



WSWG Taymount Wood 25 Year Management Plan

2024-2048

A Positive Vision of the future



October 2022

Summary

This Woodland Management Plan outlines how WSWG proposes to manage Taymount Wood. The plan addresses the interconnected, and worsening, Climate and Ecological Emergency from day one, implementing emergency actions to establish critical Nature Recovery zones to create a Biodiversity Network across the woodland for rapid Nature Recovery and Carbon Sequestration. We will embrace the concept of Whole Forest Utilisation to ensure we have a sustainable woodland based resource ranging from timber to “Living Forest” revenue streams.

Community-led Delivery – by working together we can not only imagine a more positive vision of the future, we can actually make it happen. By discarding the old destructive ways and adopting a new regenerative system, we will ensure our woodlands are:

- 1) Replete with life in all its infinite wonder, where future generations can still enjoy an intimate engagement with nature.
- 2) Enjoyed by people from all walks of life, young and old, from near and far.
- 3) Supporting a sustainable green economy that protects, not degrades our life support systems.
- 4) Sequestering carbon within trees and living soils for decades to come, to afford the younger generation some time to address the deepening Climate Crisis which we have sadly failed to do in any meaningful way.

The woodland restructuring within the first few years is essential if we are to meet our ambitious objectives. The restructuring will involve felling sections of the mature woodland which are of low ecological and amenity benefit. Across the wider woodland we will carry out thinning works in the younger plantation blocks to ensure both economic and ecological aims are addressed.

To view an overview of proposed felling and restructuring please see accompanying maps (Felling Phases Map and Restock Map).

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Appendices attached x 2: TW1 Felling phases, TW2 Prescriptions

Maps attached x4:1 - TW Compartments, 2 - TW Felling phases, 3 - TW Restock, 4 - TW Final vision

1. Woodland overview

1.1 Location and background

Taymount wood is located near Stanley, at grid reference NO 1172 3632.

The woodland is approximately 155 hectares and is located within an area of farmland, north-east of the village of Stanley, Perthshire. The wood was acquired by the Forestry Commission in 1956 with a small section south-east of Kirk o' the Muir being added two years later.

1.2 Access

There is one vehicle access point at the road junction on the C406 road which links West Tofts near Stanley to Kinclaven. There is also a track into the wood on NW that uses a level crossing over the Perth–Inverness railway line, which is rarely used other than for access by private residents and pedestrians but which is also an official extraction route for Taymount Wood.

The main forest track is in good condition structurally but will require surface scraping of gorse in some sections to allow pedestrian and vehicular movement.

2. Our long-term mission

“To achieve significant progress towards a thriving community living in a sustainable, healthy and enjoyable landscape in eastern Strathgairn centred on the two rapidly naturalising Taymount Wood and Five Mile Wood. Substantially enhanced landscape ecology, improved and integrated access provision and a boosted local wellbeing economy.”

3. Management objectives

Our Approach to forest management

We aim to initiate a paradigm shift in forest management thinking, which can be replicated across the country at both local and regional scale. Humanity now faces an existential threat from the interlinked Climate and Ecological Emergency, heralding the collapse of our life support systems across the planet, not seen at this rate for millions of years. Our approach to management must reflect our need to mitigate these combined emergencies, while at the same time ensuring the woodland meets the economic and social benefit aspirations of the community.

Our primary objectives are as follows:

- **Whole forest utilisation**, from sustainable timber production to living forest generated revenue streams.
- Meaningfully increase our woodlands carbon sequestration potential (**Carbon Drawdown**)
- Initiate emergency actions for rapid **Nature Recovery** at Nature's scale
- Create and support the **local wellbeing economy** which benefit our communities and reduce their carbon footprint.
- **Re-connect people with nature** through community education & activities.
- Ensure **future generations** continue to enjoy the unique benefits which only woodlands can give.
- Promote establishment of a **living network** of woodland corridors linking woodlands and communities across the region, where wildlife and people can connect and thrive.

3.1 Reconnecting people with nature

WSWG has already been cited as a delivery mechanism/working partner in the Strathtay Local Action Plan with particular regard to health and wellbeing.

We will continue to facilitate the re-connection of people with nature through a multitude of pathways, including improved access, educational programmes and woodland events, such as the numerous and well received woodland events which WSWG have already implemented over the past 4 years. We will bring people together from all walks of life for woodland activities relating to “on the ground” woodland management. However, this is much more than simply getting people out to enjoy their local woodlands.

We envisage our woodlands to be the central hub in a new and positive move towards a more harmonious relationship between people and land management, where the concept of increasing natural resilience, regenerative land management and minimising our ecological footprint at both local and global level is built into every aspect of our daily lives. **Put simply – we will use our woodlands to facilitate a new, positive vision of the future.**

3.2 Ecological restoration

Existing biodiversity: Although there is a wide range of woodland habitat types including upland mixed broadleaved, native pinewood, upland oak/birch, the woodland is severely lacking in essential ecological continuity and resources, such as structural heterogeneity, deadwood habitat, old growth and legacy trees, nectar sources for insects and native tree species diversity. **Put simply - the woodland is ecologically traumatised and not functioning as nature intended.** What we perceive to be a healthy biodiverse woodland is, in reality, symptomatic of the influence of “shifting baseline syndrome”, whereby each generation views their environment as normal, failing to realise the catastrophic erosion of our natural world over time.

However, Taymount has good potential to become one of the most biodiverse woodlands in Scotland. First and foremost will be a structural change in species composition to increase diversity of tree, shrub and plant species at scale. This will bring about an exponential increase in biodiversity and act as a Best Practice model for others to learn from. Only by working at nature’s scale can we hope to stem the haemorrhaging of species loss being witnessed globally.

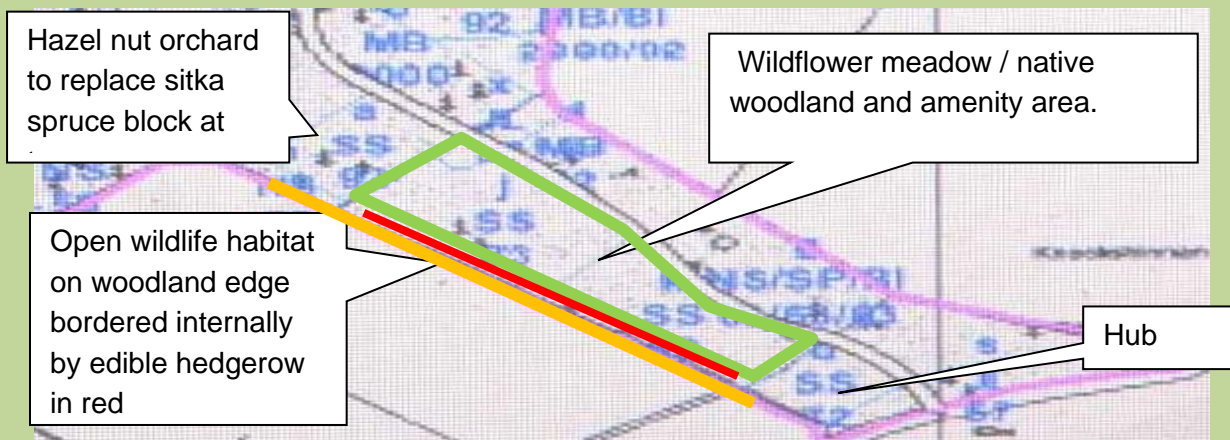
3.2.1 Nature Recovery zone 1

This zone comprises the narrow conifer section stretching from the car park along the left side of the forest road for approximately 300m.

Action required: fell the sitka spruce and replace with a diverse mix of amenity infrastructure and wildlife recovery zones, including wildflower meadows and native trees such as oak, wych elm, wild apple, cherry etc. The lower section will also incorporate a small-scale non-commercial community Food Forest. A Food Forest is a self-regulating woodland ecosystem which provides a maximum amount of food for a minimum amount of input.

For a more detailed view of the design of this section please see the accompanying maps.

Image below: Visual interpretation of transition from SS to native habitats and amenity area. Forestry sub compartments – 3065 J and L

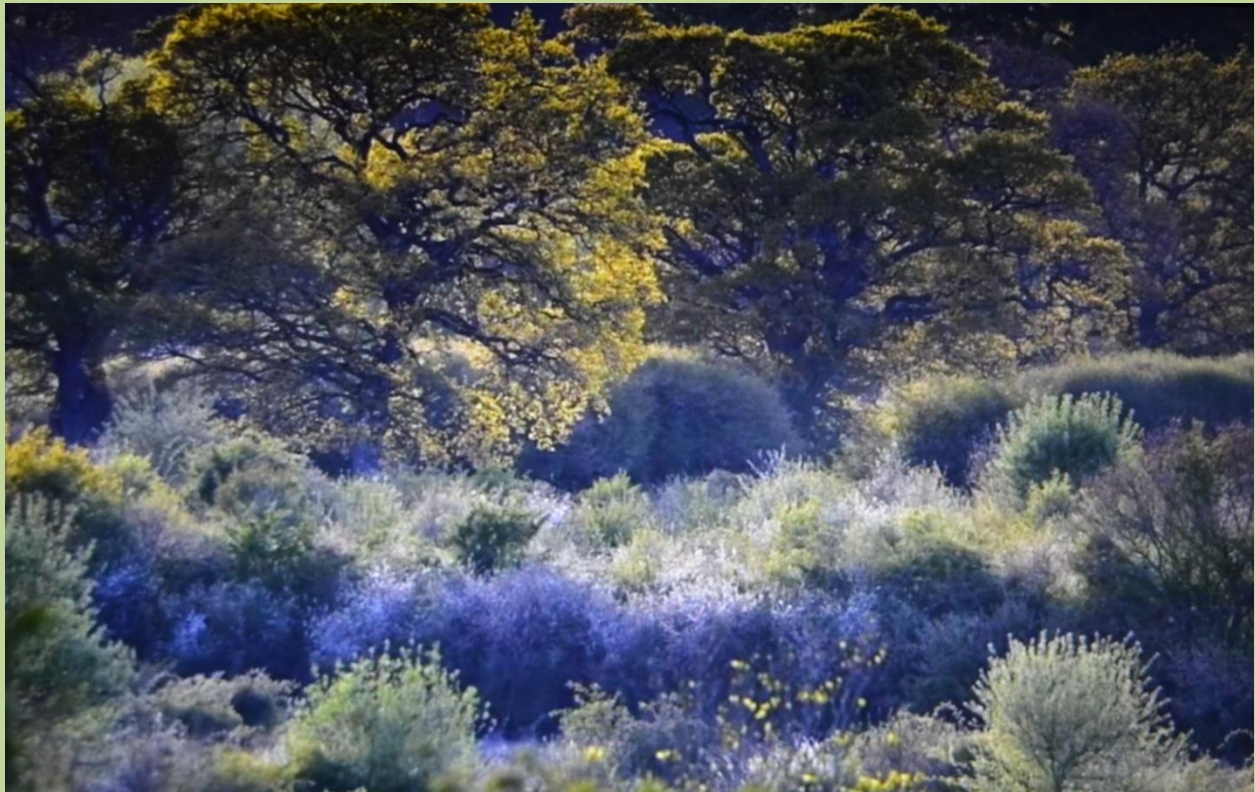


Key: Red = edible hedgerow. Orange = open habitat, reptile reintroduction zone – lizard and slow worm. Main section = combined wildflower and native tree restoration.

Edible hedgerow along full western edge	Wildflower meadow / new native woodland Educational activities, materials, wildlife habitat creation.
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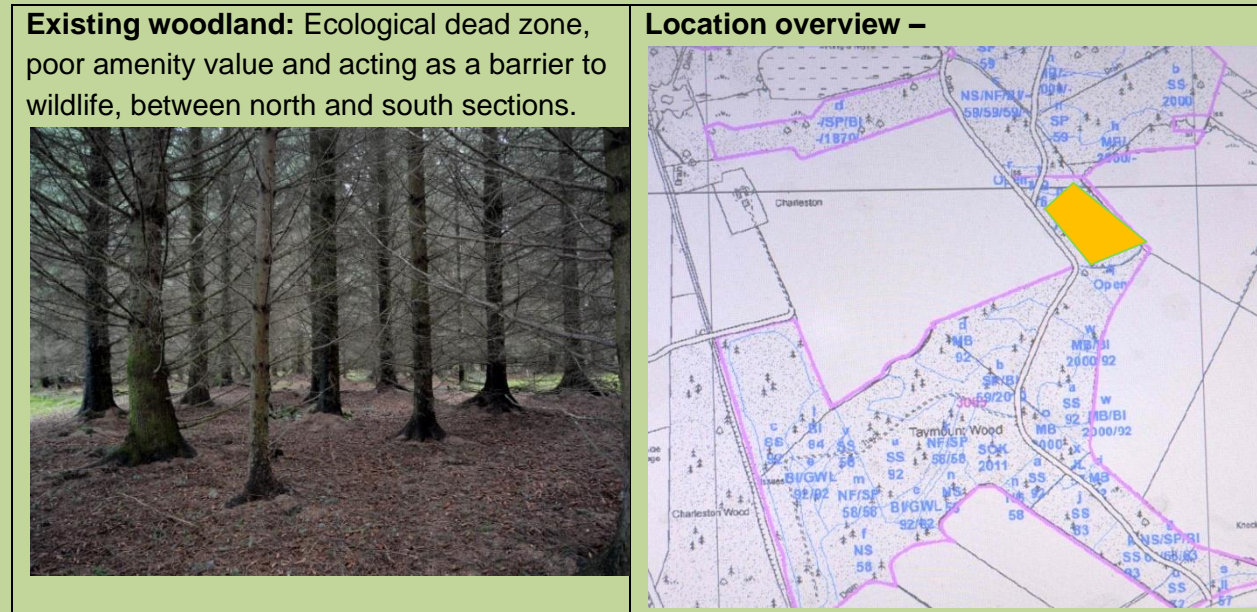
Image below: indicative view after nature recovery, with open grown oak and native flowering trees and shrubs. A rich tapestry of colour, scent and sound, haven for wildlife and high amenity value.



3.2.2 Nature Recovery zone 2 / Food Forest

Description: Sub-compartment 3065 P&H, 2.5 hectares of sitka spruce

Action required: Fell sitka spruce and replace with commercial food forest, integrated within an ecological corridor - linking the southern and northern woodland sections.



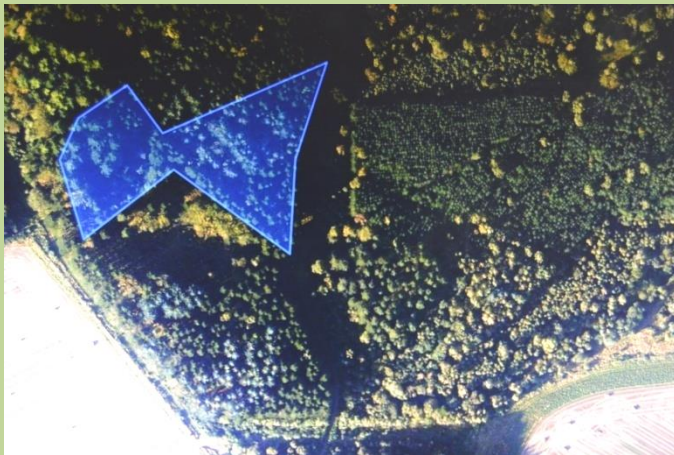
3.2.3 Nature Recovery zone 3

Description: sub-compartment 3064 D – approximately 1.2 hectares, Norway spruce and Noble fir.

Action required: restore native oak and flowering tree species, creating a connecting corridor from east to west, linking with the King’s Myre Loch SSSI. The section is cut in half by a large patch of windblow, which is now fostering regeneration of native trees. We will retain the Noble firs and Spruce trees below /south of the windblow for wildlife and amenity value and remove 90% of trees above / north side of the windblow, retaining the largest specimens, standing deadwood and a 20m wide strip along north boundary with adjacent Scots pine grove to ensure adequate feeding resources for red squirrels and other wildlife, and offering high amenity value to walkers.

See image on page 7 above for indicative view after nature recovery.

Overview showing felling zone in blue



Overview of location



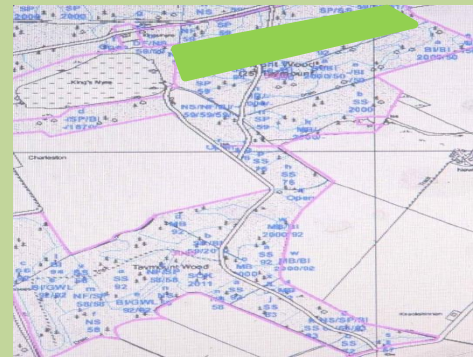
3.2.4 Nature Recovery zone 4

Description: Sub-compartment 3064 I, J, F, around 5 hectares of mostly windblown mix of sitka spruce and noble fir, with 2 hectares of open ground.

Typical view of existing woodland with windblown trees



Overview of location



Action required: Remove sitka spruce and windblow sections to establish a native woodland and wildlife corridor from east to west, linking with the King's Myre Loch SSSI.

Image below: showing aerial overview of felling zones required for nature recovery.

Note: this image is several years old. Recent storms have significantly increased windblow areas not shown. **Red arrows** indicate where trees will be retained for red squirrel feeding habitat – Noble fir & Scots pine.



Saving the forest giants

Image below: retained Noble Firs for red squirrel habitat, visitor experience and carbon sequestration.





Image left: showing indicative aerial view after nature recovery, with restoration of 4,000 native trees, wildlife ponds and other habitat creation. All fringed by giant Firs and Pines shown above

3.2.5 Nature Recovery zone 5

Description: sub-compartment 3062 D – approximately 3 hectares, mostly Douglas fir and Norway spruce, with windblow throughout.

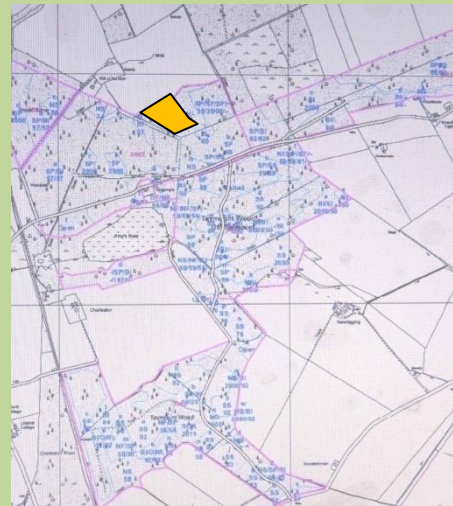
Action required:

- 1) Restore native oak, with wild apple, cherry, hawthorn and rowan.
- 2) Open up / allow sunlight to the few ancient 120 year old Scots Pines which are slowly dying off from over-shading from plantation conifers.
- 3) Retain large wind-firm legacy trees for old growth potential, future deadwood and biological reserve.

Just one native Wild Apple can support thousands of pollinating insects and over 100 times as many species than the entire conifer section being removed.



Overview of location



3.2.6 Nature Recovery zone 6 - Birch woodlands

There is extensive mature and regenerating birch woodland in Taymount. The Birch Woodland Plan recognises if we are to maximise their value either for biodiversity, wood products or birch water revenue then some of the younger sections will need thinned to reduce tree density and allow remaining trees to grow large and healthy and be ecologically enhanced by increasing species diversity. However there is a critical shortage of deadwood habitat across the site, especially in birch sections. The WWF recently called on European governments to help conserve Biodiversity by substantially increasing deadwood in forests by 2030. Its also a legal requirement in most countries.

Almost 5,000 British species depend upon deadwood habitat for survival. Over 300 of these, together with many insect species that live on birch trees, also need to feed on flowering trees and plants to survive – yet another resource largely missing from the woodland.

Action required:

1) Thin out each section, with some left as standing deadwood and others felled and left in situ to feed the soil fungi and other soil biology. Up to 70% more carbon can be stored with fungi-rich soils.

2) Logs are heaped as habitat piles for wildlife habitat - invertebrates, hedgehogs, amphibians and nesting birds and small-scale commercial fungi growing. Logs are also extensively used in children's activities - bug hotels, bee nesting areas, beetle logs, hedgehog and bird nesting sites. These activities will also attract funding. Some logs will also be used for on-site fencing, arts and crafts, building materials and other needs.

3) Restructure 3 hectares of birch scrub into oak woodland / Nature Recovery zones and enhance the remaining 25 hectares of birch zones by increasing numbers and distribution of flowering trees - wild apple, hawthorn, wild cherry, etc- and wildflowers.



Dense birch thickets will be greatly enhanced for wildlife and carbon storage.

Location of 3 birch Nature Recovery zones.



3.2.7 Woodland Wildflower Restoration

It's a sobering thought that wild flower meadows have been eradicated by over 97% since the 1930s. Our woodland flowers have suffered similar declines, although for different reasons. WSWG will ensure wildflower restoration and protection is incorporated into our Nature Recovery zones and other woodland management actions, as well as along the network of forest road verges where thin soils foster a rich assembly of specialist species, which in turn support thousands of insects including some which have not been found anywhere else in Tayside.

3.2.8 Proforestation - creating natural reserves for wildlife and carbon sequestration.

Proforestation is a term used to describe allowing trees to grow and reach their biological potential instead of felling them at an early age, as is the usual case. This is now considered as

the most effective way to sequester carbon as individual large trees absorb significantly more carbon than many smaller trees. It's also the only way to achieve large dimension trees for the benefit of wildlife and people. As such we have identified the most critical areas where proforestation can be implemented. This will also attract nature-based funding, to ensure we can actually make a sustainable income from the living forest, while protecting the planet as the same time.

Image below showing examples of Scots pine habitat where biological reserves will be created. These will also include existing Noble fir and Norway spruce areas and will be interconnected with the Nature Recovery zones highlighted above to form a contiguous ecological network throughout the woodland.

These 100 year old pines will be retained for Old Growth Forest / Proforestation under this management plan.



Flowering heather under pines



3.2.9 Red squirrel conservation

The woodland plan also incorporates actions required to safeguard the red squirrel population. This has now become critical after unprecedented storms destroyed over 50% of the red squirrel habitat in eastern Scotland in November 2021. Crucially it will prioritise the retention of the small, but strategically distributed sections of Noble firs, Norway spruce and beech trees to ensure a continuous food supply and shelter habitat throughout the year. We will also retain all of the Scots pine areas as red squirrel habitat. Our Nature Recovery zones will also establish an immediate 20 hectares of new native broadleaved woodland with thousands of oak, hazel, apple and berry producing trees to maximise diversity and ensure red squirrels will thrive for generations to come.

3.2.10 Breeding bird populations under this plan

There are currently 26 bird species breeding in the woodland, although the numbers of most of these are very low, due to a lack of nesting habitat and feeding resources – mainly insects. Our habitat enhancement measures will significantly increase these resources to halt the sharp declines in woodland bird numbers witnessed over recent years. The Nature Recovery zones alone are expected to increase breeding bird numbers from a depressing 15 pairs of 4 species under the present conifer habitat in these areas to over 300 breeding pairs of 17 species after transition to native deciduous.

3.2.11 Increase Deadwood component and ecological continuity

Almost 5,000 British species depend upon deadwood habitat for survival. WWF recently called on European governments to help conserve Bio-diversity by substantially increasing deadwood in forests by 2030.

To address the critical shortage of deadwood habitat across the site, (in particular, the continuity of successive stages of decaying wood), we have produced a Deadwood Management Plan to ensure this resource is restored and protected for decades to come. This can only be realised to



its full potential with our Proforestation objectives.

Allowing trees to grow under natural processes, to reach their biological potential, whereby deadwood habitat is an integral component of a dynamic woodland ecosystem. In areas where there is a severe deficiency, we will also speed up the process by intervention, tree veteranisation and other methods.

Image Left: protection of standing dead trees will be a priority to increase this essential woodland habitat. Under this Woodland Management Plan, our Deadwood Management Plan ensures a continuous deadwood resource for decades to come.

Deadwood habitat such as dead trees, decaying logs, etc is essential for woodpeckers, and woodpeckers are a keystone species. Their disused nest holes in trees become critical nesting habitat for other hole-nesting birds, bats and insects. Other bird species also utilise them during winter weather for survival.

Aquatic deadwood habitat: In-stream large woody debris (LWD) will also be restored in all water courses / water bodies.

3.2.12 Establish a wider, more natural age class component

There is a comprehensive absence of old growth trees across site, which is a reflection of historic management. Of 9 age classes of increments of 20 years, with class 9 being everything over 160, Taymount wood has nothing in class 1 with the exception of a small sessile oak stand or from 5-9 with the exception of a small Scots Pine patch in early class 5. This is one reason UK woodlands are biologically impoverished and ecologically dysfunctional.

Nothing else can substitute this habitat. Visually, from a distance, legacy / ancient trees have high landscape and aesthetic value and should attract a range of funding. At near distance they can afford a unique spiritual connection to the visitor. Study after study has shown a measurable physical health and well being benefit from this intimate engagement with nature.

Our restructuring will create a more natural age structure, meeting social, economic and ecological objectives.



Opposite: Are we to deprive future generations of the opportunity to experience ancient woodland for short term profit, or do we act as responsible custodians of the ancients of the future?

3.2.13 Increase tree species and plant diversity

Specifically, our objective here is to ensure the woodland is resilient to climate breakdown and associated weather extremes, disease and biodiversity collapse. We will substantially increase plant (woodland flowers) and tree species diversity throughout the woodland by enrichment planting and protection of natural regeneration of species presently suppressed by deer.

Species composition will be largely influenced by soil types and woodland NVC, as well as nature driven processes such as natural dispersal (eg: jays, wood pigeons, thrushes importing seeds.) Broadly - increasing coverage of hazel, goat willow, wild cherry, bird cherry, holly, rowan, wild apple, wych elm, alder, hawthorn, blackthorn, elder, juniper and, specifically, oak. Birch regeneration is already widespread and we will allow this to continue across site as a pioneer soil builder until other species can become established, although many birch zones will continue to be retained for both economic and ecological reasons.

3.3 Improve access and recreational infrastructure

Our proposals include a children's play area and picnic area, parking provision for both standard and disabled use, cycle stands and EV charging points, as well as other facilities for outdoor workshops and a craft hamlet. The main building will be a community facility and staff base and will be the focus of community activity, a café, meeting space, and other business and project developments.

An all-abilities path will meander from the car park through a community food forest, amenity area, wildflower meadows and new native woodland zone. Interactive educational features will also be situated within this zone, as well as throughout the wider woodland.

Unsurfaced walking trails will also be established during the early period of restructuring, with segregated and/or designated routes for horse-riding and cycling an objective. Wet weather and shade shelter facilities will be located at strategic points along the forest road network.

3.4 Increase social return and wellbeing potential

Health and wellbeing: Our vision for the woodland will herald in a more positive vision of the future, with a boosted local wellbeing economy and where user groups experience an enhanced engagement with nature through a myriad of nature-based activities, thus boosting health and wellbeing of user groups. These diverse groups will range from local school children and mentally and physically vulnerable people to the elderly and socially isolated.

Employment opportunities: Our facilities at the Taymount Hub and associated woodland programmes will generate up to 6 direct posts. These will in turn generate indirect employment opportunities as projects are developed in conjunction with local stakeholders. The many varied activities related to the woodland management and nature-based activities will also boost the local green economy.

WSWG grant aid for community projects: WSWG will establish a small grant scheme dedicated to funding local charities, groups, schools, green initiatives (including from individuals) that aim to implement actions, activities and business ideas that benefit the environment and health and wellbeing. These will be primarily targeted at activities not related to the woodlands, thus contributing to the wider community benefit.

3.5 Visual aesthetics and Forest bathing

Below: Woodland engagement 2-minute walk from the car park, for those unable to venture further.



Under this plan these large trees and thousands more across the site will be protected for landscape quality.

This is most noticeable in winter months when Norway spruce (image left), towering Scots pine and blue-tinted Noble firs stand out against the surrounding birch woodlands bare of leaves.

These will be allowed to grow old naturally so that future generations can walk amongst massive trees hundreds of years old.

The Nature Recovery zones will allow visitors to experience an intimate engagement with nature from the rich tapestry of colour, sound, scent and life in all its diversity. The health and wellbeing benefits of this cannot be over-exaggerated. Neither can the medicinal benefits of simply walking through the woodland, where walkers literally breath in the natural chemicals in the air called Phytoncides produced by trees, especially conifers. These Phytoncides actively reduce stress hormone levels and can boost the immune system, which can last up to a month afterwards.

3.6 Whole Forest utilisation

We will embrace the concept of Whole Forest Utilisation, from sustainable timber production to “Living Forest” income streams from both the public and corporate bodies, including Biodiversity related revenue streams, tree sponsorships, Natural Capital and carbon Sequestration payments. We envisage industry-led changes in environmental legislation will foster new opportunities for nature-based revenue. For example, Biodiversity Net Gain will become mandated into law in England in 2022. Our biodiversity survey and monitoring programme will help inform where high quality Natural Capital credits can be developed and utilised.

Other examples include forest activities, commercial food forest, hazel nut orchards, fungi/mycoforest, birch sap, honey production and ground lease to honey producers, special events, venues etc, renewable energy, artist retreat, arts and crafts, ecotourism and so on. A detailed economic assessment of these has been provided under our Proposal Document and Business Plan.

3.7 Carbon Sequestration

There is now only one process via which we can effectively secure our future by cooling the planet. This is **pedogenesis**: the microbial bio-conversion of organic matter by fungi and soil microbes into stable soil carbon. Forests can only effectively cool the planet if they have surplus water. That water can only come from healthy biodiverse living soils, increasing bio-fertility, the living micro-biome driving the longevity of growth and carbon drawdown potential and, crucially, increasing the rates of transpiration of water from the forest back into the upper atmosphere where it actually cools the planet via the hydrological cycle which is responsible for 95% of the heat dynamics of the planet.

We aim to substantially increase tree diversity by at least 14 species. Studies have shown carbon sequestration significantly increases with tree diversity.

Existing forests could, if managed differently, remove at least twice as much atmospheric carbon than they currently do (Erb et al.2018). We will implement **Proforestation management** to allow trees to reach their biological potential for carbon storage, both in above and below ground biomass. We will also maximise diversity of mycorrhizal fungi to help maximise stable soil carbon sequestration. (Fungi-rich soils can sequester around 70% more than depleted soils).

We will seek income from carbon offsetting – industry-funded, as well as carbon footprint offsetting for individuals / members of the public.

Priority actions:

- 1) Avoid soil disturbance in all tree planting operations to avoid carbon loss and heat re-radiation from bare soils.
- 2) Avoid all biocides in the forest to protect soil biology.
- 3) Restore / protect the forest's soil carbon sponge by substantially increasing deadwood, tree and plant diversity, fungi communities and implementing Proforestation.

4. Woodland description

4.1 Biodiversity

The woodland lies within the catchment of the River Tay SAC. There is also the adjacent King's Myre Loch SSSI, which is bordered on 3 sides by the woodland.

A full comprehensive suite of ecological survey and monitoring is planned for after acquisition. However, a recent brief investigative survey by a WSWG ecologist discovered around 20 invertebrate species - mostly solitary bee and beetle species- which were unrecorded elsewhere in Tayside, with a further 20 species recorded from only a handful of locations across the region. Four of the species are classed as Nationally Scarce and 10 species were found to be recorded in fewer than 10 locations in Scotland. Further survey effort and monitoring will be required to inform future forestry and ecological planning.

Both Taymount Wood and Five Mile Wood are to be biodiversity refugia, where species have found refuge as the landscape around them has been fragmented and destroyed over recent decades, leaving these two woodlands as “mainland islands” in a degraded landscape.

Protecting the ecological integrity of the woodland is even more significant when put into context of the national and global biodiversity crisis we are witnessing at present.

4.2 Woodland composition

Taymount woodland has a diverse conifer species mix in comparison to other plantations, approximately half of which consisting of Scots pine, together with larch, spruces (sitka and Norway) and firs (Noble and Douglas). Birch woodland makes up almost a quarter of the site, with ages ranging from 20 years to over 70 years old. The older stands of conifers have a history of thinning and windblow clearance is evident in the middle sections.

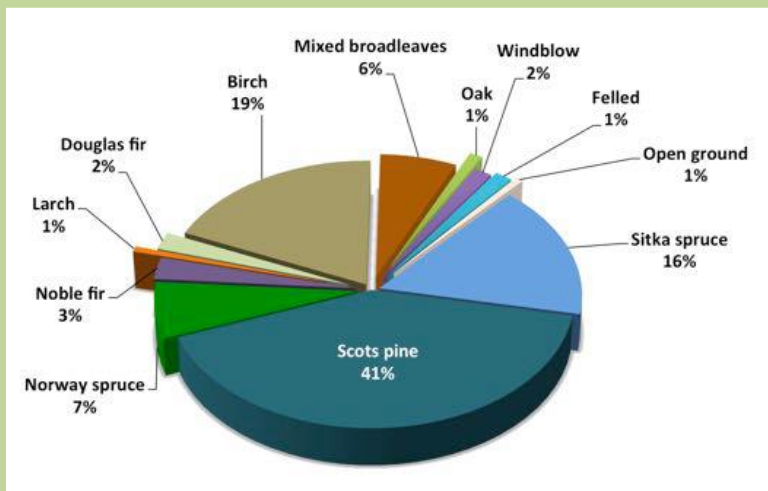


Figure left: showing species composition in Taymount Wood

Figures below: on left showing woodland composition in Taymount Wood before and on right showing long term outlook after planned restructuring

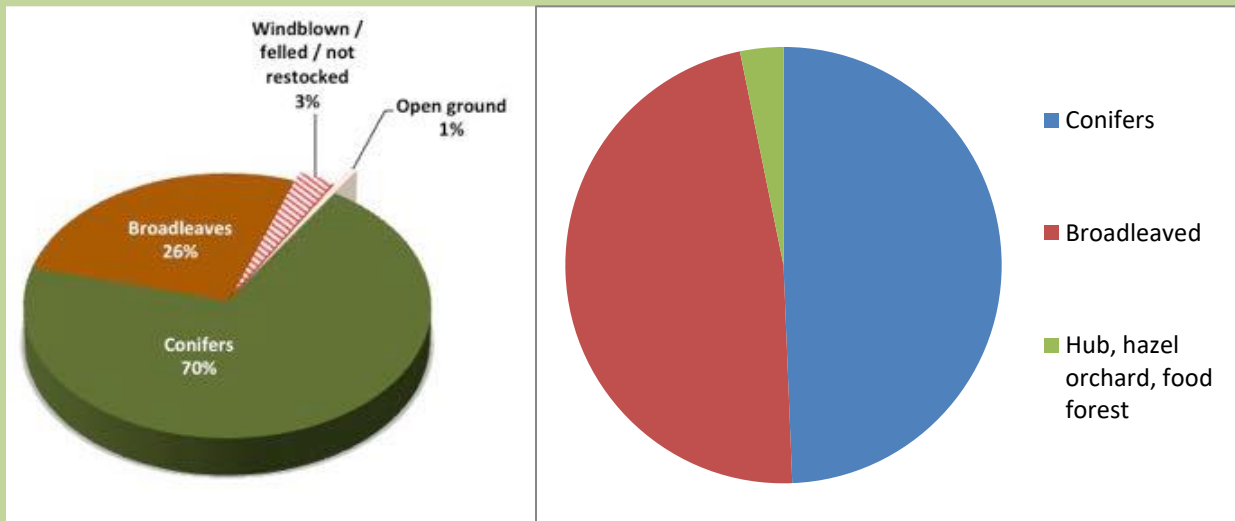
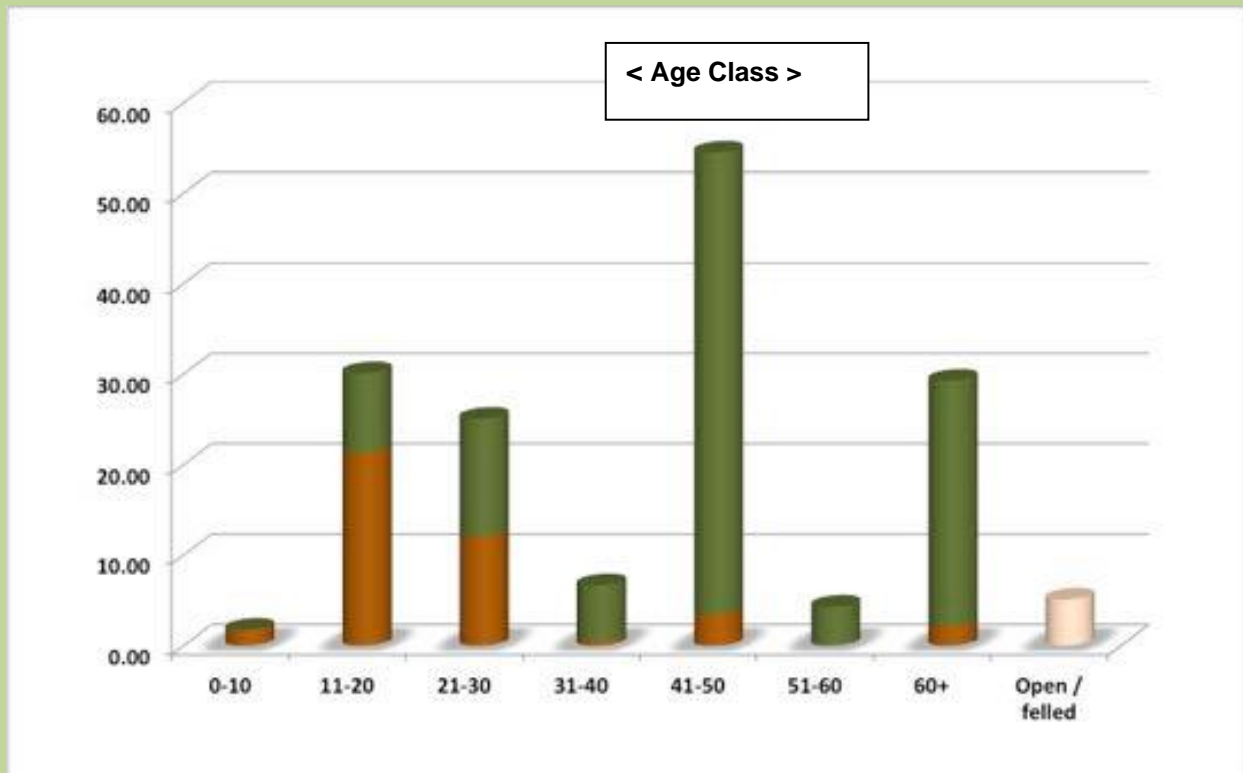


Figure below: showing age class variations across the site in hectares



5. Proposed felling and thinning operations

For detailed overview please see the accompanying **Felling Phases Map and Restocking Restructuring Map**

Broadly - Felling will be limited to areas identified as nature recovery zones and for community related infrastructure such as the Taymount Hub area and Food Forest sites.

There will also be thinning cycles set at around 5-7 years in specific locations. Mostly under sitka spruce. Thinnings will have three main objectives.

- 1) To allow increase light levels to afford suitable conditions for a more diverse species mix of trees to be planted / regenerate.
- 2) To increase log quality for future production and to reduce disease transfer between trees by allowing more air and light within the canopy to foster greater plant diversity.
- 3) To generate income.

	Phase 1 Years 1-5	Phase 2 Years 6-11	Phase3 Years 11-15	Phase4 Years 16-20	Phase5 Years 21- 25	Totals
Felling Area by hectare	14.4	0.9	0	0	6.3	21.6
Thinnings Area by hectare	24.1	29.5	29.5	18.5	12.2	113.8

Table below showing proposed volumes of timber in cubic metres felled in each 5-year phase. Sales are estimated at slightly below the UK average prices as stated in the National Statistics on Timber Price Indices produced by Forest Research. Estimates as follows - £70/m³ for sawlogs, with SRW at either £35 or £40m³ (sawlogs at 75.8%, with SRW at 24.2%).

5-year phases	T W volumes	T W income		F M W volumes	F M W Income
Phase 1	6,306.4	£367,712		2,244	£114,746
Phase2	1,638	£96,372		470	£17,950
Phase 3	1563	£91,881		470	£17,950
Phase 4	795	£44,503		570	£24,103
Phase 5	2,360	£145,211		470	£17,950
Total		£745,679			£192,699

6. Appendices

Appendix WMP1: Deadwood Management Plan

The UK Forestry Standard (UKF) and the UK Woodland Assurance Standard (UKWAS) both emphasise the need to take account of deadwood when seeking to attain standards of sustainable management. This Deadwood Management Plan outlines the deadwood strategy which WSWG will adopt as part of our commitment to sustainable woodland management. Deadwood in the form of fallen logs, dead branches and standing stems (snags) are an essential component of a woodland. In the UK about 5000 species (13%) of our native invertebrate, animal and fungus species have life cycles associated with the deadwood environment. However, the deadwood component within British woodlands is critically low and, in most cases, simply inadequate to sustain the dependent wildlife associated with it. Taymount and Five Mile Woods have been found to support many rare invertebrate species, including some classed as Nationally Scarce, which are dependant upon the deadwood resource. Of particular value from standing deadwood is its provision as woodpecker habitat. Woodpeckers are a keystone species. The cavities excavated by woodpeckers are an indispensable habitat resource for many other species of birds, mammals and invertebrates. Woodpeckers are also an indicator species, with their presence directly correlating to the density and diversity of woodland bird populations. This factor has important implications for deadwood habitat management.

Management actions to maintain decaying wood habitat resource

Management category	Actions needed
Working with natural processes	<p>Allow natural processes such as wind, natural decay, accumulation of Large woody debris (LWD) in streams to create and maintain deadwood habitats.</p> <p>Allow trees to age and hollow.</p> <p>Only harvest windblow when it is of significant economic value or is more than is required to contribute to accumulating deadwood volumes on site. Leave a significant proportion of windblown wood. Aim for at least 30m³ per hectare.</p>
Protecting and adding value to existing deadwood	<p>Match retained deadwood to the requirements of species likely to be important on the site.</p> <p>Improve habitat diversity by having a range of tree/shrub species at varying stages of decay and in a variety of light conditions; stems greater than 10 cm diameter, with emphasis on large dimension timber large enough to take many woodpecker cavities. Spruce and beech can be good options in shaded conditions, but may take 20 years of decay to become suitable, so prioritise diversity and continuity of deadwood stages with a range of species.</p>

	<p>Leave stems of no commercial value that die through shading. Carry out gradual thinning/haloing to open up existing veteran trees and glades.</p> <p>Aim for a minimum of 3 veteran trees per hectare across the site.</p>
<p>Creating and expanding deadwood habitat</p>	<p>Increase diversity of structure, to ensure a sustainable variety of decaying wood habitat, and to maintain canopies of existing and potential veteran trees.</p> <p>Aim for a minimum of 30m³ /ha of deadwood, (various stages of decomposition) with particular focus on standing deadwood >20cm DBH.</p> <p>Retain all standing deadwood throughout the forest and implement protection measures during timber operations. In particular – protect snags with woodpecker holes as these may have bat roosts in them.</p> <p>Consider scope for designating some stands as Natural Reserves and manage on a minimal intervention basis.</p> <p>Create deadwood, in particular standing stems (snags) where there is < 10% deadwood available. Prioritise creating snags with woodpecker nesting capacity.</p>
<p>Improving linkage between deadwood habitats</p>	<p>Target the creation of deadwood habitats to enable buffering of High or Medium value areas.</p> <p>Create deadwood corridors linking fragmented high value deadwood habitats.</p>

Appendix WMP2: Forest Food Development Plan

The woodlands we enjoy today are a pale reflection of the diverse bio-rich woodlands of the past. Gone are the many fruits, nuts and other edible foods that once sustained our ancestors. We also face increasing threats to global food security from Climate and Ecological breakdown and conflict. As such, our need to build resilience into our systems has never been greater. WSWG has incorporated an ambitious strategy to meet these objectives.

WSWG's Forest Food Plan has three core elements:

1. Designated areas within Taymount Wood where the focus will be on food production with income potential:
 - a. Taymount Food Forest (compartments 3065P and 3065H - 2.5ha)
 - b. Two hazel nut orchards with fruit bushes (compartments 3065A & 3065N - 1.5ha)
2. Edible plants and hedgerows throughout the whole forest, working from what exists already, such as birch for birchwater, and planting up fruit trees, shrubs and other edible plants in glades and along existing and new pathways, enticing people to explore and discover the woods through nature's incredible edible bounties, plus an easily accessible mini Community Food Forest near the south entrance for open use by anyone.
3. Sustainable, ethical venison production as a by-product of deer control as part of the woodland management for silviculture and habitat value.

What is a Food Forest?

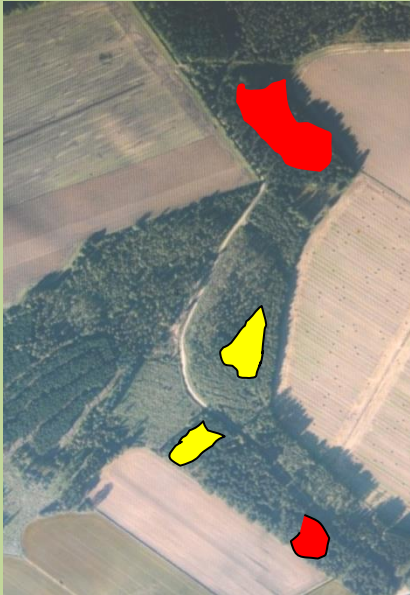
A food forest is simply replicating a natural forest ecosystem, but where edible produce is grown in a multi-layered dynamic system.

1 and 2 above share the same principles of growing food through supporting production in layers upon layers of the vertical profile of the woods from the fungi and mycorrhizal communities in the soil layer, harvesting tubers from the earth, through the herbaceous field layer, shrubs, vines, medium and higher canopy trees.

There will be a mix of native and non-native species with an emphasis on local provenance. Climate change will affect how well different plants grow in the future therefore diversity is required to ensure success of at least some species.

The Food Forest will be developed over a period of time, using bioaccumulator and nitrogen fixing plants as support species for this future food-centric forest ecosystem. Although these support plants will make up some 90% of the growing species initially with 10% productive edible species, over time this will reverse to 10% support plants in the mix and 90% productive plants. By feeding the biology, everything will work together in nature's way with minimal inputs from WSWG leading to maximum outputs tailored to food. If left with no intervention, this might take ten years.

Key : red = food forest. Yellow = hazel nut orchards



Hazel nut orchards – Taymount Wood

Two smaller areas currently under sitka spruce have been proposed for felling to create hazel nut orchards. The hazel trees will be planted at 4-5m spacing in rows 7m apart. Hazel is so often associated with shady understory, but when given space to grow they will grow better and larger. When open to the sun, they produce more nuts. The stands will be only hazel, as they would otherwise over shade other species. Shrub and field layer species can be grown in between the rows, such as blackcurrants, gooseberries and wild strawberries.

The nuts will be harvested by placing sheets on the ground below and shaking the nuts out of the trees. Some will be taken by squirrels, but intensive nut tree production will cope fine with the likely level of competition.

Income will either come from direct sales or from schemes such as families renting and looking after a given number of hazel trees and taking the crop from their trees. Other income can come from coppiced hazel for trestles, bean poles and hurdles.

Further hazel will be established within birch areas for biodiversity and less intensive production.

Venison – Taymount and Five Mile Woods

Protection of trees from fallow and particularly roe deer will be required to deliver both timber production and biodiversity goals in both Taymount and Five Mile Woods. Individual trees and areas of young trees will be protected by tubes or fencing, including brash and windblow enclosure, low cost birch fencing and deer fencing reclaimed from other parts of the wood.

There will need to be some deer control to keep numbers sufficiently low to allow wider species regeneration and limit browsing damage.

Deer control will be carried out by licensed persons who will shoot, butcher and store, package and retail. It is WSWG's intention to develop local markets for the venison as a low carbon, low fat, naturally grown red meat as a by-product of managing the woods for climate and biodiversity. It is envisaged that the venison will be available through the Taymount Hub "Camp 53" café and shop as well as other local butcher and catering businesses.

Manpower requirements of WSWG Forest Food Project

It is envisaged that the Forestry, Ecology and Site Manager will allocate a day a week to the development, management, harvesting and community involvement across the three aspects of the WSWG Forest Food project. WSWG volunteers could be assisted by more formal volunteering arrangements, for example through the Wwoofing scheme. In this event, we might seek to provide pod or similar accommodation for the Wwoofers at the Taymount Forest Hub where they would be near the toilets, café and shop. Human presence on site overnight would also be useful in terms of site security.

Appendix WMP3: Birch Management Plan



The birch areas in Taymount wood which cover over 10ha and are mostly around 20 years of age all need to be thinned to reduce density and extend their lifespan, if we are to maximise their value either for biodiversity, future logs or birch sap revenue. It may not be cost effective however to fell and extract hundreds of small logs and removing them will be highly destructive to the woodland and carry a massive carbon footprint. It will also remove an essential food resource for invertebrates and fungi – the life support system of the woodland.

Because there is a critical shortage of deadwood habitat across the site, and in particular the birch zones, we must see to the needs of nature first before embarking on costly and destructive timber processing operations. This will meet our primary objective of increasing woodland Biodiversity.

Action required:

- 1) Leave the felled trees in situ to feed the soil fungi and other soil biology. This significantly increases carbon sequestration and feeds the soil biology which supports the woodland and helps to cool the planet.
- 2) Logs are heaped as habitat piles for wildlife - invertebrates, hedgehogs, amphibians and nesting birds and small-scale commercial fungi growing. Logs are also removed from birch zones to be used for similar benefit in other depleted areas across the woodland. Logs are also extensively used in children's activities - bug hotels, bee nesting areas, beetle logs, hedgehog and bird nesting sites. These activities will also attract funding. Some logs will also be used for on site fencing, arts and crafts, building materials and other needs.

Appendix WMP4: Wildlife Management Plan

Introduction

To enable us to maximise success on restoring woodland ecosystem function, and to identify Natural Capital revenue stream opportunities, we will first need to understand what species are present and what their ecological needs are. Baseline information will be required in the early stages. In addition to these actions, we also have drawn up a list of activities to be carried out including but not limited to the following:

Habitat creation projects

- Artificial bat roost installation
- Badger sett construction
- Amphibian breeding habitat – ponds, blocked ditches. Hibernacula creation.
- Wood ponds for habitat specific invertebrates (shallow scrapes, seasonal wet/dry)
- Owl and kestrel nest site construction - on poles with marten deterrent.
- Invertebrate habitat piles.
- Beetle boxes
- Solitary and bumble bee breeding habitat. Honey bee log hives.
- In-stream LWD habitat in selected watercourses, ponds for aquatic invertebrates.
- Butterfly habitat – foodplant protection and expansion, eg: common blue butterfly, green hairstreak, small copper, purple hairstreak, others.
- Moth species – foodplant protection and expansion. Species to be determined after survey data collation.
- Deadwood habitat creation
- Reptile habitat creation, including hibernacula.
- Windblow retention (unprocessed), identification, mapping, database, liaison with felling contractors, demarcation and survey monitoring.
- Nesting habitat for selected bird species where natural sites are limited, for example - tree creeper, song thrush, spotted flycatcher.
- Pine marten den construction
- Otter holt construction
- Hedgehog breeding and hibernacula habitat piles.

Reintroduction of species (includes expansion of on-site rare species.)

- Wood ant species - *F. lugubris*, *F. sanguinea*, *F. aquilonia*. Other invertebrate species.
- Twin flower and other rare woodland plants
- Reptiles – common lizard and slow worm, unless recorded on site.
- Aquatic plants in created wet zones / ponds.

Priority species conservation management plans

These will inform forestry management and design.

- Red squirrel
- Hedgehog
- Invertebrate species – rare bees, beetles, moths etc discovered on site.
- Reptiles.
- Common blue butterfly, other species added after survey results and reintroduction



A society thrives when old men (and women) plant trees, knowing they will never rest in their shade.