

North Devon UNESCO Biosphere Reserve

Nature Recovery Plan, 2021-2025

OUR CONTRIBUTION TO TACKLING THE GLOBAL ECOLOGICAL EMERGENCY

ACTION PLAN FOR TREES, WOODLANDS AND HEDGES



VISION FOR NATURE IN OUR TREES WOODLAND AND HEDGES BY 2030

By 2030, nature in our trees, woodlands and hedges is recovering. The tree canopy now covers 20% of the Biosphere, following an increase in natural regeneration and diverse and ambitious planting. Existing woodlands are well-managed with structurally diverse and resilient mixes of trees. Our ancient moorland oak and coastal woodlands are thriving and celebrated as our temperate rainforests. Moreover, many woods are now larger and better connected with one another and other areas rich in wildlife – dormice, pied flycatchers and Devon whitebeam are all increasing in distribution. Hedges flourish, thick and bushy and with frequent standard trees. Field corners are often adorned with clumps of trees. Many woodlands have softer edges and wildlife-rich shrubs bordering neighbouring grasslands and other habitats. Ancient and veteran trees are mapped, protected and highly valued. Invasive non-native plants like laurel and rhododendron have been eradicated from many woodlands, and the grey squirrel is being successfully managed – helped by a flourishing goshawk population and re-introduced pine martens, heralding the possibility of a return of the red squirrel. The area of plantation woodland managed by continuous cover systems has increased, enhancing the dynamic interplay between successional habitats that is so important to wildlife, and ancient woodlands under plantations are being restored. Quality

timber is being produced for local use. Traditional orchards have increased in number helping spotted flycatchers and pollinators, with aging trees rich in lichens valued and the sward beneath them managed in wildlife-friendly ways. Wood pasture is returning again as silvo-pastoral and silvo-arable techniques are being tested and adopted by farmers as they adapt to climate change and diversify incomes.

Please read this plan in conjunction with the Introduction / Overview chapter

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PART I: SCOPE AND MAP OF THE HABITATS COVERED BY THIS ACTION PLAN

This action plan addresses nature's recovery in broadleaved, mixed and coniferous woodland (including ancient woodland and veteran trees), orchards, wood pasture, hedges and scrub. Wet woodland is covered under the Wetlands and Waterbodies action plan, and urban trees and woodland are covered in the Towns and Villages action plan.

Woodlands of all types cover approximately 12% of the land cover in the Biosphere Reserve with substantially more attributed to trees outside woodlands and hedgerows; they can be found in all areas other than on the intertidal and high moorland areas.

MAP OF THE HABITATS COVERED BY THIS ACTION PLAN

To be added

For specific targeting opportunities, please also refer to the Nature Recovery Network maps for Devon, expected to be published by the Devon Local Nature Partnership during 2021.

PART II: PRIORITY ACTIONS FOR NATURE'S RECOVERY IN TREES, WOODLANDS AND HEDGES

The following actions have been identified as priorities for the period 2021-25 to progress towards the 2030 Vision and overall Goals of the Biosphere Nature Recovery Plan. The lead partner for each action (shown in bold) will actively engage with the other partners to drive implementation and report on progress. In general, resources for the actions are not yet secured and the partners will examine ways to integrate the action into their own programmes, as well as seeking new resources (and partners) where necessary. Therefore, being listed as a lead or partner organisation does not imply a commitment of new resources but does confirm support for collaborating to deliver the ambition and principles of the actions. Partners will work with and support farmers and landowners to deliver this action plan, using the incentives of the existing Countryside Stewardship scheme, the new Environmental Land Management scheme, new Woodland Creation Grants, green finance and other projects.

These actions have been developed following a careful, fresh examination of the state of nature in the Biosphere and of the underlying reasons for decline and loss, focussing on the current, on-going, factors which are driving nature's decline. See Part III below for details.

Much good work has been done over the last decade and this is also outlined in Part III, along with issues that are shared between this and the other four plans.

Habitat-related actions	Lead / Partners	Budget Source	By when
A1. Create 1000 ha of nature-rich woodland (including conifer woodlands but with the emphasis on broadleaved expansion) that contribute to nature's recovery (15% cover by 2025), targeting Nature Recovery Network and Natural Flood Management priority areas, using appropriate establishment techniques from planting through to succession.	FC , WT, NT, Biosphere team, Landowners, AONB	Government grants, WT, CSS / ELMs, green finance, AONB/NP private investment	2025
A2. Create 50ha of coastal fringing woodlands landwards to compensate loss due to coastal change.	AONB , BR, NT	Government grants, WT, CSS / ELMs, AONB/NP	2025
A3. Integrate more trees on farms through creation of 500ha of agroforestry (wood pasture, silvo-pasture, silvo-arable).	NE, (FC) , WT, NT, Biosphere team, Landowners	CSS / ELMs, private investment	2025
A4. Support all existing park and wood pasture to be managed favourably, including successor generation of trees.	NE, (FC) , WT, NT, Biosphere team, Landowners	CSS / ELMs, private investment	2025
A5. Bring a further 1,000ha of woodland into appropriate management to improve biodiversity through approved management plans, encouraging natural regeneration and continuous cover management where possible.	FC , WT, Biosphere team, NT, Landowners	Government grants, CSS / ELMs, green finance, private investment	2025

A6. Secure management towards restoration of an additional 200ha of ancient woodland (PAWS) (in addition to A5).	WT , Exmoor NP, Biosphere, FC, Landowners	Woodland Grants, CSS / ELMs, WT challenge fund	2025
A7. Create at least 500ha of transitional woody habitats expanding outwards from woodland edge and hedges into pasture using appropriate techniques including re-wilding.	NE, FC , Landowners	CSS / ELMs, private investment	2025
A8. Identify by 2023 and target at least ten 10km squares for hedge creation and restoration to ensure the target of at least 10km of hedge per square kilometre across the Biosphere (except moorland etc.) is achieved by 2030.	DHG , WT, NT, NE, Landowners, AONB	MORE Hedges (WT), CSS / ELMs, green finance, private investment AONB/NP	2023
A9. Bring 2,000 km of hedge into favourable condition for biodiversity with a 2030 target of 95% being in favourable condition (see DHG website for definition of favourable). This includes, on average, one standard tree per 40m of hedge across the landscape (check ELMs standard when published).	DHG , WT, NT, NE, Landowners	CS, MORE Hedges, (WT), ELMs, (NE), green finance, private investment	2025
A10. Create or restore 100 ha of standard orchards which are managed for nature.	Biosphere team , AONB, NE, Landowners, Communities with advice from Orchards Live	CSS / ELMs, special grants, private investment, AONB/NP	2025
A11. Designate 50 new Woodland County Wildlife Sites, increasing awareness and protection of these invaluable resources	DBRC , Landowners	DCC/DWT/BMF & external funders	2030
Species-related actions	Lead / Partners	Budget Source	By when
B1. Pine marten reintroduction feasibility study completed and, subject to results, potential release sites identified and captive populations in place, with subsequent exploration of options for red squirrel reintroduction.	Vincent Wildlife Trust , ENPA, NE, NT, DWT, Landowners	TBA, probably charitable funds, private investment	2025
B2. Extend the use of deer fencing to a further 8,000ha of woods in problematic areas as a cost-effective means to reduce undesirable impact of deer on woodland succession.	FC , WT, Landowners	CSS / ELMs, private investment	2025
B3. Ensure all management plans and woodland creation plans use or refer to the Devon Special Species list and Woodland Wildlife Biodiversity Toolkit and include specific measures for hazel dormice and bats across all features (woods, hedges, scrub).	FC , Agents, WT, Landowners	N/A	2025
B4. Identify priority areas for eradication of priority non-native invasive plants, particularly of laurel and rhododendron (needs Lidar) and implement eradication measures over a further 2,000ha of woodlands. (link to A5)	FC , NT, ENP, AONB, NE Landowners	CSS / ELMs, private investment, AONB/NP	2025

B5. Include Devon whitebeam and other locally native species in appropriate species mixes for woodland and hedge creation at 100 new sites.	Biosphere Land Management partners, Landowners	Saving Devon's Treescapes, private investment	2025
B6. Targeted protection of valuable wildlife micro-habitats and creation of standing dead and decaying wood to support cavity-dwelling wildlife.	FC, NT, Landowners	CSS / ELMs, private investment	2025
B7. Encourage at least 500 boxes in 15 nestbox schemes where inadequate natural structures exist for pied flycatcher (and willow tit, but mainly in wet woodland).	RSPB, Devon Birds, FC, Biosphere, Landowners	CSS / ELMs, private investment	2025
Enabling actions	Lead / Partners	Budget /Source	By when
C1. Ensure all local nurseries (including community nurseries) are sourcing tree seeds locally as far as possible with appropriate species selection and sound biosecurity measures in place, to ensure resilient future landscapes.	FC, DWT, nurseries	No additional funding required	2025
C2. Run citizen science programmes to complete the Ancient Tree Inventory and support better management.	WT, Plantlife, Landowners	Lottery	2022
C3. Promote and offer advisory woodland (and integrated farming) management plans through a challenge grant (top-up).	Biosphere team	Green finance	2025
C4. Incentivise the creation of new woodlands through Carbon Challenge Fund/Ecosystem Marketplace and special Biosphere top-up alongside ELMs e.g. carbon credits.	Biosphere team FC	Green finance	From 2023
C5. Produce an advisory pack to promote woodland creation and management suitable for landowners, and to align delivery and advisory partners.	Biosphere team FC	In house	2025
C6. Provide skills, training and education for nature recovery management of woodlands to agents, contractors and landowners including demonstration visits to exemplar projects.	Biosphere team, FC, RFS, Forest Research, ICF	In house	2023
C7. Promote apprenticeships and green jobs including: 4 training events for landowners, agents, contractors; and 4 training events for landowners and volunteers on woodland surveying.	Biosphere team, FC, RFS, Forest Research, ICF, Confor	LEP and charitable funds	2023
C8. Work with DEFRA through the ELM scheme National Pilot to ensure it enables woodlands and hedges to be brought into management, as appropriate, to support of actions listed here.	Biosphere team, NE, FC	N/A	2023
C9. Support awareness raising, monitoring and compliance with felling licence requirements.	FC, Biosphere Team		
Monitoring priorities	Lead / partners	Budget source	Frequency
M1. Canopy cover	FC	National programme (supplemented	Annual

		quarterly for canopy loss by SWEEP satellite data)	
M2. Woods with management plans in place	FC	Using FC info on felling licences and management plans	Annual
M3. PAWS restoration	FC, WT, Biosphere ENPA	Management plans approved. Evidence of activity from reports	Annual
M4. Woodland creation (ha in the various programmes)	Biosphere team, FC	FC/RPA/NE	Annual
M5. Citizen science programmes to monitor indicator species including hazel dormouse, bats, woodland birds, brown hairstreak and string-of-sausages lichen	Biosphere team and expert partners	Volunteers	Depends on species
M6. Monitor the condition of Woodland County Wildlife Sites	DBRC	DCC/DWT/LPAs	Annual rolling program
Research priorities	Lead / partners	Budget source	Frequency
R1. Support local research and demonstration of natural methods for grey squirrel control (pine martens, goshawk, contraception)	FC RFS	Forest grants and research grants	N/A
R2. Woodland condition surveying	Biosphere team WT Plantlife	Lottery funding	5 yearly

INDICATORS

These four outcome indicators will be monitored to track the overall impact of plan implementation.

Indicator	Baseline 2020	Target 2030	Means of verification	Responsible for monitoring
Area of new woodland created (canopy cover)	Forest Research Min 2.34% Max 21.9% Average:12.74 Representing canopy covers in wards in the Biosphere	Average 14% (NB a move towards continuous cover management will not dramatically reduce productivity)	See Canopy Tool ¹	Forest Research
Woodlands in favourable	Woodlands: 50%	80%	FC information	FC

¹ <https://forestry.maps.arcgis.com/apps/webappviewer/index.html?id=d8c253ab17e1412586d9774d1a09fa07>

management for nature				
Hedges in favourable condition	38%	95%	Aerial/lidar imagery	BR, DHG
PAWS management towards restoration of semi natural	5,101ha Ancient woodland of which 2698ha is ASNW and 2,403ha is PAWS (source ANSW inventory)	Move 700ha towards restoration	Records of management plans and active management (grants etc) towards restoration.	WT, BR, FC, ENP

PART III: SUPPORTING INFORMATION

IMPORTANCE FOR NATURE

Different woodland types across the northern Devon area each have their characteristic and special species and benefits for nature. They can be grouped as follows:

SEMI-NATURAL OAK WOODLANDS (INCLUDING WESTERN OAK WOODLAND, UPLAND OAK WOODLAND, LOWLAND OAK WOODLAND).

These woods are characterised by sessile or pedunculate oak and may include ash, silver birch, rowan, hazel, holly and a range of other species. The Biosphere has 5,443 ha of recorded ancient semi-natural woodlands (ASNW) which have persisted since at least 1600AD and support many important ancient woodland indicator species of both plants and invertebrates. Ground flora includes bluebell on neutral soils and bilberry on acidic soils. Devon Special Species include bastard balm, Devon whitebeam and allies, hazel gloves fungus, horsehair lichen (*Bryoria smithii*), string-of-sausages lichen, high-brown fritillary, wood white butterfly and hazel dormouse. Other characteristic species, for which Devon is of less importance at a UK level, include silver-washed fritillary, purple hairstreak, pied flycatcher, wood warbler, buzzard, sparrowhawk and wintering woodcock. Red and roe deer, many species of bats and the non-native grey squirrel are all common. These woods are found mainly on steep river valley sides where they have escaped the fate of historical clearance for farmland, and in the combes of the north Devon coast. Some of the most notable ancient woodlands are protected as SSSIs or SACs including: West Exmoor coast and woods and Watersmeet near Lynmouth, the north Devon coastal woodlands from Hobby to Peppercombe and at Clovelly and Marsland, Bradiford Valley, and Halsdon Wood and Blacktor Copse on Dartmoor. Similar woodlands extending down the Taw, Torridge and Mole valleys. Many other ancient semi-natural woodlands are designated as County Wildlife Sites. Due to their richness, these Atlantic oak woodlands are locally celebrated as “our rainforests”.

BROADLEAVED, MIXED AND CONIFEROUS PLANTATION WOODLAND.

This includes lightly shaded broadleaved woodland, likely to include oak, ash, beech and sycamore, possibly mixed with various conifers such as larch and pine. Small areas of these woodlands are scattered widely across the Biosphere, many having been planted during the SW Forest initiative at the start of the 21st Century. Conifer plantations, including those on ancient woodland sites (PAWS), are often found on steeper valley sides: some large areas of culm grassland and “moors” have also been planted with these trees. The range of species found here is likely to be less diverse than in semi-natural woodlands, many woodland specialists being absent together with indicators of ancient woodland. The deeply shaded coniferous plantations are typified by Sitka spruce, Douglas fir, various pine species, western hemlock and western red cedar. In early growth stages they support a much narrower range of species than broadleaved or mixed woodland and often have a very species poor understorey and ground flora until they are well thinned in later stages at which point they host more interest, but some specialists birds such as goshawk, siskin and goldcrests breed in them and crossbills sometimes occur in those younger stages. When newly planted they can support scarce ground-nesting birds like nightjar and woodlark, as well as cuckoo and willow warbler. Later in the crop rotation, when well-thinned or under continuous cover management, they become ecologically more interesting as their structural diversity increases. Plantations, including those on ancient woodland sites (PAWS) are often found on steeper valley sides, and some large areas of culm grassland and “moors” have been planted with conifers. Some mature plantations are moving toward a Continuous Cover management which is anticipated as bringing significant biodiversity benefits through greater structural diversity

HEDGES

A spectacular feature of northern Devon. Their extent and density are probably not matched anywhere else in the UK. Most are remarkably species rich in terms of trees and shrubs, including hawthorn, blackthorn, hazel, elder, bramble, oak, ash, elm and beech. The ground flora associated with their margins often is reminiscent of unimproved grasslands. Devon Special Species associated with these hedges are Devon whitebeam, bastard balm, willow tit (outside the breeding season), greater horseshoe bat (see Coast plan) and hazel dormouse. A single hedge in the Biosphere has been found to provide resources for over 2,000 species. Characteristic wildlife includes most farmland birds such as dunnoek, robin, blackbird, song thrush, whitethroat, yellowhammer and chaffinch. Hedges are listed under Section 41 list of Habitats of Principal Importance of the NERC Act (2006). The surface area of hedges available for pollinators across the Biosphere is in the order of 16,000 hectares. The quality of hedgerows for nature is greatly affected by their management.

TRADITIONAL ORCHARDS

Characterised by the various fruit trees, particularly local varieties of (cider) apple and pear or cherries including the Devon mazzard. Like hedges they are included under Section 41 list of Habitats of Principal Importance of the NERC Act (2006). The grassland under the fruit trees, together with veteran individuals, are of key interest for wildlife. Old orchards often contain a high proportion of standing or fallen dead wood. Notable species include lichens, waxcap fungi, the lichen-running spider, noble chafer, many passerine birds including spotted flycatcher, lesser spotted woodpecker (now highly restricted) and bullfinch, and bats (including lesser and greater horseshoe). Fruit blossom forms an important source of nectar and pollen for numerous pollinators.

WOOD PASTURES

Where livestock are allowed to graze beneath and among the trees. The best sites are those where there is a long-established tradition of grazing, allowing survival of multiple generations of trees. The tree and shrub component may have been exploited in the past and can occur as scattered individuals, small groups, or as more or less complete canopy cover.

SCRUB AND EDGE HABITATS

Important for a wide range of species. The best scrub is managed to provide dynamic, transitional habitats with a balance of open and closed areas, and variation in age and structure. The edges of scrub patches are often particularly important for wildlife, including a variety of insects, reptiles, birds (like reed bunting) and mammals (like dormice).

TREES OUTSIDE WOODLANDS

Highly valued by much wildlife, often serving as a focus for insects and their predators such as birds and bats. They help woodland species to move freely through the landscape. They are also important song posts for birds like yellowhammer and tree pipit.

ANCIENT AND VETERAN TREES

Particularly important, hosting many invertebrates reliant on decaying wood, hole-nesting birds, and rich lichens communities.

People's enthusiasm for woodlands reflects the ecological and climate emergencies and a threat to state-owned woodlands several years ago. Imperatives for carbon sequestration to address climate change are expected to drive a substantial increase in woodland cover.

BASELINE AND CONDITION / TRENDS (PARTICULARLY SINCE 2010):

Habitat	Baseline Area (ha)*	Trend** QUANT	Trend** QUALT	Comments (e.g. main reasons and sources of information)
Canopy Cover	Min 2.34% Max 21.9% Average: 12.74%	Increasing	Increasing	These figures reflect the range of tree canopy cover across wards within the Biosphere. Note canopy cover is living tree cover as opposed to land dedicated to woodland which may include felled areas. Therefore, it is a tool to monitor ash dieback and management cycles. Source: Forest Research (GB Ward canopy cover – whole of England).
Broadleaf woodland	18,603ha	Increasing slowly but countered	Possibly declining in health	The current rate of woodland creation does not match national or local ambitions.

and mixed woodland	(See Annex 3 of Intro.) Including 5,443 ha ASNW of which 2,538 ha PAWS	by loss through disease		The perceived loss of quality reflects a lack of management planning (noting that it can be a valid active choice not to intervene), the impacts of disease (such as ash dieback) and of pests like deer and grey squirrels, and perhaps atmospheric N deposition. Coastal erosion can result in the loss of some oak woodland, but the scree habitats created are often of high wildlife value. Woodlands on steep cliffs on the coast and inland may be gradually eroding with cliff retreat and not being replaced to compensate. PAWS woodlands are not being restored quick enough and many existing ASNW are not being managed sympathetically.
Coniferous woodland	3,901 ha (See Annex 3 of Intro.)	Stable	Assumed Stable	Analysis shows that the conifer areas tend to be managed more than their broadleaved counterparts.
Scrub	2,867 ha (See Annex 3 of Intro.)	Increasing	Not known	Areas on the edge of the moors are increasing, also in Culm areas, but not thorn scrub. Dataset from NE Living Maps and photographic evidence from the moors and the Culm.
Hedges	21,105 km or 6,300 ha (assumes 3m wide)	Declining	Declining	38% of hedges (8,020km) are currently in favourable condition. Both quantity and quality are declining due to inappropriate management or neglect. Many are turning into lines of trees reducing their longevity; others are very gappy due to repeated hard annual trimming. Far too few are being rejuvenated periodically by laying or coppicing. Nutrient enrichment of their margins from fertilizer run-off is another major problem. The number of standard hedgerow trees is also falling.
Traditional orchards	9,714ha (See Annex 3 of Intro.)	Assumed Stable	Not Known	Highly improbable there is so much traditional orchard in the Biosphere (see Annex 3 of Intro.) Old orchards continue to be lost through neglect and grubbing out, but this is probably now counteracted by new orchards being planted. Many new orchards however are neither planted nor managed following traditional wildlife-friendly methods.
Wood pasture and parkland	1,255 ha (See Annex 3 of Intro.)	Not Known	Not Known	

*For baseline areas refer to Annex 3 in the Introduction regarding confidence assessments

** Trend estimates from expert opinion unless otherwise evidenced

See Wetlands and Waterbodies plan for wet woodland and riparian and floodplain planting.

See Towns and villages plan for urban woodlands/trees

Indicator Species	Trend QUANT	Comments (e.g. main reasons and sources of information)
<u>Mammals</u> Dormouse	Decreasing	The loss of early and mid-successional habitats and of thorny scrub, together with wood and hedge mis-management leading to both loss of habitat and population fragmentation, exacerbated by climate change reducing hibernation survival.
<u>Birds</u> Woodland birds index Lesser spotted woodpecker Wood warbler Pied flycatcher Willow warbler Goshawk	Declining Declining rapidly Declining Declining Declining Increasing	The national woodland bird index was 29% below 1970 value in 2018 and declined by 8% from 2012-17. Other sources: Devon Bird Atlas and reports
<u>Reptiles</u>	NA	NA
<u>Invertebrates</u> Speckled wood Silver-washed fritillary Brown hairstreak butterfly Longhorn beetle	Not known Not known Declining	NT survey data/Butterfly Conservation DBRC Hard annual cutting of hedges is believed to be driving the decline of this butterfly. Six-spotted longhorn <i>Anoplodera sexguttata</i> is nationally rare and only recorded at Watersmeet at the moment. Threatened by excessive shade.
<u>Higher Plants</u> Devon whitebeam	Stable	Endemic to the British Isles, in Devon most trees occur in hedges, although some grow in open woodland, favouring woodland edges and internal banks. The species is representative of a suite of other rare or scarce whitebeams restricted wholly or mainly to Devon. They suffer from a lack of recognition and appreciation.

Bluebell	Increasing	The spread of bluebells has been implicated in the decline of fritillary butterflies since they outcompete the violets on which the caterpillars feed.
Bastard Balm	Stable	Dense shade cast by overhead trees and eutrophication (artificial nutrient enrichment) along Devon lanes is a threat. The herb may be benefiting from the warmer climate.
<u>Lower Plants</u>		
<u>Fungi and Lichens</u>		
String-of-sausage lichen	Declining	Highly sensitive to air pollution, including ammonia from intensive livestock units.
<i>Bryoria smithii</i> , a horsehair lichen	Stable	This Critically Endangered lichen is known from only two sites in the UK, one of which is Blacktor Copse. It is likely to be at risk on Dartmoor from changes in climate, from air pollution, and from new oak pests and diseases.
Hazel gloves fungus	Increasing	This nationally rare fungus is threatened by coppicing, scrub removal, removal of woodland undergrowth and by clearance of riparian trees and bushes.

ROOT CAUSES TO BE ADDRESSED

Root Causes	Solutions
<u>Lack of dynamism</u>: many woodland stands are of uniform age (due to coppice re-growth from clear fells or because they originate from planting schemes). Furthermore, more than 50% of the woodlands lack active management, often (but not always), necessary to reduce uniformity and increase structural diversity. Woodland edges with farmland are usually hard without the soft edges and transitional habitats so valued by wildlife; the value of scrub for nature is under-appreciated.	- Active management through thinning or regeneration coups to sustain continuous cover system while diversifying the age, height and species and open area composition. Openings and edges (glades) in woodland also provide excellent wildlife habitat. - Encourage transitional scrubby habitats as an important part of dynamic landscapes and to soften the hard boundaries between woodland and grassland or arable land.
<u>Inappropriate management of hedges</u>: the poor condition of many hedges reflects: a) too frequent hard trimming and loss of standard trees in hedges; and b) neglect leading to many turning into lines of trees, coupled with lack of periodic rejuvenation by laying or coppicing. This is symptomatic of the fact that hedges are no longer valued as part of the farm economy.	- Improve hedge management practices, including promoting more standard hedgerow trees and the development of flower-rich margins. - Promote the benefits of hedges to farm businesses, the environment and to society, including their role in carbon capture and as a sustainable source of wood fuel.

<u>Fertilisers and biocides:</u> Fertiliser/slurry spread and run-off, and biocide drift, into woodlands, field trees and hedges all negatively affect biodiversity and habitat health.	• Manage adjacent farmland so that biocides and the nutrients from artificial fertiliser, slurry and manures do not enter woodlands or hedge margins or bases. • Minimise the use of biocides. • Ensure compliance with regulations and good practice guidance.
<u>Pests:</u> reducing woodland quality and cover. Grey squirrels (particularly) and deer are a threat to broadleaf regeneration and damage trees. There is a high risk of muntjac deer colonising the Biosphere area during the plan period.	• Control grey squirrels by trapping, and contraceptive methods as they become available, encouraging further spread of goshawks and reintroduction of pine martens. • Control deer through deer fencing of young woodland, and active population management where necessary.
<u>Diseases:</u> Ash dieback is having a heavy impact on trees inside and outside woodlands, including those in hedges. <i>Phytophthora ramorum</i> is affecting larch plantations and <i>P. alni</i> is affecting alder.	• Biosecurity to avoid new pathogens, and prioritised and targeted measures to tackle them when they appear. • Greater use of local sourced and grown seedlings as well as natural regeneration. • Plant a range of alternative tree species to replace affected species and increase resilience. • Encourage the growth of more standard hedge trees.
<u>Climate change:</u> affecting woodlands, particularly woodland birds. Coastal erosion and cliff instability inland is reducing area of woodland, in particular in Bideford Bay, where it is having a significant effect on this ancient woodland resource	• Mitigation requires global action but can be assisted locally by increased woodland planting for carbon sequestration. • Adaptation can be assisted by making woods more resilient through increasing age and species diversity. • Increase area of woodland away from the eroding slope
<u>Fragmentation and lack of connectivity:</u> many woodland blocks in the farmed landscape are isolated and too small to support characteristic wildlife, and some hedge networks are too sparse and disconnected in areas of intensive agriculture.	• Create bigger, better and more joined-up woodlands, targeting areas identified in the Nature Recovery Network (NRN) with “the right tree in the right place”. • Create new hedges where there are either gaps in the network or hedge density is low.
<u>Conversion of woodland, orchards and hedges:</u> for agriculture or for conifer plantations – largely historical. Loss due to development, particularly in peri-urban areas, is increasing.	• Ensure no loss of existing woodlands nor net loss of orchards and hedges. • Increase the rate of restoration of plantations on ancient woodland sites to a semi-natural state.
<u>Non-native invasive plants:</u> these affect woodland condition, particularly laurels,	• Biosecurity to prevent new arrivals.

rhododendron, Japanese knotweed, snowberry, winter heliotrope. These species also host some of the diseases that threaten oak woodlands in particular.

- Prioritised active management to eradicate these species from woodlands.

BENEFITS / ECOSYSTEM SERVICES

The ecosystem services offered by woodlands, trees and hedges are critical to the health of other habitats as well as the community, particularly for climate and water regulation.

Regulating services include carbon sequestration, water flow attenuation, water quality and temperature regulation, shading and shelter for both people and livestock, air quality.

Provisioning services include timber, biomass fuel, food (particularly agro-forestry and orchards), fodder, non-timber woodland related products (e.g. fungi, flower arranging).

Supporting services include photosynthesis, DMS (di-methyl sulphide) emissions, soil formation.

Cultural services include tourism, recreation, sporting use, health and well-being, cultural use and practices including rural livelihoods and knowledge retention e.g. herbal medicines, hedge laying, wassailing. Trees, woods, orchards and hedges also provide a major contribution to landscape character and quality.

Woodlands also provide a critical role in delivering and sustaining landscape quality and character.

MAIN ACHIEVEMENTS 2010-2020

WOODLAND CREATION

In addition to government planting grants through the Countryside Stewardship schemes, a number of new incentive mechanisms have been established nationally to support woodland creation including the Woodland Carbon Code, Carbon Fund and Carbon guarantee fund. Various projects have supported planting regimes in northern Devon, including the Woodland Trust's MoreWoods, MoreHedges and Community Tree Pack campaigns; Woods 4 Water planting schemes for natural flood management (ca. 46 ha) and BIRD project in the Umler Catchment (4 ha, expecting 25 ha in 3 years). As an indication that successful landowner incentivisation can happen; prior to this period, the SW Forest project created ca. 2,000 ha of woodland between 1997 and 2005. The Saving Devon Treescapes project established a tree nursery at Meeth in 2021.

BETTER MANAGEMENT OF WOODLANDS

Government grants through the Countryside Stewardship schemes have continued to bring woods into better management, including through targeted biodiversity improvement measures. The Woodland Enterprise Zone and Biosphere Forest policy has driven a range of initiatives and raised the profile of woodland management for natural capital in the area. There has been enhanced awareness and monitoring campaigns for tree disease with the Devon Ash Dieback Resilience Forum coordinating the response to this devastating disease.

PAWS AND ASNW

The Biosphere team, Woodland Trust and Exmoor National Park have been making assessments of ancient woodland features in over 10 woodlands, leading to saving three woodlands from damaging activities. The remaining seven have been assisted towards more positive management. The Forestry Commission is working with the Woodland Trust, actively encouraging ancient woodland assessments on ASNW & PAWS sites & promoting the Challenge fund where appropriate. At least 16 sites have been referred for assessments so far in 2020/1.

HEDGES

The Devon Hedge Group has been actively promoting better management of hedges including through information (videos), training and awards. Many hedges have been laid or coppiced under Countryside Stewardship and its predecessor schemes.

ORCHARDS:

Orchards Live has continued to promote the value of orchards and provides training. The Pledge for Nature project assisted the planting and management of orchards by 9 community groups and 3 schools in 2020/21 and a further 2 orchards were created with AONB support. The BR team supported the development of 2 community orchards along the Tarka Trail.

OTHER:

There has been improved use of remote sensing to monitor hedges and woodlands through the SWEEP project and Biosphere Lidar research.

CROSS-CUTTING ISSUES WITH OTHER ACTION PLANS

Coast: Atlantic coastal oak woodlands, which are covered by this plan, are also a key and integrated feature of the coastal habitats of northern Devon.

Pasture and arable: Agroforestry, Silvo-arable, Silvo-pastoral measures (see A2). Ammonia reduction from intensive livestock units (affecting lichens).

Wetlands and waterbodies: Wet woodland is a key woodland habitat being addressed through this group.

Towns and villages: Urban trees and parks and community spaces are covered in this separate action plan.

DRAFTING GROUP FOR THIS ACTION PLAN

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