impact	Medium
Response	Larch is found as an element of the conifer crop throughout 195ha (28%) of the woodland estate. Being a deciduous conifer it provides landscape benefits that are disproportionate to the scale of planting, adding colour and texture during the growing season. Therefore the loss of the larch element will be relatively significant should the disease be found. There have been 2 sites where the disease has been confirmed at Gilling East which lies approximately 6 miles South West of the estate which increases the risk to the estate. Therefore it will be important to monitor the larch for and adverse signs and liaise with the relevant FC plant health officer. There are currently no plans to pre-emptively fell the larch in anticipation of the disease, but rather it will be favoured during normal silvicultural operations.

Threat	<i>Tomicus piniperda</i> (Pine shoot beetle), <i>Hylobius abietis</i> (large pine weevil)
Likelihood of presence	Low
Impact	Medium to High
Response	Scots pine is the most prevalent conifer species throughout the woodland estate with 92ha at Rievaulx moor, periodic infestation of <i>Tomicus</i> has led to a program of sanitary thinning's to reduce the impact. Crops shall be monitored for signs of infestation with late summer / autumn felling to minimise adverse impacts. <i>Hylobius</i> is only an issue on restocking sites recent intelligence suggests that FE sites within the area have suffered high mortality rates therefore where restocking with conifers takes place sites will be monitored and transplants treated with appropriate permissible pesticides.

### 5.3 [Deer](#)

Species	Roe, Fallow and Red deer (not common)
Impact	High; where restocking and natural regeneration are management prescriptions.
Response	Deer activity within the woodlands would appear to be quite low with little signs of browsing and grazing. However Roe deer have been seen during the course of the site survey. Carry out damage assessments to establish any potential adverse impact due to deer pressure. Controls measures include culling as the main method of damage control with the use of deer exclosure plots where shooting is not feasible.

### 5.4 [Grey Squirrels](#)

Likelihood of presence	High
Impact	High
Response	Grey squirrel population and damage level would appear to be low to moderate with evidence of damage being identified, particularly in the sycamore element. Numerous drays were noted. Monitor damage to vulnerable species and implement a control and reduction strategy using a variety of control methods, including shooting and lethal trapping should the damage be unsustainable.

### 5.5 Livestock and Other Mammals

Threat (Sheep, Horse, Rabbit etc)	Herbivore (rabbit, Hare, Livestock)
Likelihood of presence	High
Impact	Medium.
Response	Rabbits are present but their numbers appear to be in decline due one suspects to RHD2 (2018/19). The forest structure and management systems employed is a limiting factor to significant rabbit damage. However replanted (and naturally regenerating) areas will need to be monitored to ensure appropriate control measures are taken should damage assessments indicate an issue. Brown Hares have the potential to impact on restocking areas and appropriate damage assessments should be conducted, informing management prescriptions. Livestock do not appear to be an issue at present. Regular boundary fence inspections should be carried out to ensure fence integrity is secure.

### 5.6 Water & Soil

Threat; Diffuse Pollution	Periods of high rainfall greatly increase the risk of diffuse pollution. This can result in significant impact on the water environment with subsequent impact upon aquatic ecosystems
Likelihood of presence	Low
Impact	High
Response	<p>UKFS Forest and Water guidance (6.7) will be adhered to and the following management steps will be undertaken:</p> <ul style="list-style-type: none"> <li>• Assess water quality in surrounding water bodies.</li> <li>• Identify and mark drains and watercourses. Include them on hazard maps and work instructions.</li> <li>• Assess the site and associated activity for sediment release.</li> <li>• Identify all water bodies and where required seek appropriate consent.</li> <li>• Site any fuel or chemical storage at least 10m from drains and watercourses.</li> <li>• Where appropriate install cut-off trenches, settlement ponds and silt fences to prevent run off and allow settlement.</li> <li>• Monitor weather and plan accordingly, halting work should weather conditions pose a threat to water quality.</li> <li>• Monitor water quality in surrounding waterbodies as work progresses.</li> <li>• Stop work if water discolouration is noticed.</li> <li>• Ensure that suitable and sufficient spill kits and pollution control kits are available and held on site.</li> </ul>

Threat:	Point Pollution
Likelihood of presence	Low
Impact	Medium
Response	<ul style="list-style-type: none"> <li>• Identify and define fuel storage and refuelling points and identify on operational site assessment form and contract maps.</li> <li>• Site fuel and chemical storage areas a minimum of 10m from any waterbody.</li> <li>• Ensure that suitable and sufficient spill kits and pollution control kits are available and held on site.</li> <li>• Ensure that all operations comply with UKFS Forest and Water guidelines (6.7)</li> </ul>

### 5.7 Environmental

Threat	Fire
Likelihood of presence	Medium
Impact	High
Response	Property details will be included on the Tilhill Forestry North and Central England District Fire Plan, copies of which are held at the area office near Malton. Due to the public access potential across the estate there will be increased risk during dry spells and busy recreational periods estate wildfire notices should be posted at appropriate locations such as car parks and footpaths. Ensuring suitable and sufficient anti-litter action is taken minimising the risk of fire caused by discarded portable bbq's, camp fires and discarded bottles.

Threat	Wind
Likelihood of presence	Medium
Impact	High
Response	The elevation above sea level across the estate ranges from 80m in the parkland areas on the lower reaches of the estate to a maximum elevation of 250m on Rievaulx moor plantation.  Detailed aspect method scores (DAMS), indicating exposure to wind range from 14-16 on the most elevated areas indicating moderate exposure, to 3-10 indicating relatively sheltered in the dales and the area around the park. These scores lead one to conclude that exposure to wind damage is moderate at worst but overall relatively secure, with no areas identified as being exposed (at high risk). Therefore wind is not currently considered to be a significant factor or barrier to sound silvicultural practice across the estate despite climate change predictions.

### 5.8 Social

Threat (Rights of Way, CROW, permissive access, events sporting rights, Anti-social Behaviour etc.)	PROW, Sporting (inc organised motor sport events), permissive access. Unauthorised motorcycle use of the forest.
Likelihood of presence	High
Impact	Low
Response	Continue to fulfil statutory obligations as required.

### 5.9 Economic

Threat	Timber Market
Likelihood of presence	Low
Impact	Medium
Response	<p>The current (2018/19) timber market buoyancy (range of products included) presents opportunities to realise a sound return from timber sales and will influence the overall product breakout. However should market values recede this will have little impact on the harvesting program due to the desire to enhance the natural capital value of the forest i.e. landscape, habitat and biodiversity improvements as well as improvements in the quality of the standing timber crop.</p> <p>There are a number of products and co-products underpinning the market and this offers the estate a greater range of product specifications whilst bringing into scope areas which had previously been considered to be un-economic to actively manage.</p>

Threat	Infrastructure
Likelihood of presence	Medium
Impact	Medium
Response	<p>Lack of a suitable and sufficient forest road network has the potential to impact on the economic delivery of timber that now, due to market conditions, is considered to be worth harvesting. The existing limited road network will be placed under additional pressure which it may not be able to sustain requiring increased maintenance and costs potentially impacting on the viability of marginal harvesting areas.</p>

### 5.10 [Climate Change](#) Resilience

Threat	Structure and species diversity
Likelihood of presence	Low
Impact	Medium
Response	<p>The structural and species diversity and composition of this forest provides some resilience to climate change as demonstrated in section 4.2. The forest contains a relatively broad range of species with greater reliance upon placed on 3 main timber species (L, SP, SS), it is proposed to increase the range of main crop timber species and use of silvicultural mixtures when restocking to provide improved resilience to climate change and reduce the potential impact from pests and</p>

	<p>diseases. The attached plan of operations indicates the range and species to be considered.</p> <p>UKFS Climate Change guidelines (6.2: 28) will be followed in principal.</p>
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## Section 6: Management Strategy

This section requires a statement of intent, setting out how you intend to achieve your management objectives and manage important features identified within the previous sections of the plan. A detailed work programme by sub-compartment can be added to the Plan of Operations.

Management Objective / Feature	Management Intention
<p>To enhance the capital value of the woodlands creating a sustainable timber resource through sound silvicultural management. Maximise the sustainable timber yield to deliver the maximum sustainable financial return.</p>	<p>All harvesting operations will comply with the relevant UKFS guidance documents, aiming to minimise the impact to the woodland and wider environment.</p> <p>Harvesting intentions are detailed in the attached 10 year plan of operations and will be covered by an appropriate felling licence. With the aim of improving the quality of standing timber whilst enhancing the wider biodiversity, landscape and recreational benefits that good silvicultural management provides.</p> <p>Greater use of a more diverse range of conifer mixtures will be adopted for second rotation crops, selecting species for enhanced yield class performance and enhanced site suitability. Increasing the species diversity and the use of intimate and group mixtures will also lessen the likely impact of any given pest or disease, mitigating the impact on overall productivity. Ecological Site Classification (ESC) version 4 will help inform the suitability of site specific species taking into consideration climate change predictions. Site suitability surveys will in conjunction with ESC 4 define the restocking species. The species identified within the attached plan of operations are therefore indicative of the restock species.</p> <p>Oak regeneration has been identified primarily on the lower slopes which indicates that oak may present a suitable alternative to disease affected ash areas.</p> <p>Improvements to access (harvesting and haulage) infrastructure will be made when and if required to enable the sustainable harvesting of previously inaccessible crops.</p>
<p>To maintain, protect and enhance the amenity, landscape, conservation values and cultural heritage of the woodlands. Increase species and structural diversity and resilience by introducing a more diverse restocking species matrix.</p>	<p>A programme of PAWS restoration will be implemented during the plan period where this does not conflict with wider operational objectives, as identified in the Plan of Operations. Monitoring prior to (and post) intervention will determine both the need for management and the effects of management. During the restoration process, a number of activities will be necessary:</p> <ul style="list-style-type: none"> <li>•Where gradual methods are employed, the canopy will be manipulated to develop ancient woodland remnants and native tree regeneration, whilst controlling competitive vegetation. On all sites, browsing by sheep will need to be controlled or excluded and where appropriate non-native regeneration removed, either as part of the harvesting programme or as a subsequent operation. Where natural regeneration is not wholly successful, some enrichment of native tree/shrub species will be considered, particularly where this promotes the recovery of riparian zones after conifer removal.</li> </ul>

	<p>Phased felling to be undertaken on Rievaulx moor plantation and upper ground plantations( 122, 113a,b, 114a, 102) aims to create a more structurally diverse plantation utilising a greater range of conifer species, increasing crop resilience to pests, disease and climate change. The structural diversity built into the main crop species will be further enhanced by increased use of broadleaved species to soften hard edges presented by conifers. Increasing open space and introducing riparian woodland will improve biodiversity and contribute to water quality improvements. The aim will also be to maintain a sustainable productive conifer crop which is an important economic consideration for the estate.</p> <p>Continuous cover management (CCF) throughout the dales continues the management of these important woodland features whilst maintaining the woodland landscape. CCF management will continue in the woodlands surrounding the park land. However consideration will be given to the potential to clearfell an area of mature NS from within cpt 157.</p> <p>CCF management of PAWS areas will provide continuity of management maintaining the woodlands as an important landscape feature, providing timber products, sporting potential and improving the conditions for habitat diversity. A PAWS assessment commissioned by NYMNP recommends that:</p> <ul style="list-style-type: none"> <li>• 21%; retain conifer mix for timber production and sporting.</li> <li>• 4%; retain small (0.4-2.0ha) conifer blocks for game cover.</li> <li>• 58%; enhance conifer/broadleaved areas by felling and thinning to favour native broadleaves.</li> <li>• 4%; restore cpts 6 7 159 to be NBL dominant.</li> <li>• 13%; open ground to be retained as open habitat with sporting potential. Increasing where the opportunity arises due to waterlogging and windblow.</li> </ul> <p>(PAWS assessment 2018 survey table attached to this plan)</p> <p>Ash dieback poses a significant threat in the dales woodland blocks due to the proliferation of ash, both as an over-storey and under-storey species. Whilst the disease has been identified within natural regeneration of ash it has yet to become apparent in the mature over-storey. Consideration will therefore be given to clearfelling areas showing signs of dieback where there is a clear economic benefit to removing the ash before it becomes uneconomic to do so. Appropriate felling consent will be sought at the time.</p>
<p>To develop and improve the sporting potential of the woodlands for the rearing and presentation of driven game.</p>	<p>Silvicultural management particularly along woodland edges will present opportunities to be able to introduce more structural and species diversity improving the capacity of the woodlands to produce wild birds during the summer and holding birds during the winter. The opportunity to create additional flushing points and improving existing points during harvesting operations will be considered at the operational site assessment stage.</p> <p>The opportunity to increase the width of the central ride in cpt 116b will be taken during thinning operations to provide improvements to the current drive.</p>



	<p>Consultation with the sporting tenant during operational planning will enable more collaborative woodland management which is essential if timber, biodiversity and sporting improvements are to be effectively maintained and effectively managed.</p> <p>This will be achieved by improving the nesting potential along woodland edges by creating a graded structure. Thinning will increase light levels which will enable a rich, diverse and dense ground flora to develop. Increasing the amount of shrub species present.</p>
<p>To develop and maintain the biodiversity of the forest with the objective of creating a sustainable, resilient, balanced and dynamic woodland ecosystem.</p>	<p>Currently there is relatively little deadwood in the forest. Throughout the harvesting operations detailed in this plan, site management will maximise opportunities to retain and create elements of standing and fallen deadwood where this does not conflict with public access or safety. Small areas of windblow (less than 0.25ha) may be retained as fallen deadwood, particularly where the trees have been down for some time and the timber is not recoverable. The target will be to UKFS compliant in respect of the volume of deadwood per hectare as an average across the forest, roughly half standing and half fallen, by the end of this plan. Deadwood creation will be targeted in areas where it can contribute maximum biodiversity value, for example near checked areas which have been left as long term retentions; riparian areas and natural reserves.</p> <p>Engagement with the National Park Authority will enable expertise and experience to assist and inform silvicultural management decisions ensuring that the most appropriate ecosystem service outcomes are reached.</p> <p>Natural Reserves of high biodiversity value and specific conservation interest have and will be identified and shall be managed with a policy of non-intervention unless there is a definable biodiversity gain from management intervention</p>
<p>To manage the forest in accordance with the UK Forest Standard and associated statutory obligations.</p>	<p>Suitable and sufficient monitoring of operations and activities to ensure compliance with UKFS is maintained.</p>
<p>To safeguard and improve the quality and quantity of water flowing through watercourses contributing to the Water Framework Directive.</p>	<p>Meeting the standards set out in the Water Framework Directive (WFD) and laid out in the River Basement Management Plan is a key driver in the enhanced and improved management of the water catchment area.</p> <p>Maintaining and improving water quality by reducing infiltration, sedimentation and diffuse/point pollution is the overarching aim of this management plan.</p> <p>Riparian woodland improvements and management will play a key role in managing water quality by acting as nutrient soaks. This will be achieved by the utilisation of mixed conifers and broadleaved species throughout riparian areas. Maintaining conifer species as a core element of the forest will maintain soil stability minimising sedimentation by reducing soil erosion.</p> <p>Where appropriate utilise build features such as woody debris dams to assist in the management of water for quality and run-off</p>

	<p>management.</p> <p>All forest operations will follow UKFS Forest and Water Guidelines (6.7):</p> <ul style="list-style-type: none"><li>• Selection of the most appropriate working methods and systems for the site conditions. Monitor operations and be prepared to modify, postpone or cease operations if necessary.</li><li>• Brash will not be removed from site. Brash is also a good source of ground roughness mitigating against surface water run-off on harvested sites. However where appropriate (e.g presenting a biosecurity or fire risk or where it hinders access) brash will be recovered from site and managed in a suitable and sufficient manner.</li><li>• Minimise compaction and rutting and where unavoidable remediate any adverse impact upon completion of harvesting.</li></ul>
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**Section 7: Stakeholder Engagement**

There can be a requirement on both the FC and the owner to undertake consultation/engagement. Please refer to [Operations Note 35](#) for further information. Use this section to identify people or organisations with an interest in your woodland and also to record any engagement that you have undertaken, relative to activities identified within the plan.

Work Proposal	Individual/ Organisation	Date Contacted	Date feedback received	Response	Action
Whole plan area	NYMNP; M Antcliffe				
Designated areas	NE; D Claydon				
Crow designated land	Local Access Forum; J H Richardson				
Cpts; 161a,b,c and 110	AONB; P Jackson				
Scheduled monuments	Historic England:				
Adjacent management	FE; N Rylance				
Felling approval	FC; J Shallcross				

**Section 8: Monitoring**

Indicators of progress/success should be defined for each management objective and then checked at regular intervals. Other management activities could also be considered within this monitoring section. The data collected will help to evaluate progress.

<b>Management Objective/Activities</b>	<b>Indicator of Progress/Success</b>	<b>Method of Assessment</b>	<b>Frequency of Assessment</b>	<b>Responsibility</b>	<b>Assessment Results</b>
To enhance the capital value of the woodlands creating a sustainable timber resource through sound silvicultural management. Maximise the sustainable timber yield to deliver the maximum sustainable financial return.	Improvements to forest structure and increased species diversity. Harvesting out-turn. Timber quality improvement. Initiation of silvicultural management, enhancement and increased growth of standing crop.	Monitor and record crop changes through mensuration. Monitor weight tickets. Visual assessment of the effects of silvicultural management.	Post Harvesting 5 year review. Ongoing and post operation. 5 year review	Forest Manager	
To maintain, protect and enhance the amenity, landscape, conservation values and cultural heritage of the woodlands. Increase species and structural diversity and resilience by introducing a more diverse restocking species matrix					
To develop and improve the sporting potential of the woodlands for the rearing and presentation of driven game.	Increased number of breeding game birds held. Increased shrub and flora layers	Visual assessment	Annually	Sporting tenant / gamekeeper.	
To develop and maintain the biodiversity of the forest with the objective of creating a sustainable, resilient, balanced and dynamic woodland ecosystem.	Increased ground flora species diversity. Increased habitat diversity following forest operations.	Visual assessment and site evaluation and monitoring.	5 year review	Forest manager / Ecologist	

To manage the forest in accordance with the UK Forest Standard and associated statutory obligations.	Forest certification	UKWAS audit	5 year review	Forest manager UKWAS approved auditor.	
To safeguard and improve the quality and quantity of water flowing through watercourses contributing to the Water Framework Directive.	Increased use of broadleaved species and open space within riparian zones creating greater structural diversity. Forest restructuring.	Greater species diversity within identified riparian zones. Operational site assessments, site supervision and post operation review.	5 year review. Weekly supervisory visits during the course of operations.	Forest Manager	
To capitalise on potential support mechanisms to assist and enable proactive management	Well managed operations reviewed against UKFS guidelines.	Report to owner	During and post management operations	Forest manager / agent	

UK Forestry Standard woodland plan assessment  
For FC office use and approval only:

UKFS management plan criteria	Minimum approval requirements	Achieved	Review notes
<p><b>Plan Objectives:</b> Forest management plans should state the objectives of management and set out how an appropriate balance between social, economic, environmental objectives will be achieved.</p>	<ul style="list-style-type: none"> <li>• Management plan objectives are stated.</li> <li>• Consideration is given to environmental, economic and social objectives relevant to the vision for the woodland.</li> </ul>	Yes/No	
<p><b>Forest context and important features in management strategy:</b> Forest management plans should address the forest context and the forest potential and demonstrate how the relevant interests and issues have been considered and addressed.</p>	<p>Management intentions communicated in <b>Sect. 6</b> of the management plan are in line with stated objective(s) in <b>Sect. 2</b>.</p> <p>Management intentions should take account of:</p> <ul style="list-style-type: none"> <li>• Relevant features and issues identified in the woodland survey (<b>Sect. 4</b>).</li> <li>• Any potential threats to and opportunities for the woodland, as identified under woodland protection (<b>Sect. 5</b>).</li> <li>• Relevant comments received from stakeholder engagement are documented in <b>Sect. 7</b>.</li> </ul>	Yes/No	
<p><b>Identification of designations within and surrounding the woodland site:</b> For designated areas, e.g. National Parks or SSSI, particular account is taken of landscape and other sensitivities in the design of forests and forest infrastructure.</p>	<ul style="list-style-type: none"> <li>• Survey information (<b>Sect. 4</b>) identifies any designations that impact on woodland management.</li> <li>• Management intentions (<b>Sect. 6</b>) have taken account of any designations.</li> </ul>	Yes/No	
<p><b>Felling and restocking to improve forest structure and diversity:</b> When planning felling and restocking, the design of existing forests should be re-assessed and any necessary changes made to meet UKFS requirements.</p>	<ul style="list-style-type: none"> <li>• Felling and restocking proposals are consistent with UKFS design principles (for example scale and adjacency).</li> <li>• Current diversity (structure, species, age structure) of the woodland has been identified through the survey (<b>Sect. 4</b>).</li> </ul>	Yes/No	

Forests should be designed to achieve a diverse structure of habitat, species and age range of trees, appropriate to the scale and context. Forests characterised by a lack of diversity, due to extensive areas of even-aged trees, should be progressively restructured to achieve age class range.	<ul style="list-style-type: none"> <li>Management intentions aim to improve / maintain current diversity (structure, species, and ages of trees).</li> </ul>		
<p><b>Consultation:</b></p> <p>Consultation on forest management plans and proposals should be carried out according to forestry authority procedures and, where required, the Environmental Impact Assessment (Forestry) Regulations.</p>	<ul style="list-style-type: none"> <li>Stakeholder consultation is in line with current FC guidance, and recorded in <b>Sect. 7</b>. The minimum requirement is for statutory consultation to take place, and this will be carried out by the Forestry Commission.</li> <li>Plan authors undertake stakeholder engagement (ref FC Ops Note 35) relevant to the context and setting of the woodland.</li> </ul>	Yes/No	
<p><b>Plan update and review:</b></p> <p>Management of the forest should conform to the plan, and the plan should be updated to ensure it is current and relevant.</p>	<ul style="list-style-type: none"> <li>A 5 year review period is stated on the 1<sup>st</sup> page of the plan</li> <li><b>Sect. 8</b> is completed with 1 indicator of success identified per management objective</li> </ul>	Yes/No	

<p><b>Approved in Principle</b></p> <p><i>This means the FC is happy with your plan; it meets UKFS requirements.</i></p> <p>a) <i>You can use it to support a CS-HT or other grant application.</i></p> <p>b) <b>You do not yet have a licence to undertake any tree felling in the plan.</b></p>	Name (WO or FM):	Date:
<p><b>Approved</b></p> <p><i>This means FC is happy with your plan; it meets UKFS requirements, and we have also approved a felling licence for any tree felling in the plan (where required).</i></p>	Name (AO, WO or FM):	Date: