Cynulliad Cenedlaethol Cymru | National Assembly for Wales
Y Pwyllgor Newid Hinsawdd, Amgylchedd a Materion Gwledig | Climate Change, Environment and Rural Affairs Committee
Ymchwiliad i bolisi coedwigaeth a choetiroedd yng Nghymru | Inquiry into Forestry and woodland policy in Wales

FWP 26

Ymateb gan : Ymddiriedolaeth Natur Cymru
Evidence from : Wildlife Trusts Wales

Introduction

1. Wildlife Trusts Wales represents the six Wildlife Trust in Wales. For more information about who we are see Appendix I. The Wildlife Trusts in Wales want to see an increase in the quantity, quality and connectivity of Wales' native woodlands (including ancient woodlands) and ecologically designed plantations with a strong connection to local groups in the area.

Key recommendations

2. A summary of our key recommendations as to what we feel is needed to reverse the loss and degradation of woodlands in Wales is provided below – we recommend.

- The development of a new Sustainable Land Management policy for Wales with an incentive framework for multiple benefits
- The production of new forestry regulations in Wales based on the Sustainable Management of Natural Resources and the Biodiversity and Resilience of Ecosystems Duty
- That full evaluations of the economics (including dis-benefits of pollution, habitat loss etc.) and effects of tree planting (including those as part of the Welsh Government's 100,000 ha woodland creation target) to maximise benefits and avoid negative impacts.
- Increased support for expansion of deciduous and native woodlands, and street trees in both urban and rural areas.
- The use of natural regeneration and tree planting to support biodiversity by extending, linking and buffering existing woodland through a simple grant scheme for woodland management not solely focused on commercial forestry and public access.

- Adopt the 'right tree in the right place' principle including regard for the landscape scale.

- Support appropriate management of afforestation to prevent adverse impacts of coniferous forestry upon the Welsh ecosystems services and biodiversity.

- Protect the remaining ancient woodland with no net loss of native woodland at a minimum – and speed up the restoration of Plantation on Ancient Woodland Sites (PAWS).

- Promote better engagement between the forestry and environmental NGO sectors to improve the natural environment in order that the forestry industry can become exemplars of sustainable development

- Integrate the Woodlands for Wales Strategy and urban tree planting within the Local Well-being Plans and the Area Statements.

- Increase public awareness of, and involvement with, woodland biodiversity and conservation.

- Increase funding for the community woodland sector and an expansion of the area they cover.

- Welsh Government and NRW to significantly upscale, and with urgency, conifer removal on deep peat.

3. We feel there is a lot of positive, strategic work being undertaken by Welsh Government, NRW and partners to model and research woodlands and their impacts and to identify where to target work. However, this needs to be done alongside action on the ground. New, native woodland creation needs be taking place now and at scale, both in urban (including new street trees) and rural areas to deliver against the Woodlands for Wales Strategy.

4. The following references highlight the multiple economic and social economic benefits of urban and rural trees
   - The Forestry Commission and NRW i-tree surveys show trees produce multiple economic and societal benefits (see Appendix 2)
   - The Wildlife Trusts Wales Green Infrastructure: A Catalyst for the Well-being of Future Generations of Wales (1)
   - Woodland Trusts – Wales is better with trees (2)
   - Wildlife Trusts Wales evidence to the Climate Change, Environment and Rural Affairs Committee on Air Quality (Appendix 3).

Responding to climate change

5. In Wales, we have a target to ensure carbon emissions in 2050 are at least 80% lower than in 1990 (or 1995 for some emissions) (Environment (Wales) Act, 2016). The Wales Climate Change Strategy (2010) recommended the creation of 100,000 ha of new woodland between 2010 and 2030, amounting to 5,000 ha each year. However, between 2010 and 2015, only 3,205 ha of woodland was created in Wales. In the "update on progress" information, the only mention of woodland creation is that to 31 March 2016, "*over 140 ha of new woodland has been created*". This is less than 3% of the original target, and only amounts to 7% of the lower ADAS (2014) target of 2,000 ha a year. These figures highlight the challenge facing Wales in reaching the target and the need for action now if there is to be a chance to meet the targets set for 2030.

6. For a country with the most ambitious carbon emission reductions targets in the world – we simply won't achieve the long-term climate targets until we invest in truly carbon sequestering and appropriately wooded landscapes. This means prioritising:
    - planting native trees, but perhaps more importantly, substantially reducing grazing pressure to promote natural regeneration,
    - restoring peatland (both deep peat and blanket peat) currently under coniferous woodland (there are 11,232 ha of coniferous woodland on deep peat (Forest Research, 2012) – many of which are in public ownership (by Welsh Government)).
    - Undertaking a true full carbon assessment of commercial forestry which accounts for the fact that most forest is on clearfell rotation (and is therefore not maintained woodland cover as it is stated in most sequestration calculations) and the impact of other such detailed management considerations.
    - Recognising and accounting for the potential for albedo (warming) effect of conifer plantations compared to native broadleaves (3)

7. We commend Welsh Government on NRW's peatland restoration proposals, and the reports of their efforts to remove trees from afforested deep peat. We welcome the recognition that in these cases climate change targets can more effectively be reached by tree removal than by re-stocking. **We would encourage NRW to increase its peatland restoration work in this area.**

8. However, we also feel that the issue of compensating for the loss of tree cover due to peatland restoration is unduly holding back Welsh Government/NRW peatland restoration on their own land.

9. In addition, there are other biodiversity issues associated with some deep peatland restoration that need to be addressed more carefully within the programme (through local impact assessment), for example the loss of important red squirrel feeding zones in the Tywi Forest in mid-Wales. This could be achieved through increasing arboreal linkages and adjusting re-stocking elsewhere within the forest but at present we are not aware of any formal process for assessing the need or delivering compensation for the local loss of a feature or resource that meets other targets.

Woodlands for people

10. Benefits to people of woodlands are far reaching, both in cities and remote rural areas. Strategic planning of woodlands can make ecosystems more resilient to severe weather events and reduce the impact these events have on people. Less tangible, less quantifiable but hugely important benefits include the way local woodlands bring people together, increasing social cohesion. Woodlands supply us with quality renewable resources such as timber, woodfuel and other wood products. The forestry sector contributes to rural development and job creation in often remote rural locations where jobs can be hard to come by.

11. The Wildlife Trusts in Wales are fully supportive of the work Welsh Government and NRW have done to progress against this theme. Funding provided for Llais y Goedwig enabling two capacity building officers is invaluable, and we believe should be expanded to increase the number of community woodland groups and the area they cover.

12. This theme also covers provision of benefits for people through health, and other more indirect benefits of woodlands and trees. Progress in delivery against these objectives is less clear.

13. Previous trends have shown a decline in tree cover in towns between 2009 and 2013 (NRW, 2016). We feel this is an important area where benefits to people can be realised and therefore should be a focus for tree planting.

14. Over the last ten or more years many local woodland access projects were financially supported (for their creation and) by grant funding from FCW. Maintenance of public access to woodlands is costly: paths grow over and need maintaining, trees require safety checks and dangerous trees require managing. The reduction in funding available through NRW, the focus on new projects and the trend towards landscape-scale schemes has had a financial impact on local groups and charities ability to secure funding to support public access to woodlands. The financial liabilities associated with maintaining public access have been exacerbated by the absence in

recent years of any grant supporting woodland management (rather than creation) and the very low intervention rates for capital projects that such grants have offered (around 10% of true costs in our experience).

A competitive and integrated forest sector

15. Work done by Forestry Commission and Office of Natural Statistics determining the value of social and environmental benefits of woodlands is important. However, we feel that there should be research to identify what the potential negative impacts of the wrong type of forestry in the wrong place are.

16. Figures for the economic value of forestry mask the actual contributions of the industry. As a productive resource, Welsh woodlands contribute a GVA of £528.6 million per annum (4), yet afforestation has significant adverse impacts such as:

- Coniferous forests replaced native, biodiversity rich habitats such as peatlands, heathlands and ancient woodlands. This virtually eliminated native ground vegetation, except in rides and unplanted land. Deciduous conifer plantations retained diverse field layers, but with the loss of Larch to Phytophthora there are limited alternative deciduous conifer species to replace Larch
- Significant impact upon soils including peatlands resulting in the release of carbon into the atmosphere and watercourses (i.e. Dissolved Organic Carbon)
- Acidification of watercourses by scavenging of acid deposition, base cation uptake, the scavenging and concentration of salts, soil drying and the formation of an acid litter layer at the soil surface.
- Cultivation, drainage and road building, fertiliser use, felling and harvesting (e.g. harvesting in big blocks, soil erosion, brash and stumps left in situ), and restocking also have effects. This is an issue when both the landowner and funder (e.g. pension funds) are both absentee, leaving the contractor to undertake the job as quickly and as cheaply as possible.
- The impact of the pesticide Cypermethrin, which is highly toxic to fish, bees and aquatic insects
- Conifer self-seeding on peatland from neighbouring plantation forestry e.g. the Berywn SSSI

17. The Office for National Statistics has recently estimated that the value to our economy of recreational access to woodland is nearly 10 times that of the value of timber outputs (5).

18. The Wildlife Trusts in Wales feel that the Timber Business Investment Scheme provides a useful funding resource for innovative forest and woodland practices and encourages better management of woodlands across Wales. However, this schemes needs to be carefully managed to ensure it is not misused and that it delivers against its objective of "*enhancing forestry potential and adding value to forest products*". We are calling for a simple grant scheme for woodland management not solely focused on commercial forestry and public access.

19. We believe that to better integrate the forestry sector and deliver multiple outcomes more effectively more work needs to be done to integrate the operations of the Forestry Commission legacy staff and structures into NRW. The integration and adaptation of their legacy policies and practices seems to have been much less than from the legacy policies and practices of CCW and EAW.

20. There is a need for better understanding of the financial contribution of commercial forestry within NRW. The value of forestry operations is always expressed in the form of exchequer income but never with respect to the costs incurred. It does not appear to be possible to get a full financial picture of NRW's forestry operations that take account of their significant overheads (roadway maintenance, preparatory work for the contracting of harvesting), long term upkeep costs of crops, or the value locked up in the land and how much actual staff time is committed to the process. Because of the way finances are structured within NRW it is almost impossible to derive any conclusion about whether NRW's commercial forestry truly makes a profit. We believe this matter requires urgent scrutiny given the potential dis-benefits of commercial conifer plantations listed above.

21. We are also aware that CONFOR are calling for an increase in forestry. However, before this there needs to be an urgent re-examination of the regulation of the industry. For example, the private forestry sector doesn't have to follow the voluntary codes or guidance of the Forest Stewardship Council (FSC) and UK Forestry Standard (UKFS). This raises more questions and/or recommendations

- What is the uptake of these voluntary measures?
- How are they maintained and enforced – and is the results made publically accessible to aid transparency?
- Should all commercial forestry operators that receive state funding (via grants etc.) or permits be required to adhere to both cross compliance (measures to avoid pollution e.g. of SAC/SSSI Rivers) and voluntary guidelines, and produce multiple benefits such as biodiversity
- How do we ensure Sustainable Management of Natural Resources (SMNR)?

22. We should look to produce new forestry regulations in Wales based on the SMNR and Biodiversity and Resilience of Ecosystems Duty.

Environmental quality

23. Native welsh woodland makes a significant and international contribution to biodiversity. Potential environmental benefits include
    - climate control,
    - acting as a carbon sink,
    - provision of habitats and migration routes for wildlife,
    - reduction of surface water flooding
    - filtration of pollutants.

24 Coniferous woodlands are last refuges of some iconic Welsh wildlife such as red squirrels and black grouse. However, most biodiversity value associated with coniferous plantations is because of either the adjacent habitats or the remnant habitats found in open spaces or woodland rides within the plantation (e.g. heathland). Also, as explained above coniferous plantations can have significant dis-benefits which are not accounted for.

25 **Deciduous native woodlands are significantly more important for biodiversity and should be encouraged.**

26 Bespoke, geographically targeted programmes should be incorporated into woodland management to accommodate the need of priority species that require interventions in addition to routine best practice woodland management (such as red squirrels).

27 Trees next to rivers and streams reduce water temperature, which increases oxygen levels and **the right trees in the right place** help to improve biodiversity including commercial spawning grounds. Strong evidence to support the use of broadleaved woodland creation in appropriate locations is presented in the report published by the Forestry Commission and Environment Agency in July 2011 "Woodland for Water" which states:

- Woodland can help to achieve water management and water quality objectives.
- Woodland contribution to tackling diffuse pollution includes both a barrier and interception function. They help to trap and retain nutrients and sediment in polluted runoff.
- The benefits of riparian and floodplain woodland for protecting river morphology and moderating stream temperatures are well proven, while a good case can also be made for mitigating downstream flooding.

- Targeted woodland buffers along mid-slope or downslope field edges, or on infiltration basins appear effective for slowing down runoff and intercepting sediment and nutrients, but the evidence base is limited.

- Wider targeted woodland planting in the landscape can reduce fertiliser and pesticide loss into water, as well as protecting the soil from regular disturbance and so reduce the risk of sediment delivery to watercourses.

- Evidence from Europe and further afield provides a range of examples of effective action plans and incentive schemes for water-related woodland services, which have succeeded in achieving woodland creation and a reduction in nutrients reaching watercourses.

- The evidence presented supports the use of woodland measures in helping to meet water quality objectives in future River Basin Planning cycles

28 Native woodlands have been lost or damaged through urban and agricultural development as well as through conversion to conifer woodlands and now, ancient woodlands cover just 5% of Welsh land.

29 **Afforestation especially of coniferous forests have had many significant detrimental adverse impacts upon the quality of the Welsh environment, ecosystems services and biodiversity.** Many important habitats have been lost directly, and/or been highly fragmented, by past conversion to forestry plantation. 'Low grade agricultural land' is particularly at risk because it is often targeted for afforestation but tends to be the best areas for existing biodiversity or ecosystem service provision e.g. peatland and carbon sequestration.

30 Threats to ancient woodland in Wales continue, even from development by the Welsh Government itself (the M4 would impact 5 ancient woodlands) despite their protection in planning policy. The latest round of LDP housing development proposals may destroy more, unless the Ancient Semi-Natural Woodlands are protected. Welsh Government must commit to restoring all Planted Ancient Woodland Sites (PAWS) and protecting all semi natural and ancient woodland via Planning Policy in Wales.

31 In our view the quality of future Welsh woodlands, particularly PAWS, has been jeopardised by an over-reliance on planting rather than natural regeneration. The impact of imported saplings and British seeds being bought from mainland Europe has already been highlighted as one of the means of introduction of Ash Dieback (also introduced via aerial spores). Planting of infected seedlings greatly sped up the spread of the fungus, so that in Wales 60% of 10km squares were showing some

infection by October 2016. This is largely driven by woodland creation grants requiring planting of whips. More efforts should be made to allow woodland creation through natural regeneration that ensures the local provenance and suitability without biosecurity risks; this may not be possible in all cases but for non-commercial woodlands a new approach could be trialed. We hold great store in the scope and potential for natural regeneration to be a main driver for sustainable, biodiverse rich (non-commercial) woodland in Wales in the future.

32 This is not just an issue from un-enlightened times, for example;

- Recently, a consultation has just closed on the Environmental Impact Assessment (EIA) Forestry Regulations, which asked whether the threshold for a mandatory Environmental Impact Assessment on 'non-sensitive areas' should be increased from 5 to 50 hectares. **Wildlife Trusts Wales strongly objects to any increase in threshold values.** We believe that the current thresholds are already higher than would be ideal to prevent environmental damage.

- Despite being protected in planning policy ancient woodlands face real threats even because of developments by the Welsh Government itself i.e. the M4 impacting upon 5 ancient woodlands.

- The latest round of LDP housing development proposals may destroy many more ASNWs unless the ASNWs are retained within the development

Contribution to the Well-being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016

33 Ecosystems in Wales have undergone significant degradation resulting in negative impacts on biological diversity and peoples' health and well-being (6). None of Wales' ecosystems are resilient (7) and this means their capacity to provide ecosystem services and benefits are severely reduced. Therefore, before we can maximise the benefits from ecosystems we must first restore and enhance them.

34 Ecosystem restoration is a significant part of the Ecosystem Approach (Principle 5 of the Convention of Biological Diversity Ecosystem Approach Principles[1]) and thus the sustainable management of natural resources (SMNR) e.g. in informing the negotiation of land use options and enhancement of healthy ecological networks (8).

[1] **Principle 5: Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach**. Ecosystem functioning and resilience depends on a dynamic relationship within species, among species and between species and their abiotic environment, as well as the physical and chemical interactions within the environment. **The conservation and, where appropriate, restoration of these interactions and processes is of greater significance for the long-term maintenance of biological diversity than simply protection of species**. https://www.cbd.int/ecosystem/principles.shtml

35 The Woodlands for Wales Action Plan clearly sets out how each of the areas of priority action deliver against the Well-Being Goals, however we feel that delivery against the goals is currently falling short due to the lack of action to increase the area of native woodland in Wales or to support landowners to bring existing woodland into better management. Supporting native woodland creation and management delivers against all seven WFG goals (globally responsible Wales is not included in the list in the Action Plan, yet through carbon sequestration and provision of habitat for internationally important species, this goal should be) and should be a constant activity alongside other work on the Strategy.

36 The Woodlands for Wales Strategy should be integral to the development of emerging policies, plans and statements, particularly the Local Well-being Plans and the Area Statements. The need to plant urban trees should be addressed through the Well-being Plans and the Area Statements will need to consider the Strategy at a landscape scale to ensure the right tree in the right place.

37 It is critically important to recognise that simply planting more trees does not in itself automatically guarantee positive environmental outcomes. The type of tree, its origin, and the nature of the land on which it is planted (and its alternative habitat restoration potential) all dictate whether woodland creation has a positive or negative net outcome. It is very important that these considerations are not diluted, down-weighted or ignored simply to make it possible to meet ambitions area targets for woodland creation, or perverse outcomes are inevitable.

Challenges and opportunities that arise from leaving the European Union?

38 Due to the scale of degradation of biodiversity and ecosystem services, we must develop not only sustainable but ecologically restorative policies post Brexit. We should develop a **Sustainable Land Management Policy** (9) to replace CAP.

39 This new policy should seek to invest in and support our natural environment and be based upon the following key principles:

- Creating multiple outcomes for example supporting sustainably produced food, reversing habitat and wildlife declines, conserving soil and carbon and managing the movement of water,
- Investment and not subsidy investing public money in public need,
- Fostering greater public understanding of the value of the natural environment and the role of consumer choice,
- Promoting high quality, high welfare, ecologically sustainable food production,
- Upskilling for those who work in the environment including land owners and managers and supporting innovation

40 A new post-Brexit sustainable land use policy must provide real incentives to landowners to create the right sort of trees in the rights place. Replacing CAP means Wales could also abandon the counter-productive interpretation of the EU Basic Payment rules for farmers which penalised Welsh farmers for having trees on their land[2].

Conclusions and recommendations

41 Within ten years, we could transform our landscapes from carbon sources into carbon sinks and begin the process of restoring woodland biodiversity. In doing so we will create jobs, generate value for Wales and save money through realising the many costable benefits (10) woodlands bring.

42 As woodlands create multiple economic and social benefits, it is not just NRW or Welsh Government Environmental budgets that should be used to create this vision. Budgets from other portfolios including health, education, infrastructure, tourism and business development budgets within Welsh Government should also be properly incorporated.

43 Accessing the potential for our woodlands to increasingly become carbon sinks should take place alongside ongoing measures to reduce carbon emissions. The ability to offset carbon emitting activities through woodland creation and management should not be used as a mechanism to justify increased carbon production.

44 How can we reverse this trend of loss and degradation of our precious woodland resource? The Wildlife Trusts have identified the four most important areas for action as:

- **Protection and enhancement** –
  - We need the government to commit to absolute protection of the remaining ancient woodland resource. As a minimum, there should be no net loss of native woodland. In addition, we urgently need to improve the ecological condition and cultural heritage value of the whole woodland resource by investing in locally relevant management regimes. There should also be statutory protection for Wales' ancient, woodlands and veteran trees.
  - Natural regeneration and native tree planting should be encouraged to buffer, extend and link existing woodlands. In all cases, **a 'right tree in the right place'** principle should be adopted along with the prevention of further

[2] The current rules require farmer to map clusters of trees over 100m2, and subtract this from the eligible land area

entry of alien and invasive organisms. This includes areas of the public estate that have been affected by diseases such as *phytophthora.*

- Existing coniferous woodlands should be brought to life by appropriate, sustainable woodland management. For example, through increasing tree species diversity, increasing structural diversity, extending rotation lengths, introducing alternative silvi-cultural systems such as shelterwood and Low Impact Sylvicultural systems (LISS) (in particular continuous cover regimes), managing at a landscape scale to ensure continuous habitat connectivity.
- Forest managers need to take greater account of biodiversity in their operations. We are aware of, for example, cases of felling taking place in mid Wales where red squirrels have been observed by contractors within the immediate felling area, and badgers being entirely displaced from their main sett by felling operations (increasing TB risk to adjacent cattle farms through the perturbation effect). Whilst we recognise the challenge of pre-operational surveys at such large scales we feel that there is a duty on Welsh Government to deliver best practice on its own estate. In mid Wales the Wildlife Trust of South and West Wales (through the mid Wales Red Squirrel Partnership) has worked with forest managers to produce a pre-operations guide for red squirrels; initiatives of this kind, delivered in partnership, can help secure improvements in practice.
- Areas of heathland, blanket bog, deciduous forests, meadow and other internationally important habitats planted with conifers must be restored with urgency.
- Cease support for disturbance-causing and environmentally damaging activities such as the routing of timber lorry transport through forest roads instead of using an available road network, and the use of forest roads for rally events.
- Ensure that the effects of tree planting are fully evaluated to maximise benefits (e.g. reversing fragmented ancient woodlands) whilst avoiding negative impacts.
- The Forest and Water Guidelines should be reviewed and strengthened to protect and benefit the water environment, including discontinuing forestry pesticide (cypermethrin) spraying and large scale clear felling.
- Develop a new Sustainable Land Management Policy to replace CAP

- **Expansion** – We need to set ambitious but achievable targets for the expansion of native woodland cover through strategically located planting and by encouraging natural regeneration. We know this is an investment which will pay off quickly through bringing biodiversity benefits, soil protection, water

regulation, climate change mitigation and adaptation, habitat network development and the visual enhancement of landscapes.

- **People and woodlands** – Policies should be adopted that help re-connect people and woodlands so more people can experience woodland wildlife and re-appreciate the physical and psychological benefits of doing so. There should be more opportunities for people to enjoy and be inspired by woodlands and forests – by increasing public awareness of and involvement with woodland biodiversity conservation. However, the costs of providing and managing this public access need to be recognised and supported.

- **Woodland enterprises** – we will continue to call on forestry industries and other woodland dependent enterprises to be exemplars of sustainable development and contribute positively to the natural capital value of woodlands, be these softwood plantations or harvestable native hardwoods. Plantation forests could in future have a big role to play in providing quality habitat for wildlife and contributing more widely to habitat networks and ecosystem services.

45 The Trust commends some in the UK forestry sector on making some good progress on sustainable forest management and design in recent years. Many private companies have enthusiastically embraced the UK Forestry Standard and more and more are adopting ecologically sensitive designs for new plantations which retain important open ground habitats such as peatlands, and incorporate native species as an integral part of the forest rather than an afterthought. However, despite recent progress, there are still plenty of examples of poor practice leading to problems

46 The Wildlife Trusts in Wales want to work constructively with the forestry sector to continue to drive up standards and create nature-rich forestry plantations that work economically, socially, culturally and ecologically. Continuous cover forestry and low-impact silvicultural systems are approaches which could help achieve such multiple benefits. Key to the adoption of such approaches will be improved guidance coupled with incentives through woodland planting and management grants.

47 Better engagement between the forestry sector and NGOs should be promoted by NRW to assist collaborative working to improve the natural environment. This should include active input by NGOs into Forestry Management Plans – this may require some resourcing. The future process for stakeholder engagement in forest resource planning should be transparent, with sufficient lead in time to allow stakeholders to engage effectively, and the final plans being accompanied by greater explanation of how the various demands on the plan were reconciled. It has also been our experience in the past that adherence to agreed Forest Design Plans has been very variable and

changes are largely driven by economic considerations, with the impacts of those changes on other concerns being insufficiently addressed.

Appendix I: Who we are

Wildlife Trusts Wales (WTW) represents the six Wildlife Trusts in Wales – Brecknock, Gwent, Montgomeryshire, North Wales, Radnorshire and South and West Wales (hereafter referred to as the 'Wildlife Trusts') working together in partnership to achieve common aims. The Wildlife Trusts collectively speak on behalf of more than 24,000 members and manage over 200 nature reserves, covering more than 8,000 hectares of prime wildlife habitat, from rugged coastline to urban wildlife havens.

The Wildlife Trusts in Wales are all about restoring biodiversity across Wales. We strive for *Living Landscapes* and *Living Seas*, recognising this as an inspirational end point where our environment, society, and economy coexist for the benefit of wildlife and people.

A Living Landscape is a recovery plan for nature championed by The Wildlife Trusts since 2006 to help create a resilient and healthy environment rich in wildlife and to provide ecological security for people. Within *A Living Landscape,* habitats are restored and reconnected on a large scale with the local community closely engaged. The vision is a primary objective of The Wildlife Trusts and builds on a groundswell of landscape-scale activity at a county level. The Wildlife Trusts have a long track record of delivering landscape-scale conservation. Across the UK there are now more than 150 Living Landscape schemes covering an area of more than four million hectares. These are being delivered in partnership with many different individuals and organisations, including farmers and landowners, water companies, land-based industries, local authorities, other NGOs, statutory agencies, local communities and volunteers.

To achieve our vision of *A Living Landscape* we are working to secure the best use and management of all land, including forests and woodlands. Our forests are an important element of what needs to become a resilient ecological network across the Wales.

Appendix 2: Valuing the ecosystem services provided by urban trees in Wrexham County Borough (11)

Findings – Wrexham County Borough's Trees:

- Intercept270,000 m3 of rainfallper year, equivalent to £460,000 in sewerage charges
- Remove 60 tonnes of air pollution each year. This is worth more than £700,000 in health damage costs
- Store 65,773 tonnes of carbon, which is worth £14 million
- Remove 1,329 tonnes of carbon from the atmosphere everyyear
- This is worth £278,000 and is enough to offset the emissions of 3% of Wrexham's annual car journeys
- Provide canopy cover of 17%. This is average for a Welsh town, but is much lower than neighbouring Llangollen (28%) and other similar sized Welsh towns, such as Pontypool (24%) and Neath (23%)
- Have a density of95 trees per hectare, higher than found in an average English town
- Have high numbers of sycamore (17%), hawthorn (13%) and silver birch (12%), 59% of the trees in the Borough are native to Wales. Willows and oaks support the most insect species
- Has a mix of tree sizes 47% oftrees in the Boroughhave a girth of under 15cm, but there are a higherproportion of large trees(60 cm+) compared to that in an average English town
- Are healthy on the whole –80% of trees are healthy, with less than 25% of their crowns missing
- Are mostly found in parks(61%) and residential areas (21%)

Findings –

Threats and Opportunities

- Acute oak decline and Chalara dieback of ash are the greatest threat to the Borough's urban forest
- Both are already present in the UK and could affect 11% of Wrexham's tree population
- The cost of replacing the Borough's trees if they werel ost is estimated at £900 million
- A further 28% of urban land in the Borough could be planted with trees

Recommendations

This study demonstrates the value that urban trees provide, for all who live in, work in and visit Wrexham County Borough. 28% of Wrexham's urban land could be planted with trees, so to enhance this value it is recommended that more trees are planted within the Borough, bringing it into line with other

Welsh towns.

Trees capable of attaining large stature, such as limes, oaks and pines, provide more ecosystem services per tree and species choices should reflect this.
Three species were very common, each making up more than 10% of the population. Planting a wider variety of species would decrease the risk of the urban forest succumbing to pests and diseases. Trees on private land, representing approximately 27% of the Borough's urban forest, are highly valuable and should be taken into account in inventories of Wrexham's trees. A repeat i-Tree Eco survey is recommended every 5- 10 years to support the management and planning of Wrexham County Borough's urban forest.

Appendix 3: References

1. **Wildlife Trusts Wales.** *Green Infrastructure. A catalyst for the Well-being of Future Generations in Wales.* s.l. : www.wtwales.org/greeninfrastructure , 2016.

2. **Woodland Trust.** *Wales is better with trees: How woods and trees can benefit Wales.* s.l. : https://www.woodlandtrust.org.uk/publications/2016/01/wales-is-better-with-trees/ , 2016.

3. *Europe's forest management did not mitigate climate warming.* **K, Naudts, et. al.** 6273, 2016, Science, Vol. 351, pp. 597-600.

4. **Welsh Government.** *Woodlands for Wales indicators.* s.l. : http://gov.wales/statistics-and-research/woodlands-wales-indicators/?lang=en, 2015.

5. **Office of National Statistics.** *UK Environmental Accounts: 2015.* s.l. : https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/ukenvironmentalaccounts/2015-07-09#tab-Woodland-ecosystem-asset-and-services-accounts, 2015.

6. **State of Nature Partnership.** *State of Nature 2016.* s.l. : http://www.wildlifetrusts.org/sites/default/files/stateofnature2016_wales_english_1_sept_pages.pdf, 2016.

7. **Natural Resources Wales.** *State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources. Technical Report Chapter 8. Assessment of the sustainable management of natural resources.* 2016.

8. **IUCN.** *Ecosystem Restoration.* s.l. : https://www.iucn.org/commissions/commission-ecosystem-management/our-work/cems-thematic-groups/ecosystem-restoration, nd.

9. **Wildlife Trusts.** *Evidence to the Climate Change, Environment and Rural Affairs Committee Inquiry into the Future of Agricultural and Rural Development Policies in Wales.* s.l. : http://senedd.assembly.wales/documents/s57463/AAB%2031%20Wildlife%20Trusts%20Wales%20WTW.pdf , 2016.

10. *Reaslising the ecosystem-service value of native woodland in Ireland.* **Bullock, C, Hawe, J and Little, D.** 2014, New Zealand Journal of Forestry Science, Vol. 44(1).

11. **Forest Research.** *Valuing the ecosystem services provided by urban tress in Wrexham County Borough.* https://www.forestry.gov.uk/pdf/FR_Doick_Wrexham_iTree_Summary_Report_2015.pdf/$FILE/FR_Doick_Wrexham_iTree_Summary_Report_2015.pdf : Natural Resources Wales, 2015.