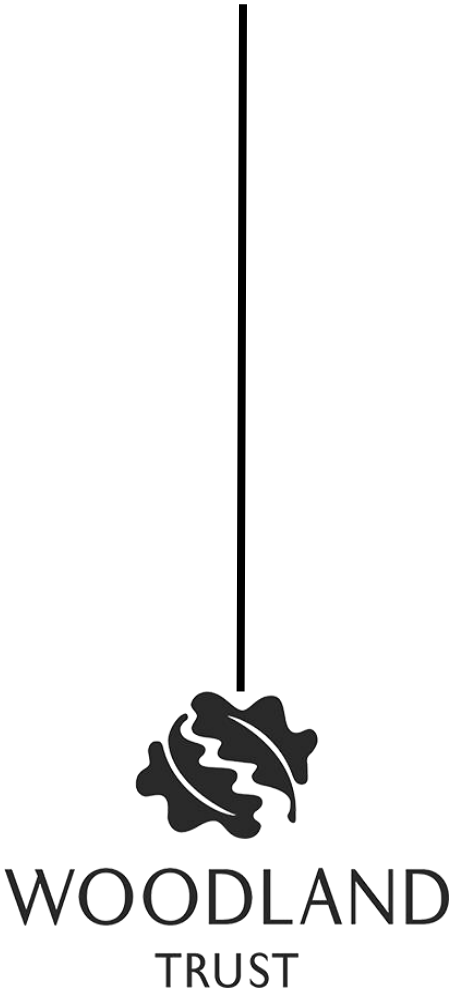
Penstave Copse

(Plan period – 2021–2026)



Management Plan Content Page

Introduction to the Woodland Trust Estate

The Woodland Trust owns and cares for well over 1,250 sites covering almost 30,000 hectares (ha) across the UK. This includes more than 4,000ha of ancient semi-natural woodland and almost 4,000ha of non-native plantations on ancient woodland sites and we have created over 5,000ha of new native woodland. We also manage other valuable habitats such as flower-rich grasslands, heaths, ponds/lakes and moorland.

Our Vision is:

"A UK rich in native woods and trees for people and wildlife."

To realise all the environmental, social and economic benefits woods and trees bring to society, we:

- **Create Woodland** – championing the need to hugely increase the UK's native woodland and trees.
- **Protect Woodland** – fighting to defend native woodland, especially irreplaceable ancient woodland and veteran trees; there should be no loss of ancient woodland
- **Restore Woodland** – ensuring the sensitive restoration of all damaged ancient woodland and the re-creation of native wooded landscapes.

Management of the Woodland Trust Estate

All our sites have a management plan which is freely accessible via our website

www.woodlandtrust.org.uk

Our woods are managed to the UK Woodland Assurance Standard (UKWAS) and are certified with the Forest Stewardship Council® (FSC®) under licence FSC-C009406 and through independent audit.

The following principles provide an overarching framework to guide the management of all our sites but we recognise that all woods are different and that their management also needs to reflect their local landscape, history and where appropriate support local projects and initiatives.

1. Our woods are managed to maintain their intrinsic key features of value and to reflect those of the surrounding landscape. We intervene in our woods when there is evidence that it is necessary to maintain or improve biodiversity, safety and to further the development of more resilient woods and landscapes.

2. We establish new native woodland for all the positive reasons set out in our Conservation Principles, preferably using natural regeneration but often by planting trees, particularly when there are opportunities for involving people.

3. We provide free public access to woods for quiet, informal recreation and our woods are managed to make them accessible, welcoming and safe. Where possible, we pro-actively engage with people to help them appreciate the value of woods and trees.

4. The long term vision for all our ancient woodland sites is to restore them to predominantly native species composition and semi-natural structure, a vision that equally applies to our secondary woods.

5. Existing semi-natural open ground and freshwater habitats are restored and maintained wherever their management can be sustained and new open ground habitats created where appropriate.

6. The natural and cultural heritage value of sites is taken into account in our management and in particular, our ancient trees are retained for as long as possible.

7. Land and woods can generate income both from the sustainable harvesting of wood products and the delivery of other services. We therefore consider the appropriateness of opportunities to generate income from our Estate to help support our aims.

8. We work with neighbours, local people, organisations and other stakeholders in developing the management of our woods. We recognise the benefits of local community woodland ownership and management. Where appropriate we encourage our woods to be used for local woodland, conservation, education and access initiatives.

9. We use and offer the Estate where appropriate, for the purpose of demonstration, evidence gathering and research associated with the conservation, recreational and sustainable management of woodlands. We maintain a network of sites for long-term monitoring and trials leading to reductions in plastics and pesticides.

10. Any activities we undertake are in line with our wider Conservation Principles, conform to sustainable forest management practices, are appropriate for the site and balanced with our primary objectives of enhancing the biodiversity and recreational value of our woods and the wider landscapes.

The Public Management Plan

This public management plan describes the site and sets out the long term aims for our management and lists the Key Features which drive our management actions. The Key Features are specific to this site – their significance is outlined together with our long, 50 years and beyond, and our short, the next 5 years, term objectives for the management and enhancement of these features. The short term objectives are complemented by an outline Work Programme for the period of this management plan aimed at delivering our management aims.

Detailed compartment descriptions are listed in the appendices which include any major management constraints and designations. Any legally confidential or sensitive species information about this site is not included in this version of the plan.

There is a formal review of this plan every 5 years and we continually monitor our sites to assess the success of our management, therefore this printed version may quickly become out of date, particularly in relation to the planned work programme.

Please either consult The Woodland Trust website

www.woodlandtrust.org.uk

or contact the Woodland Trust

operations@woodlandtrust.org.uk

to confirm details of the current management programme.

A short glossary of technical terms can be found at the end of the plan.

Location and Access

Location maps and directions for how to find and access our woods, including this site, can be found by using the following link to the Woodland Trust web-site which contains information on accessible woodlands across the UK

https://www.woodlandtrust.org.uk/visiting-woods/find-woods/

In Scotland access to our sites is in accordance with the Land Reform Act (of Scotland) 2003 and the Scottish Outdoor Access Code.

In England, Wales and NI, with the exception of designated Public Rights of Ways, all routes across our sites are permissive in nature and where we have specific access provision for horse riders and/or cyclists this will be noted in the management plan.

The Management Plan

1. SITE DETAILS

Penstave Copse

Location:	Aish, South Brent Grid reference: SX 69152 60985 OS 1:50,000 Sheet No. 202
Area:	8.56 hectares (21.15 acres)
External Designations:	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), National Park
Internal Designations:	N/A

2. SITE DESCRIPTION

Penstave Copse is situated on a steeply sloping, east facing hillside of the Avon Valley within the southern quarter of Dartmoor National Park (NCA 150). Located adjacent to the hamlet of Aish, the site is frequently used by the local population of nearby South Brent, to which it is connected by a public footpath. The site enjoys panoramic views of the surrounding Dartmoor landscape, including the River Avon and Brent Hill. The wood is a mosaic of ancient semi-natural broadleaf woodland, recently planted broadleaf woodland and semi-natural open grassland habitats, which roll from a wider landscape of improved, and unimproved pasture farmland, 50 m to the river Avon below. 1.5 km north of the site, lowland pasture gives way to heather moorland habitat. The ancient woodland areas are well established communities of predominantly Peduculate Oak, Ash Alder and Willow with Hazel understory, creating dappled riparian habitat for the fast flowing river, which features small waterfalls and pools, this riparian woodland corridor supports notably high biodiversity of rare lichen and bryophyte species. Two hectares of historically agricultural fields were planted in 1996 with a mixture of native, broadleaf species, some of which is now under coppice management, however due to the high proportion of planted ash, 'ash dieback' disease has become a management issue affecting the site. Grazed areas of meadow grassland are also a feature of the site amongst the woodland matrix, and boast a splendid display of bluebells, celandines, primroses and violets during spring. For several months of the year a small herd of cattle are brought in to maintain the four areas of open-grassland, which are overtaken with bracken in late summer. Himalayan Balsam, an invasive non-native plant which once dominated much of the site has been virtually eradicated in recent years, however some pockets remain and are managed accordingly. Penstave Copse forms part of Dartmoors historic agricultural landscape, and remnants of this period such as ancient boundary banks are evident throughout, these often feature veteran trees, notably a veteran willow tree, and the richest diversity of lower plants. Penstave Copse is well supported by a long established third party volunteering group, Sustainable South Brent, who have undertaken many hours of practical work in activities such as coppicing, on the site,

3. LONG TERM POLICY

Penstave Copse will be maintained as a rich mosaic of habitats to maximise the biodiversity potential of the site, with grassland, secondary and ancient woodland managed to create as much structural diversity as possible.
The overall aim will be to increase the resilience of the woodland to current and future pest and disease epidemics, and the increasing frequency of severe weather events such as storms and droughts associated with climate breakdown. Over time the diversity of native, broadleaf tree species adapted to the site conditions should be encouraged to increase, and the diversity of tree age structure should equally be fostered to increase, with a strong focus on diverse natural regeneration of trees species, however some enrichment planting may be required.
Emphasis will be placed on protecting and habitat quality for the rare Atlantic Rainforest species that are present on the site such as the Lobaria lichen communities by managing out invasive species and ensuring suitable light levels and moisture. Pressures to natural regeneration and ground flora such as grey squirrels and deer will be sustainably managed to allow the woodland to develop multiple tree age structures and abundant understory ecology. Penstave Copse will continue to provide important ecological function within the wider landscape, as a riparian and woodland habitat corridor with increasing quality river habitat for breeding salmonoid species and invertebrates.

The ancient and secondary woodland areas will be largely managed as and towards high-forest through natural processes, but may however require intervention such as thinning, felling and tree planting to manage the ongoing effects of ash dieback disease on public safety and ecological resilience within the wood.
Ancient and veteran trees as well as selected 'future veterans' will be protected for the long-term (through removal of competing shading vegetation and fencing if necessary).
Standing and fallen deadwood will be retained where possible along the section of the Avon River which flows through Penstave, to increase the volume of deadwood habitat, increasing the number and diversity of habitats for wildlife.
Open space will be maintained through the current grazing regime to encourage the restoration of grassland to a species-rich meadow in the long-term (with <20% scrub development allowed to occur), and ride-side / woodland edge coppicing will help create and maintain important habitat niches. There may in future be scope for allowing low levels of grazing in the woodland areas to increase biodiversity and habitat niches.
Access will be maintained and supported for the future, and which in balance with the ecology of the woodland, will provide visitors and the local community with a safe, well-loved and stewarded resource, providing health, volunteering and educational benefits.
Sustainable South Brent third party volunteering group will play a strong role in the management of the site, contributing to practical interventions maintaining the habitat quality of veteran trees, ancient boundaries, woodland areas and surveying for wildlife. Providing also a sustainable source of firewood timber for local people and ensuring important traditional skills such as coppicing and hedge laying are maintained and passed on to future generations.

4. KEY FEATURES

4.1 f1 Ancient Semi Natural Woodland

Description
The lower, riparian slopes of Penstave Copse features 2.4 hectares of Ancient Semi-Natural Woodland (ASNW) habitat adorning the banks of the river Avon, a glacial-torrent river with high water quality, and diverse array of habitat niches including gravel riffles, waterfall pools and deadwood dams. The ASNW is predominantly formed of upland oak woodland, otherwise referred to as 'Atlantic Temperate Rainforest' habitat, with ash and alder wet woodland NVC types (NVC W6/7 and W9/10). This area has an abundance of standing and fallen deadwood, and several veteran trees, notably Oak, Ash and a particularly spectacular Willow coppice stool. The ancient woodland areas feature spring-fed wet flushes and tributary streams, bare rock and steep, uneven slopes falling into a relatively flat riparian zone dominated by alder, and historic woodbank boundaries and stone walls. This feature is a strong example of intact Atlantic Rainforest habitat and supports important and rare communities of lichens and liverworts, with over 93 species recorded including Lobarion species, and notable species such as Ramonia chrysophaea and Usnea florida. Tree species include Pedunculate Oak, Ash, Hazel, Goat Willow, Hawthorn, Holly, Elder, Sycamore, Beech, Common Sallow and Wych Elm. Recorded ground floral species include Bluebell, opposite leaved golden saxifrage, Dog violet, Lesser celandine, Wood anemone, Dog's mercury, Primrose, Hard Fern, Male, Broad buckler-fern , Hart's tongue fern, Enchanters Nightshade, Scaly Male Fern, Wood avens, Wood Sedge, Bilberry, Lords-and-ladies, Yellow pimpernel, Barren Strawberry, Wood speedwell, Herb-robert, Honey suckle, Wood sorrel, Hairy Wood Rush, Jack-by-the-hedge, Great Wood Rush and Pennywort, some of which are ancient woodland indicator species. Notable species of bird include Dipper and Grey wagtail which are Amber and Red British Birds of Conservation Concern (BBoCC) listed species respectively, and Sparrowhawk. Himalayan balsam is a non-native invasive species spread through watercourses and is a present management issue for the ASNW in Penstave Copse. There is historical evidence for coppicing taking place in the ASNW area of the site from as early as the 1800s to 1950. Penstave Copse's eastern boundary is demarcated by a section of the western bank of the River Avon (or River Aune), a fast flowing river with high water quality, and diverse array of habitat niches including gravel riffles, waterfall pools and deadwood dams, which are vital for invertebrate and fish communities and their associated food webs. The site forms an important woodland component of the Avon river catchment, which is relatively dominated by farmland. The Avon rises high on Dartmoor above the Avon Dam and flows through Penstave into the South Hams AONB, exiting out to sea at Bantham and Bigbury-on-Sea.. The river has breeding populations of Salmon, Brown Trout and Sea Trout but these are very low due to environmental pressures in the riparian and marine environment. The wider catchment is an important ecosystem for an abundance of other species, including otters and wading birds.
Significance
Western, Upland Oak Woodlands, or 'Atlantic Temperate Rainforests' are internationally rare, containing often nationally endemic species, particularly of lower plants, and are recognised in National and Local Biodiversity Action Plans. Ancient, Semi Natural Woodland is also a nationally rare and threatened designation, with only 2.5% of UK

landcover accounting for ASNW, and no statutory protection in place for it. Protecting and restoring ancient woodlands is one of the Woodland Trust's core aims which Penstave Copse contributes to achieving. The site also acts as a refugia, oasis and habitat corridor for woodland and woodland edge species in a landscape that is otherwise critically low in tree cover and connectivity. Penstave Copse has the potential to and may currently support species such as the rare Blue Ground Beetle and Pied Fly Catcher, which are only found in temperate rainforest fragments in western Britain. The ANSW is known to support over 93 species of lower plant, some of which are nationally and internationally rare.

Penstave Copse forms part of a wider ecological network within the downstream Avon river catchment, and is important as a potential breeding habitat and corridor for riparian wildlife such as salmonoids and otters. Water quality, including acidity levels are dependent on native, broadleaf cover on the higher, moorland soils. Tree cover also regulates water temperature which is essential for survival of many river species. The wood also contributes to natural flood management, intercepting rain and through flow to alleviate flooding downstream. Woodland soils produce unique chemical compounds essential for species such as plankton in marine environments, making the wood an important ecological link with the marine environment.

Opportunities & Constraints

Opportunities

- Outreach: Opportunities to liaise with neighbouring landowners regarding increasing levels of river deadwood and removal of invasive species such as Himalayan balsam.
- Surveying and monitoring: Opportunity to gain a better understanding of species present in the ancient woodland area as the woodland matures.
- Expanding ancient woodland: Opportunity for futureexpansion and restoration (purchase) of land holding to the north of the site.

Constraints

- Steep topography: Lack of accessibility limits the opportunity to extract timber from forestry and conservation works, particularly ash dieback safety operations.
- Squirrel and Deer: Browsing of natural regeneration, ground flora and growing stock impacting on the ability of the woodland to regenerate and provide ecological integrity for animal, plant and fungal species.
- Potential disturbance of ground nesting birds and other wildlife due to visitor pressure.

Conservation Feature: Watercourse

Opportunities

- Water quality monitoring e.g. turbidity, acidity and temperature.
- Potential for surveying to gain a better understanding of wildlife species present, and potential breeding habitats. (E.g. kick sampling for water quality indicators).

Constraints

- Recreational activities and flood events causing bank erosion and disturbance to flora and spawning and nesting habitat.

- Environmental factors beyond site controls such as upstream pollution and acidity.

Factors Causing Change

- Pests & Diseases: Increasing risk and introduction incidence of global tree pathogens such as Xylella fastidiosa and emerald ash borer present significant danger to the species diversity, ecology and structural integrity of the wood in the 21st Century. The current epidemic of ash dieback is heavily affecting the significant proportion of ash within the canopy of the ancient woodland area.
- Undermanagement: Lack of management of more aggressive, shade tolerant species of tree such as Holly, Sycamore and Beech which are not traditional components of Temperate Rainforest woodlands in the southwest and offer less ecological functionality can lead to out-competition and domination of favourable species such as Hazel and Oak. Higher atmospheric nitrogen levels also causing more aggressive growth of Holly. Due to decreasing light levels associated with growth of these less-desirable species, conditions for rare and sensitive lower plant communities will become less favourable.
- Non-native invasive species: Continued risk and occurrence of introduction of non-native invasive species presents risk to long-term ecological integrity of the ancient woodland and impacts on management,
- Deer: The potential migration of new species of deer into the area such as Muntjac and Sika deer in the 21st Century presents the risk of greater browsing and grazing damage to the wood.
- Squirrel and Deer: Browsing of natural regeneration, ground flora and growing stock impacting on the ability of the woodland to regenerate and provide ecological integrity for animal, plant and fungal species.
- Climate Change: Climate Breakdown presents the issue of more frequent, intense rain, wind and flooding events which could affect the riverside woodland negatively. More intense summer droughts may affect the survival of plant and animal species and wildfire will become a more acute risk, particularly due to sites proximity to open moorland. Due to its river valley aspect and microclimate, Penstave Copse is more resilient to Climate Change than many other areas.

Erosion of riverside banks due to increasing high flow events associated with increased rainfall driven by Climate Change, exacerbated in sections by visitor pressure.
- Rising acidity and temperature levels due to environmental changes in higher moorland soils associated with lack of tree cover and climate change.
- Colonisation and re-colonisation of non-native invasive species such as Himalayan Balsam.

Long term Objective (50 years+)

The ancient woodland area in Penstave Copse will be protected and maintained within favourable status, driven predominately by natural processes, the woodland will be encouraged to develop as structurally diverse as possible, with the maximum tree species diversity as is appropriate for the site to ensure long-term resilience against challenges such as tree disease and climate change, and to ensure maximum ecological resilience and integrity. Particular focus will be given to developing trees with ancient and veteran features, and ensuring light conditions are optimum for associated ancient woodland species. Sensitive management will be carried out periodically to ensure less-desirable shade bearing species such as Holly, Beech and Sycamore do not become too dominant, ensuring the best conditions for the rare species of Lichen, Moss and Liverwort this habitat supports. Pressures such as squirrel and deer are managed appropriately to ensure regeneration, timber quality and ecological integrity are not compromised Over time, the volume of deadwood will increase, leading to a net gain in biodiversity. Some deadwood logs from tree safety interventions and natural death from ash dieback will be used as ‘woody-debris dams’ to ‘rewet’ natural spring lines and wet flushes within the ASNW area. Natural regeneration will be favoured and encouraged as the primary method of regeneration and diversifying tree species, however minor and sensitive underplanting of native, broadleaf tree species

appropriate to the site may be required, and considered. Monitoring will also be carried out to continue to assess what species are present in the wood, including birds, lower plants and fungi. Introduction of pathogens and non-native, invasive species will be managed to ensure ecological integrity is safeguarded and the woodland is able to recover quickly following any severe, stochastic impacts, such as the current Ash Die Back epidemic. The ancient woodland area will continue to act as a population source and corridor for ancient woodland species expanding into the wider landscape, particularly the adjacent secondary woodland areas, helping to increase biodiversity and ancient woodland cover.

Penstave Copse continues to form an important ecological component of the wider Avon Valley river system, helping to reduce downstream acidification, temperature increase and flooding. It also provides a vital habitat corridor and breeding habitat for recovering species such as Salmon, Trout and Otters. In the future, newly re-introduced species in the wider river catchment, such as Beaver, will find potential habitat at Penstave, helping to restore ecological functionality to the site, increasing deadwood volumes, structural diversity and 're-wetting', which will have a hugely beneficial effect on biodiversity. Increased deadwood volumes in the river will lead to increased biodiversity and habitat for riparian species. The movement of important nutrients between the marine and terrestrial freshwater environment is the most significant transfer of resources in the natural world. Returning wildlife abundance and strengthening ecological links will also see important micronutrients (for trees and other woodland wildlife) such as calcium returning to woodland soils through the predation of fish by birds and mammals, such as Otter. Human interaction with the river is managed through good communication and fostering individual responsibility, ensuring people are able to benefit from the recreational and health benefits the river can offer, without degrading its integrity as a thriving wildlife habitat, and vital ecological link between the terrestrial and marine environment.

Short term management Objectives for the plan period (5 years)

- Management of Holly, Beech and Sycamore around veteran trees and ancient linear features.
- Annual monitoring, pulling and removal of Himalayan Balsam before seeding occurs in July.
- Some dangerous individuals of Ash affected with Ash Die Back disease alongside paths will be felled within annual tree safety inspection regime, felled to waste with no extraction to help improve fallen deadwood volumes. Target is >20m3 per hectare.
- Woody debris dams to be installed using deadwood from site, to encourage 're-wetting' of habitat for biodiversity.
- Continued removal of Himalayan Balsam and monitoring for any new introduction of non-native invasive species.
- Ongoing tree safety inspections and works.
- Monitoring of species including lower plants, ground flora, fungi, and birds.
- Begin exploring potential for deer and squirrel management following deer and squirrel impact assessments on site.
- Path closure on northern end of site to allow retention and protection of veteran ash trees, and ancient woodland area with Ash Die Back, in order to meet biodiversity and structural heterogeneity goals.
- Create path diversion with some removal of ash and fallen trees and addition to tree safety survey to create accessibility. River side path not to be blocked but no longer maintained as an official route.
- Retain fallen deadwood in watercourse where possible to increase deadwood habitat volume. Carry out soft engineering to secure fallen timber if necessary.
- Re-direct small section of official river side path near the deep pool and large rock, to reduce bank erosion and damage to tree roots which is occurring.

4.2 f2 Secondary Woodland

Description
The secondary woodland area comprises 4.8 hectares of mixed, native broadleaf woodland, which was planted on former pastureland within Penstave Copse in 1996 as part of the Woodland Trust's Woodlands on Your Doorstep (WOYD) project. The trees were planted over MG1 (Arrhenatherum) improved pasture of low conservation value, dominated by grasses, predominately Yorkshire fog and rough meadow grass, having now reached pole-stage (15 – 30 cm dbh) and begun the process of canopy closure. Tree species planted were chosen to mirror the NVC 9/10 community found in the adjacent ancient woodland areas and include Pedunculate Oak and Rowan, however the secondary woodland area is mostly dominated by Ash. Felling work has been carried out in recent years to open up rides to increase edge habitat and biodiversity. This area of the woodland is heavily affected by ash dieback, which is having a particular affect due to the high proportion of Ash within the canopy species mixture. Some areas are showing strong, natural understory regeneration due to loss of canopy shading. Coppicing of some areas of lower diameter Ash has and will be carried out in an attempt to manage the ecological and safety issues around stand collapse from ash dieback. The ground flora is beginning to develop woodland characteristics, with a strong flush of Lesser Celandine, Primrose, Bluebell and Dog Violets along paths and within the woodland in Spring. Since its conversion from pasture to woodland-pasture mosaic, there has been a distinct increase in biodiversity, with species such as the Violet Oil Beetle observed in the secondary woodland areas. This section of the wood does also feature some large, veteran oak and ash trees in the hedgerow boundaries of the site, and a section of hedgerow that is under a traditional 'hedge-laying' management rotation, carried out by the resident volunteer group. Levels of standing and fallen deadwood are currently low, due to the stands history, however Ash Die Back is likely to increase the volume significantly over the next five years.
Significance
Increasing woodland cover in the UK is one of the Woodland Trust's core organisational aims, Penstave Copse has contributed to the goal of expanding tree cover and sequestering carbon. Tree cover is also relatively scarce on Dartmoor (at 12% coverage), and the upper Avon Valley catchment in particular, therefore this secondary woodland has helped to increase the overall coverage, helping to increase natural flood management. The proportion of broadleaf to conifer woodland on Dartmoor is 60:40, therefore Penstave has contributed to increasing the amount of native broadleaf mixture in the landscape. Due to Ash Die Back, coppicing work has been a positive externality, providing a sustainable source of firewood to the local community, managed by volunteers. The secondary woodland area has also helped to increase habitat connectivity across the wider landscape, and increased the volume of habitat for important woodland species such as Dormice.
Opportunities & Constraints
Opportunities: - Surveying and monitoring: Opportunity to gain a better understanding of species present in the secondary woodland area as the woodland matures. - Research: Data from long-term surveys on ash dieback conducted in the planted areas conducted by third parties offer a valuable opportunity for ongoing research. - Outreach: Opportunities to liaise with neighbouring landowners regarding increasing levels of river deadwood and removal of invasive species such as Himalayan balsam.

Constraints:

- Squirrel and Deer: Browsing of natural regeneration, ground flora and growing stock impacting on the ability of the woodland to regenerate and provide ecological integrity for animal, plant and fungal species.

Factors Causing Change

- Pests & Diseases: Increasing risk and introduction incidence of global tree pathogens such as Xylella fastidiosa and Emerald Ash Borer present significant danger to the species diversity, ecology and structural integrity of the wood in the 21st Century. The current epidemic of Ash Die Back is heavily affecting the significant proportion of Ash within the canopy of the secondary woodland area.
- Non-native invasive species: Continued risk and occurrence of introduction of non-native invasive species presents risk to long-term ecological integrity of the ancient woodland and impacts on management.
- Deer: The potential migration of new species of deer into the area such as Muntjac and Sika deer in the 21st Century presents the risk of greater browsing and grazing damage to the wood.
- Climate Change: Climate Breakdown presents the issue of more frequent, intense wind events which could affect the secondary woodland negatively, particularly due to increase windblow. More intense summer droughts may affect the survival of plant and animal species and wildfire will become a more acute risk, particularly due to sites proximity to open moorland.
- Homogenisation: Risk of stand developing into a limited species mix dominated by aggressive species such as Sycamore, with low overall resilience.
- Potential disturbance of ground nesting birds and other wildlife due to increasing visitor pressure, particularly dog walkers

Long term Objective (50 years+)

The secondary woodland area in Penstave Copse will be managed to develop optimum structural and tree-age class diversity, with the maximum tree species diversity as is appropriate for the site to ensure long-term resilience against challenges such as tree disease and climate change (i.e. wind events, droughts, wildfires and flooding), and to ensure maximum ecological resilience and integrity. Sensitive thinning works will be carried out to ensure the secondary woodland area can 'bounce back better' from diseases such as Ash Die Back, regenerating with a greater number of species, and more structural diversity than before. Pressures such as squirrel and deer are managed appropriately to ensure regeneration and ecological integrity are not compromised Over time, the volume of deadwood will increase, leading to a net gain in biodiversity. Natural regeneration will be favoured and encouraged as the primary method of regeneration and diversifying tree species, however underplanting, or 'shadow planting' of native, broadleaf tree species appropriate to the site will be required. Monitoring will also be carried out to continue to assess what species are present in the wood, including birds, invertebrates and fungi. Unwanted introductions of pathogens and non-native, invasive species will be managed to ensure ecological integrity is safeguarded and the woodland is able to recover quickly following any severe, stochastic impacts, such as the current Ash Die Back epidemic. This area will act as a receptor for ancient woodland specialist species in the adjacent compartments to spread, helping to increase biodiversity and ancient woodland cover. Some trees will be encouraged to develop into 'future veterans', and

managed to achieve longevity and development of veteran features. The secondary woodland area will continue to act as a population source and corridor for woodland species expanding into the wider landscape.

Short term management Objectives for the plan period (5 years)

- Ash die back ride safety works, removal of smaller diameter trees and pruning of larger, or veteran trees to reduce risk of limb drop, increase fallen deadwood volume and increase biodiversity potential along rides.
- Thinning and coppicing of smaller diameter ash for fire wood extraction, to be provided in kind to the local community through the volunteer group. Only 30% of volume to be removed from defined areas, marked by site manager, all identified resistant canopy ash trees, and/or all remaining volume will be retained as shelterwood, to develop into standing and fallen deadwood habitat.
- Carry out haloing of veteran trees and key linear features such as wood banks, to remove dominance of sycamore, beech and holly and increase light levels for lower plants.
- lay hedge along roadside.
- Continue to support Forest Research study on Ash Die Back within the secondary woodland area.
- Continued removal of Himalayan Balsam and monitoring for any new introduction of non-native invasive species.
- Path mowing to maintain layered ride structure for biodiversity.
- Begin exploring potential for deer and squirrel management following deer and squirrel impact assessments on site.
- Liaise with local fire rescue services to inform access plan during the event of a wildfire in the area.
- Underplanting or 'shadow planting' of native broadleaf trees to aid regeneration of areas affected by Ash Die Back.
- Path closure on northern end of site to allow retention and protection of veteran ash trees with Ash Die Back, in order to meet biodiversity and structural heterogeneity goals

4.3 f3 Connecting People with woods & trees

Description

Access/infrastructure:

The wood is enjoyed by many local people due to its proximity to South Brent and the Hamlet of Aish, to which it is connected by a public footpath (South Brent Footpath 2 and 7).

There are several pull-ins along the country lane adjacent to the western boundary of the site, which can accommodate roughly four cars at any one time. There are four main stile and squeeze-gap entrances to the site, two from the road and two via a public right of way footpath leading from South Brent, through the site to the narrow country lane on the western boundary.

Penstave Copse is mostly used by local walkers, and has a relatively low footfall, although it is popular with dog walkers and there is some use by commercial dog walkers. Grazed areas and managed rides have created some pleasant open habitats which diversify and improve visitor experience, including impressive displays of bluebells.

Within the wood, a circular walking route, incorporating a short stretch of permissive path outside of the wood to the south, was negotiated with a neighbouring landowner and provides path access to most aspects of the site. However, many of these paths are steep and uneven underfoot, with some steep drops aside, and can become difficult to traverse during wet weather. There has historically been an area of riverside path featuring a tall boulder to climb that

becomes slippery when wet, however due to erosion of the riverbank, this path has been diverted and will no longer be maintained as an official route.

There is some erosion of the riverbank due to use from dogs and potentially wild swimmers. Camping with fires in the ancient woodland area has become an issue and the wood experiences minor littering.

Ash dieback has introduced a management issue regarding public safety in the wood. The main effects of collapsing trees and falling limbs are predicted to be felt most acutely in 2024 onwards, therefore intervention will need to be taken early in this management plan period. This includes work to remove the most dangerous trees along paths, alter the crowns of larger trees that have too high biodiversity value to be removed, and implement a path closure to the northern permissive path loop in order to retain standing and fallen veteran ash trees affected by the disease.

Volunteers:

The site has a committed and well established third-party group of volunteers who assist with practical work and monitoring work in the wood, in agreement with the Woodland Trust site manager. 'Sustainable South Brent' have assisted in earlier ash dieback mitigation works, carrying out thinning of lower diameter ash trees affected with ash dieback, coppicing hazel and helping to open up ride sides, which has helped to dry out historically shaded and waterlogged paths. The group also have a large body of countryside management skills and experience within their members, particularly in regards to hedge laying, and periodically lay the roadside hedge at Penstave. The timber extracted from these activities has been utilised as a sustainable source of local firewood.

Public engagement

Third party contractors have been given permission to use the wood for nature connection and light touch foraging events. These have been targeted at local people due to lack of parking.

Significance

Penstave Copse is identified within the Dartmoor National Park's 2020 – 2025 management plan as falling within an 'area of opportunity' for sustainably managed increased public use to ensure, "More people can benefit from the health and well-being benefits that Dartmoor offers". Engaging people with woods and trees, and increasing people's access to local woodland is also a key objective of the Woodland Trust. A statutory right of way path intersects the site and is one of the main walking routes into the national park from South Brent. The site has a well-established and active volunteer group that do valuable work on the site, and also act as ambassadors for both the woodland and the Woodland Trust in the local area, and contribute to a more sustainable local community.

Opportunities & Constraints

Opportunities:

Environmental education: Scope for more environmental educational activities and training events on site from Woodland Trust and third party providers.

Constraints:

- Visitor pressure: Activities such as low level camping with fires and wild swimming and dog walking causing bank erosion, littering damage to soils and wildfire risk.
- Topography: The site has a steep aspect, combined with some areas that can become waterlogged and slipper during wet weather reduces the accessibility of the site to less abled walkers.
- Sensitivity: Penstave Wood is an ancient woodland site with an abundance of rare and important wildlife species including internationally rare lower plants, increasing visitor pressure would be a conflict of interest with biodiversity levels at the site which are sensitive and prone to degradation from unsustainable human activity.
- Parking: Lack of nearby parking facilities limits feasibility of events or increasing visitor numbers from non-local sources.
- Size: Due to the wood's small size, it is unfeasible to increase visitor access significantly without adding inappropriate levels of disturbance to wildlife.

Factors Causing Change

- Increasing visitor pressure as local populations expand, increasing and changing trends towards countryside access and outdoor recreation among population, particularly increasing visitor numbers to Dartmoor National Park. Increasing incidents and range of unofficial activities such as littering and camping with fires impacting on experience and creating new risk factors for visitors carrying out activities.
- Forestry management increasing light levels to paths, drying out soil and making them safer and easier to use.
- Ash dieback present additional safety issue and medium term impact on visual aesthetic on woodland areas, also affecting access as some paths are closed for safety reasons.
- Creation of 'desire lines' or new paths into undisturbed areas of the wood by visitors.

Long term Objective (50 years+)

Penstave Copse remains a cherished resource for the local community to gain the health and psychological benefits of nature and biodiversity. The wild-feeling 'sprit of place' is protected and maintained to balance both public access and enjoyment, and the rare and important ancient woodland communities that exist there.

Access infrastructure is maintained to a high level and kept at an appropriate scale and style to the historic, landscape character of the wood. Safety is maintained proportionately with access levels, protecting the highest use areas from the tree safety risks associated with ash dieback and other future disease outbreaks while ensuring the ecological elements of the wood are safeguarded and able to regenerate. Responsible dog ownership and walking is encouraged, including wide acceptance of dogs on leads during bird nesting season. New user-group trends such as wild swimming and foraging will be encouraged to stay within the spirit of a 'leave no trace' and 'sustainable use' ethos.

Volunteering remains at the heart of the fabric of the woodlands management, with continuity of stewardship amongst the local community. Long-term, Penstave Copse will be a thriving, well established and diverse woodland- grassland matrix that people can find inspiration, enjoyment and enrichment from for generations to come.

Short term management Objectives for the plan period (5 years)

- Ride management and crown pruning of most dangerous Ash trees (infected with ash dieback) along Zone B tree safety paths to increase public safety.
- Improving light levels with ride management to dry wettest areas of path in secondary woodland area and increase access and safety.
- Path diversion around boulder and eroded riverbank track to increase safety. Closure of some paths to increase safety due to Ash.
- Path closure around northern section of site to ensure public safety and retain veteran ash trees.
- Agreed work program for Sustainable South Brent third party volunteering group including Ash thinning, coppicing, laying of roadside hedge, pulling of Himalayan Balsam and haloing of veteran trees and woodbanks.

4.4 f4 Semi Natural Open Ground Habitat

Description

The secondary woodland area of Penstave Copse was planted on former pasture-land, however around one hectare of pasture was left as open grassland habitat to create a mosaic of habitats and maximise biodiversity potential. These areas of semi-natural open ground are slowly increasing in their species richness due to an annual grass cut in late summer, followed by short-periods of low level conservation grazing. This grazing method is essential to the maintenance and improvement of the open habitat. The grassland areas are predominately National Vegetation Classification (NVC) MG5 (Cynosurus cristatus - Centaurea nigra), communities interspersed by patches of scrub W24 (Rubus fruticosus – Holcus lanatus). Wildflowers are abundant in this area in spring, with spectacular displays of species such as Bluebell, Primrose, Lesser Celandine, Dog Violet and even the rare Greater Butterfly Orchid around April, which is classed as Near Threatened on the Vascular Plant Red Data List for Great Britain. Other floral species include, Cock's foot, Soft rush, Pignut, Marsh-bedstraw, Sweet vernal grass, Greater stitchwort, Creeping soft-grass, Bugle, Thyme-leaved speedwell, Creeping buttercup, Remote sedge, False oat-grass, common figwort, Wavy bittercress, Betony, Red campion, False brome and Remote sedge. The open grassland is also an important feature for invertebrates, mammals and birds who utilise the area for foraging and nesting. Later in the year Bracken becomes a dominant species, however due to an ongoing regime of summer cutting of grass and bracken (in July - August), hay making and conservation grazing (following cutting), it is ensured that this habitat will continue to increase its biodiversity and habitat value, and be maintained as an important wildlife community into the future.

Significance

Identified as a Local Wildlife Site (LWS) a local authority designation defined as sites which are "wildlife-rich [sites]… selected for their local nature conservation value". The UK Forestry Standard, in addition to UKWAS and FSC certification all encourage managed open space (10-20%) within woodlands to increase the range of habitats and therefore biodiversity. The amount of species-rich meadows has dramatically declined in the UK, by over 97% since 1930. Their restoration is a highly beneficial conservation activity. Wildflower meadows provide a vital resource for pollinating species in the land scape. Increasing biodiversity is one of the key organisational aims of the Woodland Trust and its estate.

Opportunities & Constraints

Opportunities:

Constraints:

- Due to elevated soil fertility levels, coarse vegetation dominance in late summer such as bracken reduces the species-rich condition of the open habitat.
- Potential disturbance of ground nesting birds due to visitor pressure.
- East facing aspect reduces the potential for highest quality open wildlife habitat, with southern aspect being preferred.
- Theft and sabotage of grazing infrastructure such as hook-eye latches, presenting issues to graziers.

Factors Causing Change

- Scrub development, potentially threatening permanence of semi-natural open habitat.
- Non-native species, particularly Himalayan Balsam, creating present and future threat to biodiversity.
- Ash Die Back, creating more open space within grazed areas.
- Steadily reducing soil fertility levels creating more species-rich habitat.

Long term Objective (50 years+)

The semi-natural open habitat at Penstave Copse will remain a valuable, permanent habitat feature and asset to biodiversity within the woodland matrix. Over time, with continued cutting interventions, timed to ensure pollinated wildflowers are not negatively impacted, and short periods of low-density conservation grazing, the grassland will restore to a more species-rich habitat with far greater biodiversity value for species of plant, invertebrate, bird, reptile, fungi and mammal. The opportunity to graze this site will continue to offer support to the local, sustainable rural economy, and the open areas continue to provide a well-loved and used recreational resource for the local community.

Short term management Objectives for the plan period (5 years)

- Continuing grazing regime, de-pasturing low-density conservation cattle in late summer for several weeks following bracken and grass cutting and hay extraction in late July – early August.
- Continue to monitor and selectively remove non-native invasive species such as Himalayan Balsam. before seeding occurs in July.
- Carry out nitrate and phosphate soil tests.
- Control areas of encroaching scrub where required to keep below <20% cover in open area.

5. WORK PROGRAMME

Year	Type Of Work	Description	Due Date
2020	SL - Routine Safety Work	Works associated with undertaking planned visitor and structure safety orientated actions, such as erection/creation or maintenance of safety features such as fencing, rails, re-pointing of retaining walls etc	February

APPENDIX 1 : COMPARTMENT DESCRIPTIONS

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
1a	3.39	Oak (sessile)	1800	High forest	Mostly wet ground/exposed site, No/poor vehicular access within the site	Ancient Semi Natural Woodland, County Wildlife Site (includes SNCI, SINC etc), National Park
The lower, riparian slopes of Penstave Copse features 2.4 hectares of Ancient Semi-Natural Woodland (ASNW) habitat adorning the banks of the river Avon, a glacial-torrent river with high water quality, and diverse array of habitat niches including gravel riffles, waterfall pools and deadwood dams. The ASNW is predominantly formed of upland oak woodland, otherwise referred to as 'Atlantic Temperate Rainforest' habitat, with ash and alder wet woodland NVC types (NVC W6/7 and W9/10). This area has an abundance of standing and fallen deadwood, and several veteran trees, notably Oak, Ash and Willow. The ancient woodland areas feature spring-fed wet flushes and tributary streams, bare rock and steep, uneven slopes falling into a relatively flat riparian zone dominated by alder, and historic woodbank boundaries and stone walls. This compartment features a rich communities of lower and higher plants. Himalayan balsam (Impatiens glandulifera) is a non-native invasive species spread through watercourses. There is historical evidence for coppicing taking place in the ASNW area of the site from as early as the 1800s to 1950						
1b	2.2	Ash	1996	High forest		National Park
The secondary woodland area comprises 4.8 hectares of mixed, native broadleaf woodland, which was planted on former pastureland within Penstave Copse in 1996 as part of the Woodland Trust's Woodlands on Your Doorstep (WOYD) project. The trees were planted over MG1 (Arrhenatherum) improved pasture of low conservation value, dominated by grasses. Having now reached pole-stage (15 – 30 cm dbh) and begun the process of canopy closure. Tree species planted were chosen to mirror the NVC 9/10 community found in the adjacent ancient woodland areas and include Pedunculate Oak and Rowan, however the secondary woodland area is mostly dominated by Ash. This section of the wood does also feature some large, veteran oak and ash trees in the hedgerow boundaries of the site, and a section of Hazel hedgerow that is under a traditional 'hedge-laying' management rotation, carried out by the resident volunteer group. Levels of standing and fallen deadwood are currently low, due to the stands history, however ash dieback is likely to increase the volume significantly over the next five years.						
1c	2.95	NULL		Non-wood habitat		National Park
One hectare of semi-natural grassland, predominately National Vegetation Classification (NVC) MG5 (Cynosurus cristatus - Centaurea nigra), communities interspersed by patches of scrub W24 (Rubus fruticosus – Holcus lanatus), creating a habitat mosaic amongst the secondary woodland. Wildflowers are abundant in this area in spring, with						

Cpt No.	Area (ha)	Main Species	Year	Management Regime	Major Management Constraints	Designations
spectacular displays of species such as Bluebell, Primrose, Lesser Celandine, Dog Violet and even the rare Greater Butterfly Orchid Platanthera chlorantha (on the south-western edge of the northern block), around April, which is classed as Near Threatened on the Vascular Plant Red Data List for Great Britain. Other floral species include, Cock's foot, Soft rush, Pignut, Marsh-bedstraw, Sweet vernal grass, Greater stitchwort, Creeping soft-grass, Bugle, Thyme-leaved speedwell, Creeping buttercup, Remote sedge, False oat-grass, common figwort, Wavy bittercress, Betony, Red campion, False brome and Remote sedge. Later in the year Bracken becomes a dominant species and Himalayan Balsam has in the past been a prolific non-native invasive species but is now largely under control.						

GLOSSARY

Ancient Woodland
Ancient woods are defined as those where there has been continuous woodland cover since at least 1600 AD. In Scotland ancient woods are defined strictly as sites shown as semi-natural woodland on the 'Roy' maps (a military survey carried out in 1750 AD, which is the best source of historical map evidence) and as woodland all subsequent maps. However, they have been combined with long-established woods of semi-natural origin (originating from between 1750 and 1860) into a single category of Ancient Semi-Natural Woodland to take account of uncertainties in their identification. Ancient woods include Ancient Semi-Natural Woodland and plantations on Ancient Woodland Sites (see below). May support many species that are only found in ancient woodland.

Ancient Semi - Natural Woodland
Stands in ancient woods defined as those consisting predominantly of native trees and shrubs that have not obviously been planted, which have arisen from natural regeneration or coppice regrowth.

Ancient Woodland Site
Stands in ancient woods that have been converted to plantations, of coniferous, broadleaved or mixed species, usually for timber production, including plantations of native species planted so closely together that any semi-natural elements of the understorey have been suppressed.

Beating Up
Replacing any newly planted trees that have died in the first few years after planting.

Broadleaf
A tree having broad leaves (such as oak) rather than needles found on conifers (such as Scots pine).

Canopy
The uppermost layer of vegetation in a woodland, or the upper foliage and branches of an individual tree.

Clearfell
Felling of all trees within a defined area.

Compartment
Permanent management division of a woodland, usually defined on site by permanent features such as roads. See Sub-compartments.

Conifer
A tree having needles, rather than broadleaves, and typically bearing cones.

Continuous Cover forestry
A term used for managing woods to ensure that there are groups or individual trees of different ages scattered over the whole wood and that some mature tree cover is always maintained. Management is by repeated thinning and no large areas are ever completely felled all at once.

Coppice
Trees which are cut back to ground levels at regular intervals (3-25 years).

Exotic (non-native) Species
Species originating from other countries (or other parts of the UK) that have been introduced by humans, deliberately or accidentally.

Field Layer
Layer of small, non-woody herbaceous plants such as bluebells.

Group Fell
The felling of a small group of trees, often to promote natural regeneration or allow planting.

Long Term Retention
Discrete groups of trees (or in some cases single trees) that are retained significantly past their economic felling age. Operations may still be carried out within them and thinning is often necessary to maintain stability.

Minimum Intervention
Areas where no operations (such as thinning) will take place other than to protect public safety or possibly to control invasive exotic species.

Mixed Woodland
Woodland made up of broadleaved and coniferous trees.

National vegetation classification (NVC)
A classification scheme that allows an area of vegetation to be assigned to the standardised type that best matches the combination of plant species that it contains. All woodlands in the UK can be described as being one of 18 main woodland types (W1 - W18), which principally reflect soil and climatic conditions. For example, Upland Oakwoods are type W11, and normally occur on well drained infertile soils in the cooler and wetter north and west of Britain. Each main type can be subdivided into numerous subtypes. Most real woods contain more than one type or sub-type and inevitably some woods are intermediate in character and can't be properly described by any sub type.

Native Species
Species that arrived in Britain without human assistance.

Natural Regeneration
Naturally grown trees from seeds falling from mature trees. Also regeneration from coppicing and suckering.

Origin & Provenance
The provenance of a tree or seed is the place where seed was collected to grow the tree or plant. The origin is the geographical location within the natural range of a species from where seeds/tree originally derives. Thus an acorn collected from a Turkey oak in Edinburgh would have an Edinburgh provenance and a southern European origin.

Re-Stocking
Re-planting an area of woodland, after it has been felled.

Shrub Layer
Formed by woody plants 1-10m tall.

Silviculture

The growing and care of trees in woodlands.

Stand
Trees of one type or species, grouped together within a woodland.

Sub-Compartment
Temporary management division of a compartment, which may change between management plan periods.

Thinning
The felling of a proportion of individual trees within a given area. The remaining trees grow to fill in the space created.

Tubex or Grow or Tuley Tubes
Tubes placed over newly planted trees or natural regeneration that promote growth and provide protection from animals such as rabbits and deer.

Weeding
The control of vegetation immediately around newly planted trees or natural regeneration to promote tree growth until they become established.

Windblow/Windthrow
Trees or groups of trees blown over (usually uprooted) by strong winds and gales.