Unlocking Exmoor's Woodland Potential

Final Report

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Contents

Foreword

Unlocking Exmoor's Woodland Potential, an independent authoritative and comprehensive report commissioned from the Silvanus Trust and Laura Jones Associates, is a welcome analysis of many issues relating to woodlands. The report recognises the richness and diversity of Exmoor's woodlands, the many activities being carried out within them, and points the way ahead with eighteen recommendations on further opportunities to develop their full potential. Set within the context of a national park with statutory purposes and special qualities, it shows how conservation is at its best when socio-economic factors are integrated with environmental ones and can deliver a greater range of benefits to society when approached in an holistic way. The amount of detail produced in the report in such a short space of only three months, is exemplary, providing an audit of the present woodland resource and a firm foundation for developing a programme of action. When the bigger picture is looked at, three key messages stand out.

First, is the challenge of adapting to and monitoring climate change as it is one of the key drivers of change that will affect Exmoor's woodlands. Resistance to pests and diseases is particularly important, as well as promoting resilience of the current tree and woodland extent, location, structure and composition. The first recommendation of the Report is to apply the principles and priorities of adaptation to Exmoor's woodlands and this will require considerable attention and resources.

Second, and perhaps the most significant finding of the Report, is how the special qualities of Exmoor can be used as "anchors through change" and guide future decisions. The National Park's rich cultural and historical associations with woodlands and the story they tell over the millennia, is largely unrecognised and uninterpreted. Part of the legacy of these associations is the landscape character today and the benefits that visitors and communities draw from them. The wider cultural services (including education, recreation and access) found in such an unusual concentration on Exmoor should form the basis of a major theme and a much wider project that could seek special funding. This would be at the heart of developing the woodland culture of Exmoor.

The third observation is that a greater robustness can be achieved for what the authors' call a "synergy of ambition" that crosses the three themes of good for people, good for nature, and good for economy. The Report recognises that much is being delivered already, such as the exciting programme in relation to protecting Ancient Semi-Natural Woodland (ASNW) and restoring Plantations on on Ancient Woodland Sites (PAWS), or the large provision of rights of way and waymarked woodland walks, or the Exmoor Woodfuel Project. However, as the Report points out, there remain considerable gaps where further action is required, and it gives a range of suggestions including some innovative ones where there is woodland potential for dealing with public health, fuel poverty, social enterprises, corporate social responsibility and the development of a grant programme that combines the three themes.

Hopefully, this Report and its recommendations will be taken up by the partnership (Exmoor National Park Authority, Forestry Commission, Natural England, Woodland Trust, the Crown Estate, and the Exmoor Society) brought

together to commission this report and establish a wider forum to form the basis of a greater programme of action similar to that which focuses on Exmoor's moorlands. Nine years ago the report commissioned by the Exmoor Society, *Moorlands at a Crossroads*, led to a programme that included defining moorland units and their priorities, setting up a moorland board, successfully bidding for a Moorland Landscape Heritage Project, and studies on landscape character and public perception. Likewise, *Unlocking Exmoor's Woodland Potential*, 2013, can lead to a range of actions that expand the benefits of woodlands and bring about a woodland culture on Exmoor.

Rachel Thomas, CBE

Chairman, Exmoor Society

Executive Summary

This study sets out the basis for 'a new understanding of the ways in which woodland on Exmoor can contribute to and help develop community, ecological and economic sustainability, the connections between these functions' and how they might be further developed and integrated through the presentation of a series of recommendations. When these recommendations are looked at in the round and with the appropriate partners, particularly the owners and managers of woodlands, they offer the guiding bases for a more detailed woodland programme.

The report is written in the context of the National Park and its statutory responsibilities and the emphasis found within the partnership plan of 'focussing on those actions that contribute most to keeping the Park special and meeting the needs and wellbeing of local communities'.

The report sets out the current policy context of woodlands and mirrors its focus on the prioritised order of protecting, improving and expanding woodlands. The core of the report is structured around the three headings of:

Exmoor's Woodlands: Good for People

Exmoor's Woodlands: Good for Nature

Exmoor's Woodlands: Good for the Economy

While the report has to be structured and ordered in some way, these benefits are intimately linked and interdependent and the recommendations need to be seen as a whole.

The woodlands of Exmoor represent a significant resource at 9,375 ha (13.5% of land cover), most of which is managed (6,197 ha or 66%) and much of which has high ecological value (for example 3,350 ha of ancient woodland sites of which over 2,000 ha is ancient semi-natural and the remainder are plantations on ancient woodland sites). The carbon store that the woodland represents is significant. Over half the woodlands (by area) are owned or managed by just 10 estates or organisations reflecting the importance of these in the current delivery and in development of future activity.

The report examines the drivers for change of climate change and the increasing challenge of pests and diseases and sets out ways in which a subsequent action plan can mitigate some of the pressures arising from these drivers. Alongside these drivers for change it sets out the case of a much clearer understanding of the 'anchors through change' that the rich cultural and historical associations of Exmoor's woodlands provide. This report has found these to be generally under-recognised and under-interpreted and, for the study team, at the heart of developing the 'woodland culture' of Exmoor.

The current delivery of Exmoor's woodland under the **Good for People** heading is wide ranging with notable accessible woodland, over 370 miles of public rights of way within or adjoining woodlands, a number of way-marked walks and cycle paths and a number of events held annually, including a number that attract visitors from further afield and contribute to the economy of Exmoor National Park. There are also elements of educational provision through the Moorland

Classroom, Exmoor curriculum and the local providers. The report highlights the value of greater co-ordination, further educational material and the greater opportunity for health and education activity; based largely upon the use of volunteers. Similarly there are opportunities for developing further recreational and tourism benefits through a strategic partnership. There are also strong links here with developing the historical and cultural understandings of woodland.

Exmoor's woodland delivery attributable under the **Good for Nature** section is significant and recognised locally, regionally, nationally and in some instances internationally. The data sets are also strong. There is a rich assemblage of woodland habitats and a significant cohort of veteran trees. The National Park and partners have taken a landscape ecology approach to these woodlands for a number of years which has enabled good progress to be made both in improving the resource and expanding the ecological networks through new woodland creation. In addition, there are significant areas of plantations on ancient woodland sites where there is potential for gradual restoration of ancient woodland features and the recent success of the Woodland Trust led Ancient Woodland Restoration Project provides an important resource to develop this potential; the hosting of the officer at the National Park will enable synergies of effort.

It is not possible to assess the contribution of Exmoor's woodlands under the heading of **Good for Economy** accurately as the economy does not operate at the level of the National Park, with much material being exported from the Park, the region and in some instances the country through Bideford. It is also complicated by the contributions that woodlands make indirectly for example the very significant contribution of shooting based in woodlands or the indirect contribution that woodlands make to the tourism sector. The report sets out the context and relevant trends as well as important areas for further delivery such as the development of the woodfuel sector. It then sets out the case for a more detailed action plan focussed around developing the resource itself, increasing demand and seeking new opportunities and an action plan to further develop the sector itself. The report highlights some of the more innovative opportunities such as the links with corporate social responsibility, social enterprise and payment for ecosystems services that may be worthy of monitoring and exploration in the context of Exmoor's woodlands and a future woodland programme.

The case for woodland creation is set within the context of Exmoor's special character and linked to the potential around improved ecosystems services particularly relating to ecological connectivity, water management issues and longer term economic and ecological resilience. A recommendation is proposed for developing a woodlands opportunity mapping approach which captures a fuller understanding of the drivers and opportunities within the agricultural community that exist or are emerging.

The report concludes by giving some indication of prioritisation; that greater robustness will be achieved through a synergy of ambition across the social, ecological and economic potentials but that the foundation will be best laid through the development of the woodland culture of Exmoor. It is through re-establishing understanding of the historical cultural associations between the community and woodlands and the fuller benefits that people can receive from those woodland now and in the future that a wider woodland activity programme

will be underpinned. The report concludes that not only is Exmoor well placed to unlock a great deal more of the woodland potential but also that it is opportune to do so. It is hoped that this report will provide a firm foundation for the next steps.

Introduction

1. This report sets out the 'case for a new understanding of the ways in which woodlands on Exmoor can contribute to and help develop community, ecological and economic sustainability, the connections between these functions and how to develop, integrate and strengthen links with other land-uses and economic activities'[1].

2. It is written at a time of heightened and unprecedented interest in trees, woodlands and forests, the existing and potential benefits they bring and challenges and threats that they face. Unprecedented because of the awareness amongst policy makers, delivery organisations, owners, managers and the public alike and this report is therefore both opportune and timely.

3. It is also written at a time of particular challenge to society in terms of economic downturn, structural re-adjustments and the changes that this means for organisational and business capacity, and individuals including those within and around Exmoor and those directly involved with woodlands. The report seeks to reflect these realities in its recommendations – and the opportunities - whilst still addressing the wider and longer term challenges – and opportunities - that must also be addressed such as climate change adaptation and mitigation.

4. In drawing our conclusions and recommendations we have been guided by the statutory purposes for which Exmoor is designated as a national park, namely:

- To conserve and enhance the natural beauty, wildlife and cultural heritage of the area
- To promote opportunities for the understanding and enjoyment of its special qualities by the public.

5. We have also noted their duty, in fulfilling these purposes, to seek to foster the economic and social well-being of local communities within the National Parks.

6. In addition we have noted the emphasis that Exmoor National Park Authority has given in its Partnership Plan[2] to:

"focus on those actions that will contribute most to keeping Exmoor National Park special and meeting the needs and wellbeing of local communities."

7. An example may be helpful: the notably lower household incomes[3] in Exmoor than in the rest of the region, combined with the general reliance on off-grid heating strongly reinforce the positive impacts that woodland management for woodfuel could have for the local population now and if the future of oil and LPG gas prices continue to rise.

[1] Tender specification, February 2013
[2] Exmoor National Park, *Partnership Plan 2012-2017: Working together for Exmoor* p.7
[3] Cumulus Consultants Limited and ICF GHK *Valuing England's National Parks* (May 2013)

8. Building upon these and the woodland resource of Exmoor this report sets our recommendations that we commend to Exmoor National Park, the commissioning partnership and wider audiences.

1.1 A note on methodology

9. The study team undertook the following key elements of work:

- Face to face interviews (a full list is provided at Annex 1)
- Telephone interviews (a full list is provided at Annex 1)
- Both the above groups were agreed with lead partners although there were inevitable changes as the study progressed due to lack of availability or further suggestions. It will be clear from the annex that the study team in fact spoke to a far greater number than originally proposed.
- A stakeholder meeting mid-way through the study period (a full list of participants and outline of the evening and main discussion points is at Annex 2)
- An on-line survey to engage a wider group again (an overview is presented at Annex 3) to which there were 70 respondents.
- Wide desk review and GIS analysis. The reports drawn upon are referenced throughout the document and the GIS sources noted).

10. We have focussed our attention on Exmoor National Park (as set out in the brief) but have taken a 'porous view' of the boundary, much as nature does. It is Exmoor National Park that we refer to when using 'Exmoor'.

11. The body of information, experience and data that is potentially available to a study such as this is huge and cannot all be incorporated or referenced in a limited study.

12. We have sought to use the most relevant and valuable work and have been guided by partners and the many we have had the pleasure in engaging with through this work. To the latter who have volunteered their knowledge and time freely and generously we would like to express our particular thanks.

13. There is a wealth of experience and professionalism within and around Exmoor and a deep respect and often love for the woodlands of Exmoor – a great base upon which to formulate a refreshed and bright future.

1.2 Notes specific to the Final Report

14. This report can only go some way to capturing the richness and diversity of the woodlands and their current contributions to Exmoor National Park and its wider environs and the very significant further potential they have to offer.

15. The heightened interest in woodlands is reflected not only in the commissioning of this study but in the numerous relevant reports that are being published even in the comparatively short space of time that has been given to the preparation of this report. Some examples include:

- Developing the potential for Payments for Ecosystem Services: an Action Plan (May 2013)[4]
- Government Forestry and Woodlands Policy Statement: Implementation Plan (July 2013)[5]

16. Similarly circumstances change both over longer periods of time – for example in the increased prices for firewood being received, and, in the short term, for example in the finding of *Chalara fraxinea* on a site south of Tiverton in July. Things will continue to change and there is always more to know and more documents and discussions that could add value to this report.

17. This noted we believe this report offers a firm foundation upon which to build a strong programme of activity that will help to unlock more of Exmoor's considerable woodland potential.

1.3 Acknowledgements

18. Many people have contributed their time and knowledge to this study for which we are very grateful. However, we acknowledge that any factual errors or misrepresentations are our responsibility.

19. The study team wish to thank in particular the Steering group members and other staff and members of the Exmoor Society, Exmoor National Park Authority, the Forestry Commission, the Woodland Trust, the Crown Estate, and Natural England for their input. We are additionally grateful to the Royal Forestry Society, ConFor, the Forestry Commission, the Country Land and Business Association, and National Farmers Union who contacted members on our behalf to invite their input.

[4] Defra, Developing the potential for Payments for Ecosystem Services: an Action Plan May 2013 https://www.gov.uk/government/publications/payments-for-ecosystem-services-pes-action-plan

[5] Defra, Government Forestry and Woodlands Policy Statement: Implementation Plan July 2013 https://www.gov.uk/government/publications/forestry-and-woodlands-policy-statement-implementation-plan-update-july-2013

The current policy context

20. In January 2013 the Government published its Forestry and Woodland Policy Statement[6] incorporating its response to the work and final report of the Independent Panel on Forestry[7]. The policy statement reflects wider government policy including the Environment White Paper, "The Natural Choice: securing the value of nature",[8] and the Lawton Report[9] reviewing the effectiveness of wildlife sites and the National Ecosystem Assessment (NEA)[10]. It also draws on, and endorses earlier forestry policies including the Open Habitats Policy and Keepers of Time, the government's policy on ancient and native woodland.

21. The Forestry and Woodland Policy Statement reiterates the focus on building resilience around the priorities of:

- **Protecting** the nation's trees, woodlands and forests from increasing threats such as pests, diseases and climate change,
- **Improving** their resilience to these threats and their contribution to economic growth, people's lives and nature,
- **Expanding** them to increase further their economic, social and environmental value

22. These are set out in clear priority order (i.e. protect first, then improve, then expand) and the policy statement is then organised around the headings of 'Good for the Economy', 'Good for People' and 'Good for Nature'. The policy statement also reflects the current administration's wider drivers such as localism, partnership, value for money etc. This report is set out within a similar structure and, where appropriate, chimes with the wider drivers.

23. Resilience forms a foundation to this study with many of the draft recommendations supporting greater resilience of Exmoor's woodlands and through these actions contributing to the resilience of the communities of Exmoor.

Woodlands and Ecosystem Services

24. Woodlands have always offered humanity a myriad of resources that have been relied upon to a greater or lesser extent throughout history from shelter, fuel and livelihoods to spiritual renewal. This has certainly been the case in Exmoor and in many respects continues to be so. Most recently, assessing these multiple benefits has been done through the Ecosystems Services approach which categorises these benefits as:

- 'provisioning services' provided by woodland as timber, food, fuel etc.,
- 'regulating services' provided by woodlands as climate regulation, soil fertility, clean water etc.,

[6] Defra, *Government Forestry and Woodlands Policy Statement* (January 2013)
[7] Independent Panel on Forestry: Final Report (July 2012)
[8] Defra, *The Natural Choice: Securing the Value of Nature (*June 2011)
[9] 'Making space for nature': a review of England's wildlife sites (2010)
[10] Defra et al., *UK National Ecosystem Assessment* (2011)

- 'cultural services' provided by woodlands through recreation, education, inspiration and spiritual and aesthetic values etc., and
- 'supporting services' provided by woodlands such as by fixing of carbon, soil formation etc..

25. The UK National Ecosystem Assessment notes that "woodlands provide the highest identified number of ecosystems services". Many of these ecosystems services have been highlighted during the course of the study and there is a growing recognition of the importance for some such as the role of woodlands in water issues, the provision of fuel in future etc. The table in Annex 4, taken from the UK Assessment, sets out the range of ecosystems services delivered by woodlands.

26. The human element, frequently more difficult to measure, should not be lost in the science of ecosystems services and the on-line survey has been particularly helpful in providing deeply personal insights into the benefits the woodlands of Exmoor give individuals, for example:

"I love trees, so to be in a wood is always a happy occasion for me"

"Fuel, timber, sense of connection to nature that gives a deep sense of well-being"

"It feeds my heart and soul"

"Maintaining good mental and physical health; a sense of connection with the land; I find woodland encourages a long term view, and gives a sense of perspective, encouraging guardianship of the environment."

"Improved fitness and general well-being. Time to think and contemplate"

"Woodlands are wonderful places for undertaking physical activities, walking, mountain biking and even tree climbing. I use woodlands to teach others about natural history and sometimes get economic benefit from this. I use woodlands for peace and tranquillity and for thinking time. I often walk with family and friends in woodlands. I benefit from the warmth they provide when I combust woodfuel. The hidden economic benefits.. are very important. Ecosystem services including; pollination, the cleaning and recycling of air and water and nutrients. The total ecological service provided is huge."

The woodland resource of Exmoor

27. The woodlands of Exmoor have been shaped by the climate and varied geology of Exmoor and, prior to the influence of man, native broadleaved woodlands would have covered most of Exmoor, including the moorland. The current extent and nature of woodland reflects human use of the woodland and the deforestation of most woodland over centuries with clearance beginning in earnest from as early as 5000BC.

28. All of the remaining woodlands have been altered by man through management either ancient or modern: the pollards reflecting the combination of wood harvesting and livestock grazing, mechanised clear-felling of some modern forestry operations leading to larger open areas in the commercial

forests and the introduction of non-native species including the establishment of conifer plantations, mainly in the twentieth century.

29. The natural factors and long history of different management over centuries and more latterly direct policy interventions has led to strong diversity in Exmoor's woodlands.

30. The extract below (Box 1) encapsulates the quality and diversity of its woodlands[11]:

Box 1

"**Exmoor's Woodland Heritage**
Upland oak woodland is the most widespread type of broadleaved woodland on Exmoor, however, internationally this habitat is scarce and therefore action is being taken to conserve and monitor these woodlands as part of international Habitat Action Plans. Upland Oak woodland exists on shallow, nutrient poor soils where the climate is cool and wet. Sessile oak and downy birch are dominant, whilst hazel also occurs in some areas. More fertile stream sides often host a greater number of ash. Woodsorrel, bilberry and cow-wheat are the most common ground flora, alongside a range of moisture-loving mosses ferns and lichens.

Trees once extended to 1400 feet, covering virtually all of Exmoor. Human intervention reduced the number of trees, firstly from burning to encourage open areas for hunting and from the Neolithic period onwards, woodland clearance for agriculture and construction. There was an increase in exotic tree species in Exmoor from the 19th century, including many decorative species, accompanied by species such as rhododendron that have spread invasively across the region. The 20th century then saw an increase in conifer plantations in a drive to create a strategic reserve of timber after the First World War resulted in a sharp decline in timber stocks.

Most of Exmoor's woodland has been managed intensively at some point in the last one thousand years. The slow-grown oak has shown to be an ideal material for charcoal, which was used for tan barking and iron production and was even exported to Wales. Many of these woods were coppiced, often on a fifteen year rotation, which resulted in a landscape covered in a patchwork of coppice coupes of different aged stands. As the coppicing industry declined in the 20th century, many of these coppice stools grew on to maturity. Today, many of Exmoor's woodlands are characteristic of this sudden change in management, with a very even aged structure, often with only one or two stems from each coppice stool remaining.

The lowland valleys of the Middle Exe and the Yeo host varied woodland growing on deeper, more fertile soils, in a less hostile climate. Although oak is still the main component of the canopy, the sessile oak of the uplands gives way to the more common lowland species, English (pedunculate) oak, alongside an increasing number of ash, as well as birch, rowan and historically, elm. The shrub layer in the more sheltered lowlands is well developed, with hazel, guelder rose, hawthorn, blackthorn and holly predominating. Common ground flora species include those found in upland oak woodland but species such as bramble, nettle, herb bennet, honeysuckle, bluebell and ramson are more common.

The variety of trees and shrubs in lowland woodland has been used to create a vast array of woodland products. Large, straight oak and elm has been used in houses and ships, whilst smaller diameter material has been burnt as firewood, or worked into a variety of coppice products, or processed into charcoal."

[11] Exmoor National Park website:
http://www.exmoor-nationalpark.gov.uk/environment/woodland/woodland-heritage

4.1 Woodland Statistics

31. There are 9,376 ha of woodland within the National Park[12]. This represents approximately 13.5% of the area of Exmoor National Park. It also reflects a considerable increase in woodland cover over the last 110 years. Work undertaken by the National Park Authority notes a woodland cover in 1901 of 7,416 ha or 10.7 %[13]. This increase reflects some losses and other gains; losses include farm orchards and some wooded areas (eg around Culbone Inn) and other gains, predominantly but not exclusively of conifer plantations following the strategic push for increased timber resources post World War I.

32. The nature of the current woodland resource is set out in Table 1. The geographic distribution is set out in Map 1. It should also be noted that a subset of this woodland area, which we understand to be 8,926ha, is identified under Section 3 of the Porchester Report[14]

[12] Woodland statistics used in this report are drawn from the National Inventory of Woods and Trees, 2011, undertaken by the Forestry Commission unless otherwise stated.

[13] Loren Eldred, Exmoor National Park, personal communication of work undertaken up to June 2013, not published.

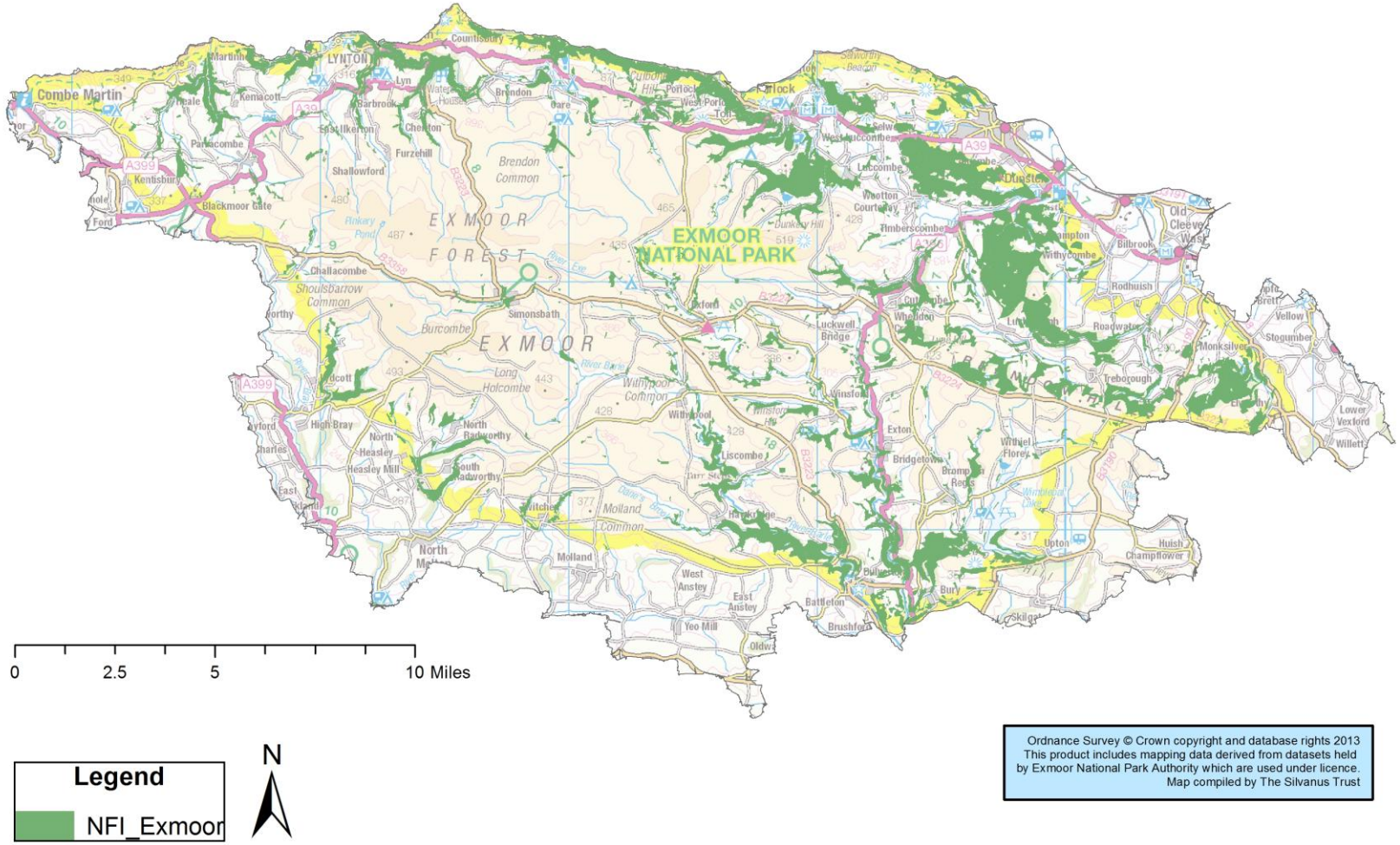
[14] Figure is taken from the Moorlands at a Crossroads 'The State of the Moorlands of Exmoor', 2004.

Table 1: Woodland Statistics for Exmoor National Park

Total Woodland Area (Hectares)[1]	Managed Woodland Area (Hectares)[2]	Woodland Managed by Forest Enterprise England (mainly PFE)[3]	Under Managed Woodland Area (Hectares)	National Park Area (Hectares)[4]	Percentage of Administrative Area above Mean High Water that is woodland	Percentage of Woodland that is Managed Woodland	Percentage of woodland that is Woodland Managed by Forest Enterprise England (mainly PFE)	Percentage of Woodland that is Under Managed
a	B	C	D	e				
		(subset of b)	a-b		a/e	b/a	c/a	d/a
9,375.7	6,197.1	1,089.9	3,178.6	69,312.2	13.5%	66.1%	11.6%	33.9%

Map 1:

Geographic distribution of woodlands on Exmoor



33. This proportion of woodland cover reflects a higher proportion than for England as a whole, 9.9%, and can be set against the Government's stated ambition for woodland cover for England of 12% by 2060[15]. Alternatively, it could be set against the average woodland cover for National Parks which stands at 14.6%[16]. In reality such comparisons inform thinking but will not drive it and the case for increasing woodland cover is explored later in this report.

34. The current area of woodland in some form of formal management[17] in Exmoor is also comparatively high for England (66% compared to 53 % respectively). This figure will not take account of areas of woodland where the owner has taken a positive decision to not manage on a formal basis such as these statistics represent. The proportion of woodlands in management is particularly high given the comparatively low proportion of Exmoor's woodlands that is managed by Forest Enterprise; 11.6% compared to 18% in England as a whole.

35. So, whilst in England approximately 47% of woodlands remain unmanaged or under-managed[18] in Exmoor National Park the equivalent figure is just under 34%. In the recent policy statement Government has set out an aspiration for woodlands in management of two thirds by 2018 rising eventually to 80%.

36. 'Ancient woodland' including ancient semi-natural woodlands (ASNW) and plantations on ancient woodland sites (PAWS) represent a highly important component of Exmoor's woodlands and a very significant one. There are 2,004 ha of ASNW within Exmoor and 1,346 ha of PAWS sites (i.e. 3,350 ha of ancient woodland or more than one third of the woodlands of Exmoor). Many of the larger ancient woodlands are of very high ecological interest and have been duly designated in recognition of their importance. Map 2 highlights the designated woodlands within Exmoor National Park and includes sites designated as Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SAC), National Nature Reserves (NNR) and as ancient woodland.

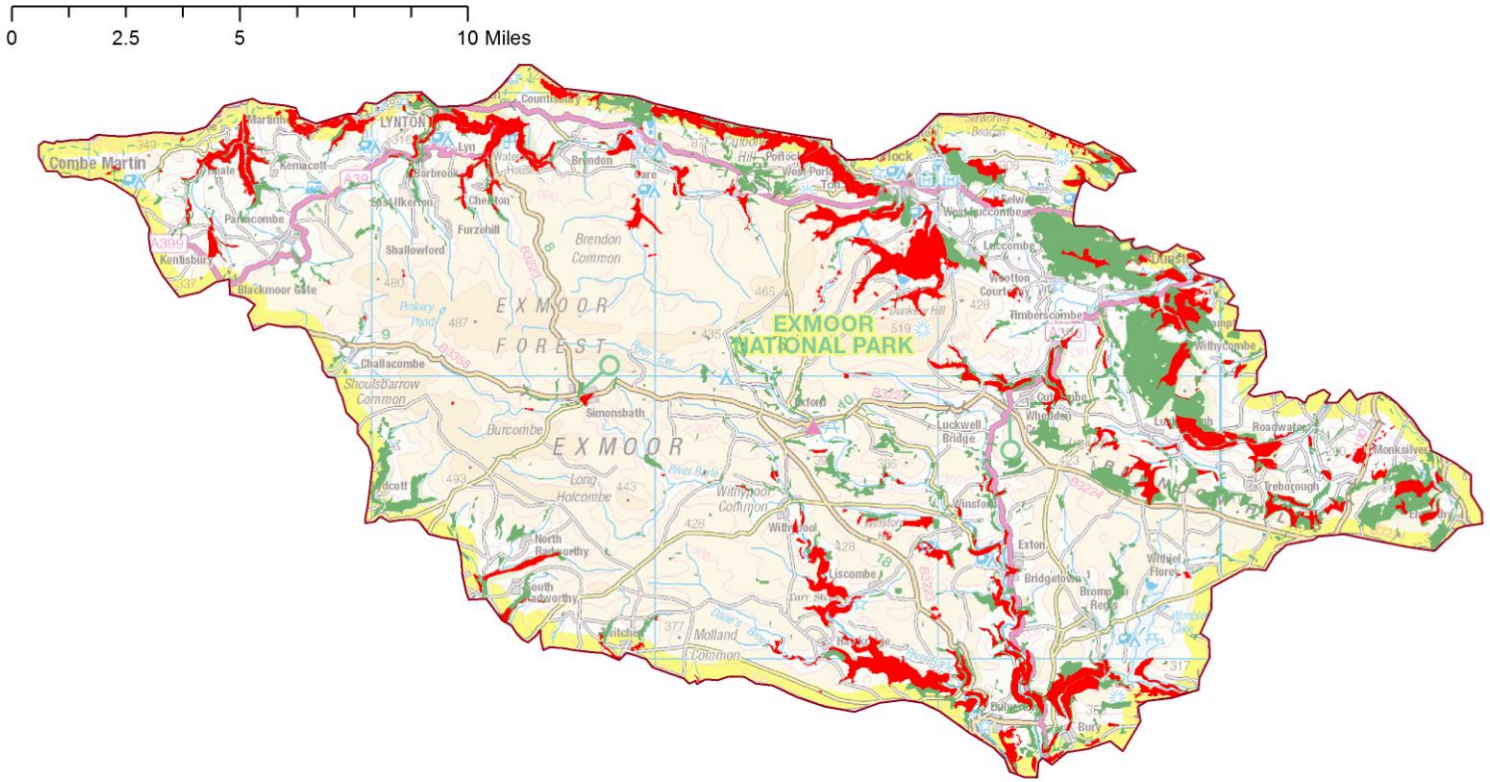
4.2 Woodland Carbon

37. There is increasing interest in the role of woodland systems (including their soil) as carbon stores and carbon accumulators. Exmoor National Park Authority is in the process of establishing the carbon that is stored in the above and below ground biomass of woodlands in the Park, the sequestration rate through growth and the removal rate through harvesting of products as well as the potential for carbon gains through new woodland planting[19]. The draft results indicate that there are in excess of 4 million tCO_2 in the existing woodland resource, an annual sequestration rate of nearly 50,000 tCo_2 and a net gain in carbon of 6 tCO_2 tonnes per woodland hectare per year.

[15] Defra, *Government Forestry and Woodlands Policy Statement* (January 2013)
[16] Cumulus Consultants Ltd and ICF GHK, *Valuing England's National Parks* (2013), drawn from submission of NPE to Independent Panel on Forestry (2012)
[17] FC and ENPA datasets.
[18] *Ibid.* Defra, (January 2013)
[19] Sandwood Enterprises "Report for the Exmoor National Park Authority Quantifying Carbon Storage and Sequestration in Woodlands in Exmoor National Park"
Draft report, April 2013

Map 2:

Designated Woodland



4.3 Woodland Ownership

38. It has not been possible to identify ownership (and/or management) comprehensively but there are a number of significant wooded landholdings or estates including:

Estate	approx. ha
Theed Forestry Estates	637
Bury Estate	320
Porlock Manor Estate	175
Glenthorne Estate	100
Holnicote Estate (NT)	837
Watersmeet (NT)	420
Croydon Hill, Wootton Courtney, Hargot and Kennisham (FE)	1,000
Badgeworthy Land Company	380[20]
The Crown Estate, Dunster	877
Exmoor National Park	575
TOTAL	**5,221**
Total on Exmoor	**9,376**

39. The table indicates how a large proportion of Exmoor's woodlands is under the management of a relatively small group. This is an important factor and real strength in current delivery within Exmoor National Park and also when considering further potential. The majority of woodlands, by number, will be generally more fragmented and smaller, often on farms. In formulating a detailed action plan this will need to be acknowledged and reflected appropriately with different actions potentially having different priorities for the distinctive groups and the motivations of the different groups respected.

Drivers for Change

40. Woodland cover on Exmoor and the nature of woodlands have always changed. The potential of woodlands must be set in the context of the challenges that they face now and in the future, particularly climate change and increasing incidence of pests and diseases.

5.1 Climate Change

41. Whilst woodlands have a significant inherent capacity for adaptation there is strong evidence to suggest that by taking prompt and informed action we can influence those adaptive pathways positively and in a manner that will better ensure we retain the products, qualities or functions we wish to maintain, from the important bryophyte species characteristic of the Atlantic Oakwoods to the

[20] Awaiting confirmation of figure.

productive capacity of woodlands to support the Exmoor economy and its communities.

Recommendation 1: The principles and priorities for adaptation set out in the "Read Report"[21] should be applied to the woodlands of Exmoor and the action plan should reflect these.

42. These can be summarised as follows:

1. Creating **resistance** to change and thereby allowing the woodlands to continue to deliver the desired goods and services whilst other adaptation measures can be introduced. In Exmoor this may mean:
    a. Reducing other 'stressors' such as pests and diseases, overgrazing etc. – for example through increased grey squirrel control
    b. Identification of particularly vulnerable sites for early action,
    c. Identification of potential refugia e.g. deeply incised valley woodlands with Atlantic bryophyte present where the impact of climate change will be less.

2. Promoting **resilience** to change through adaptation of current tree and woodland extent, location, structure and composition towards those that will be more suitable for the future conditions. In Exmoor this may mean:
    a. Ensuring there is a good woodland communication network to ensure awareness of diseases and a rapid response in the event of a further outbreak or incidence of disease and to learn from and apply lessons of current disease challenges;
    b. Increasing regeneration rates within woodlands through reduced grazing and browsing pressures to allow more natural selection for changing conditions;
    c. Encouraging a wider variety of species and structural diversity through management e.g. through greater use of lower impact continuous cover systems, and
    d. Encouraging a wider variety of carefully sourced planting material with greater species mix (including non-natives and non-traditional conifers where appropriate), greater genetic diversity within the species itself where available, and
    e. Using b-d above extending woodland cover to increase robustness of woodlands' greater landscape connectivity.

3. **Monitoring** of responses to different management and non-intervention, for example monitoring the impacts of different deer management approaches and regeneration levels; the response of bryophyte communities etc., to keep management practice informed and evolving.

4. **Accepting change** to our understanding of woodlands and landscapes. The Read Report for example cites the potential for upland oak woodlands to expand if other pressures are removed as regeneration becomes more vigorous with climate change. This can be seen happening with reduced stocking levels on some of the adjoining land (eg the coombes above

[21] Read, D.J., Freer-Smith, P., Morison, J.I.L., Hanley, N., West, C.C. and Snowdon, P (eds.). Combating Climate Change: A role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. (2009)

Horner wood (see below). The risk of climate change to some lichen and bryophyte species may be significant. Similarly changes within the field layer of our woodland habitat are likely to increase and be exacerbated as the climate may start to favour the extension of beech distribution with increasing shade and management may be appropriate on particular sites or parts of sites of particular conservation value and where the impacts, for example, on the lichen community is detrimental[22].

43. The Read report also notes a number of woodland ecosystem services that become more important with climate change which are pertinent to Exmoor; for example the use of trees for shading livestock or river systems or their role in water regulation which has been highlighted through the work of the National Trust at Holnicote in relation to the flood risk at Porlock.

44. The latter are examples of how woodlands can mitigate the impacts of climate change more widely and in ways that may be increasingly important to the well-being of the communities of Exmoor and beyond.

Structural simplicity in Horner Woods

Upward expansion of woodland above Horner Woods[23]

5.2 Pests and diseases

45. The woodlands of Exmoor have been impacted by the recent *Phytophthora ramorum* outbreak with 446ha of land under Statutory Plant Health Notice with a net area of 264ha[24]. The more recent outbreak of *Chalara fraxinea* just south of Tiverton is significant and should be monitored for further developments and with increasing vigilance of any plantings with Exmoor National Park that took place in the past 20 years.

46. A number of other diseases have the potential to have significant impact on Exmoor's woodlands such as Acute Oak Decline. The challenge to woodlands

[22] Keith Kirby, Natural England, internal report of day in Barle Valley woodlands 13/01/2009.
[23] Photographs: Laura Jones
[24] The difference is accounted for in administrative processes. The net area is the area of woodland affected by the disease.

and the landscapes they form such an important component of could be significant and a proactive approach should be taken.

47. It was also notable how highly diseases featured at the stakeholder meeting and in the responses to the online survey where most respondents saw pests and diseases as being of high threat and probably higher in future for example (taken from online survey response):

"I am extremely concerned about the escalating rate of disease and pests being imported from abroad to our trees and woodlands which have no resistance. I see this as the single most pressing area for concern."

48. This growing awareness and concern will assist in delivering the recommendations and actions. The presence of a jointly funded post with the Forestry Commission and the Park adds value in such a situation and should not be understated. During the process of this study the quality of the advice given by the Woodland Team and particularly the Woodlands Officer was commented on and valued a number of times. This resonates strongly with the recommendation of the Government Forestry and Woodland Policy Statement:

"We will retain a core of forestry expertise within Government with the capacity to deliver a range of functions, duties and powers".

49. The Woodland Officer has the authority both of the Government role, including plant health, and the National Park combined with long standing local knowledge of the area and, importantly, relationships with many of the owners. This valuable relationship was also noted in the Woodlands and Forestry in UK National Parks Case studies report of April 2012.

Recommendation 2: The joint post with the Forestry Commission should continue and the network of relationships with owners be built upon as the action plan is developed.

Recommendation 3: A proactive approach should be taken to the challenge of pests and diseases (including working up and implementing those actions set out below).

50. This conclusion of the Tree Health and Plant Biosecurity Expert Task Force[25] noted that:

"some investment will be necessary but the advantages of minimising environmental, social and economic impacts from pests and diseases will be considerable."

Such a proactive approach could include:

- Increased understanding of the risks to the woodland resource of Exmoor for example the recent discovery of *Chalara fraxinea* near Tiverton and the potential impact on the ash communities of Exmoor in the future;
- Understanding and raising awareness of the risk pathways within the woodland chain and beyond (for example importation of planting stock from unknown sources);

[25] Final Report (May 2013)

- Embedding an understanding of risks and mitigating these risks through management actions, including promotion of good biosecurity practice
- Good observation of tree health and consideration of promotion of the OPAL[26] Tree Health Survey;
- Network of interested parties (owners, managers, contractors) and impartial advice, periodically updated or in the event of particular issues;
- Finally, a wider understanding of the risks within the Exmoor community and visitors and how their actions can mitigate the risks (e.g. cleaning off boots and bikes, thinking about where horticultural plants come from etc.) and other ways for them to become involved (eg OPAL).

'Anchors' through Change

51. The special qualities recognised by the establishment of Exmoor National Park have been created over millennia. They continue to be recognised and valued by residents, visitors and policy makers alike with a strong sense of place frequently evoked. It is, therefore, important to ensure that these special qualities (and the critical role that woodlands play in these) are understood and respected as decisions are taken to affect change. In short, these special qualities offer 'anchors' through inevitable change and guides to chosen change.

52. Much generic work has been done within Exmoor in relation to its special qualities; the reactions to these qualities (both the landscape and the 'cultural services' that they provide) are recorded in the Exmoor Landscape Perceptions Study[27]. Exmoor also scored 'particularly highly' in terms of 'sense of place, inspiration, calm leisure activities, spiritual and escapism' compared to a number of other National Character Areas in a 2009 study[28].

53. The landscapes that have emerged and the depth of cultural associations within those landscapes have resulted in a palimpsest that reflects history at an individual, community, national and international level and in turn those same landscapes contribute to that history: from meeting basic human needs for food and shelter to the more intangible needs for inspiration and rejuvenation.

54. The landscape perceptions study highlighted the overwhelmingly positive emotional responses to the varied landscape of Exmoor. Woodlands are a very strong part of the 'narrative of place' of Exmoor; some of the adjectives used to describe the more wooded settings included 'fairytale', 'dramatic', 'mesmerized' and 'reflective'.

55. From discussions and the on-line survey undertaken for this study a real insight into the values associated with woodlands can be captured, for example:

"emotional satisfaction and relationship to remote areas and their wildlife."

"[woodlands] help make Exmoor what it is"

[26] http://www.opalexplorenature.org/TreeSurvey
[27] Fyfe, F., Exmoor Landscape Perceptions Study, July 2011
[28] Research Box and Land Use Consultants, Experiencing Landscapes: Capturing the 'Cultural Services' and 'Experiential Qualities of Landscape', 2009

"the woodlands anchor the moorland"

56. Exmoor is particularly rich in the way in which its woodlands and trees mirror the human relationship with these assets through time:

- the initial clearing of the forest creating space for agriculture;
- the protection afforded by iron-age hill forts at Mounsey Castle, itself part of a wider Iron Age landscape including Brewers Castle and Oldberry Castle partially reflecting the need to control the essential resource of wood;
- from the Iron Age, through the Roman and Medieval periods onwards the increasingly industrial woodland landscapes of charcoal hearths, sawpits, smelting mills (situated in woodlands due to the challenge of moving wood) where woodland trackways join these features such as at Cloutsham in Horner Wood. Woodland trackways that we still walk along today;
- the oak bark stripping for the tanning industry echoed in the stored oak coppice woodlands of the Barle Valley[29]. Thriving populations of fritillaries occupied the habitats that were a 'by-product' of this industry; creating and maintaining the conditions for these and other species are now frequently subsidised;
- the Mineral Line incline within the woodlands at Chargot and Kennisham woodlands and the ventilation flues associated with iron ore mining and the shipment of the ore to South Wales.

57. In addition:

- ancient pollards reflecting the long history of management of stock within woodlands add great character to woodlands and another habitat niche;
- the designed landscape features of some of the traditional estates of Exmoor;
- the beech hedges introduced by the Knight family in the nineteenth century;
- the layered hedge banks that give definition to the old enclosure patterns, and;
- the conifer plantations of the twentieth century reflecting the national drive for raw materials and good tree growing conditions found in the National Park.

[29] The coppicing largely ceased with the cessation of the demand for tannin.

Historical woodland landscapes: Iron-age hill forts[30]

An Iron Age hill-slope enclosure on the north side of Staddon Hill

Oldberry Castle, an Iron Age hillfort above the River Barle.

[30] Photographs: ©Exmoor National Park Authority.

Ancient pollard, Horner Wood[31] and beech hedge boundary[32]

58. The very positive responses to the Tall Trees Trail at Nutcombe Bottom reported in the Landscape Perceptions Study may reflect a new cultural association in the making with the tallest tree in England in an age of greater leisure.

59. The adjectives of the Perceptions Study used for the more wooded landscapes, "dramatic", "fairytale" are interesting to note alongside some reported in the on-line survey of this study as evoking "childhood memories – Robin Hood, Snow White, Grimms fairy tales, Harry Potter, Lord of the Rings, Green Man….". Woodlands are places of myth and legend: for example 'legend has it that a stone at Mounsey Castle fell from the Devil's apron as he was on his way to build Tarr Steps'[33]. The coastal woodlands of Culbone are said to have

[31] Photograph: Laura Jones
[32] Photograph: ©Exmoor National Park Authority
[33] Article in serial: Monday, A. J.. 1883. Two Somerset Wills. Somerset Archaeological & Natural History Society. 29. P. 61-68. Reported on Exmoor Historic Environment Record site http://www.exmoorher.co.uk/hbsmr-web/record.aspx?UID=MSO9316-Mounsey-Castle-Dulverton&pageid=16&mid=9

inspired Coleridge's Osirio[34] and this literary inspiration continues for example Tom Lowenstein's recent book, "From Culbone Wood — In Xanadu"[35] written in the voice of Coleridge.

60. During the course of this comparatively brief study the under-recognition of woodlands as a setting for the human history of Exmoor and the benefits that the community and visitors draw from this has stood out. The historical assets in woodlands are particularly rich – for example in Horner Wood archaeological sites are more densely concentrated than they are on the moorlands[36] or the iron-age landscape of the Barle Valley woodlands.

61. The potential for greater understanding and interpretation of the 'cultural services' that the woodlands of Exmoor have and offer is highly significant and in such a concentration as to be unusual and ready for further exploration and consideration and a far greater understanding.

Recommendation 4: The 'cultural services' contribution of woodlands within Exmoor National Park should be recognised and better interpreted. This constitutes a major theme of the subsequent action plan and underpins many other recommendations and is worthy of considering as a potential wider programme seeking funding.

62. Indicative Actions might include:

- Developing a virtual heritage trail / sites through Exmoor's woodland landscapes that interpret the history of Exmoor's communities through times and their interdependence on woodlands;
- Creating a series of themed events such as charcoal burning at a charcoal hearth; coppicing and bark stripping in the oak coppice;
- Articles in Exmoor Life, themed essays on the Exmoor Environment Heritage site, in The Exmoor review, and Exmoor magazine drawing upon the historic richness of woodlands;
- Capturing oral histories for example through the Heritage Lottery Fund's Sharing Heritage Programme;
- Celebration events to mark the 60th Anniversary of the National Park;
- Interpretation of site names reflecting this cultural association with woodland, etc..

63. It should be noted that the Grown in Britain campaign[37], initiated as part of the response to the Independent Panel on Forestry[38], is holding a Grown in

[34] http://www.exmoor-nationalpark.gov.uk/environment/culture/exmoors-literary-links/st-coleridge
[35] Tom Lowenstein, "From Culbone Wood – To Xanadu" Shearsman Books, January 2013
[36] Rob Wilson-North, Conservation Manager, personal communication
[37] http://www.growninbritain.org/index.jsp
[38] Independent Panel on Forestry: Final report, 2012 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/183095/Independent-Panel-on-Forestry-Final-Report1.pdf

Britain week during 14th-20th October 2013 and are encouraging others to register any events occurring during that week.

64. In considering this potential there are a number of trees or woods of particular note within the Exmoor National Park boundary that could also be developed as part of a wider action plan or a wider branded woodland tourism offer:

- The 'highest' coastal woodlands at Culbone;
- The 'longest' stretch of uninterrupted coastal woodlands between the Foreland and Porlock;
- The 'rarest' – 4 species of endemic Whitebeam found nowhere else: *Sorbus subcuneata*, *S. vexans* and *S. margaretae (formerly S. Taxon D)*. A 4th has recently been accepted as a new species and named *S. admonitor*;
- The 'tallest' tree in England – the Douglas fir within the Tall Trees Trail at Dunster (60m);
- The 'highest' beech plantation in England – Birch Cleeve at Simonsbath
- The 'oldest' – one of the great concentration of veteran trees

65. The history of individuals and communities through time is reflected in these features but its manifestation in or within the natural form (ie trees or woods themselves) is a history that is generally less understood or consciously seen than the more evident human history of artefacts found, for example in more open settings. Developing this element of the Exmoor woodland culture with wide engagement will boost many of the other recommendations of this report and capture something of the energy and passion that has been demonstrated through this study.

66. The drivers for change that are noted above have to be 'lived and worked with'. The special qualities have been anchors through this change and should continue to be so such that their benefits continue to 'underwrite the narrative of Exmoor'.

67. The Landscape Perceptions study noted that whilst all the cultural services that are provided by Exmoor should be encouraged it was those projects that emphasise learning and education or understanding of the past that are of particular importance. This resonates with the largely untapped potential that the woodlands of Exmoor National Park, and its environs can offer.

Exmoor's notable trees

Highest Beech plantation at Birchcleave Wood, Simonsbath

Oldest oak tree at Timberscombe

Rare Whitebeam, found on the northern wooded coastal cliffs

Tall Trees Trail, Nutcombe Bottom near Dunster

6.1 Woodlands in the Landscape

68. Another 'anchor through change' is the nature of the landscape character. The Landscape Character Assessment[39] highlights the significance of woodlands within the Exmoor Landscape. Of the nine landscape character types identified on Exmoor and highlighted in Map 3 there are 4 relating directly to woodlands:

- High wooded coast, combes and cleaves (B on Map);
- Incised wooded valleys (G on map);
- Plantation (with heathland) Hills (H on map);
- Wooded and Farmed Hills with Combes (I on map).

69. In addition, the beech hedges and their maintenance and enhancement are noted as the key element to the landscape strategy in the enclosed farmed hills and commons landscape type.

70. For each of the landscape character types (and the areas on the ground that make up that type) the assessment sets out a strategy and a series of key and secondary issues and objectives (these are set out for the landscape character types noted above in Annex 5). These aim to support the landscape type which should, along with the subsequent Landscape Action Plan, inform the strategic approach to woodlands, their management and in particular new woodland creation.

[39] Preece, E.,J., Exmoor Landscape Character Assessment, 2007 http://www.exmoor-nationalpark.gov.uk/__data/assets/pdf_file/0003/114546/lca-introduction.pdf

Woodland Landscape Character Types[40]

High wooded coast, combes and cleaves

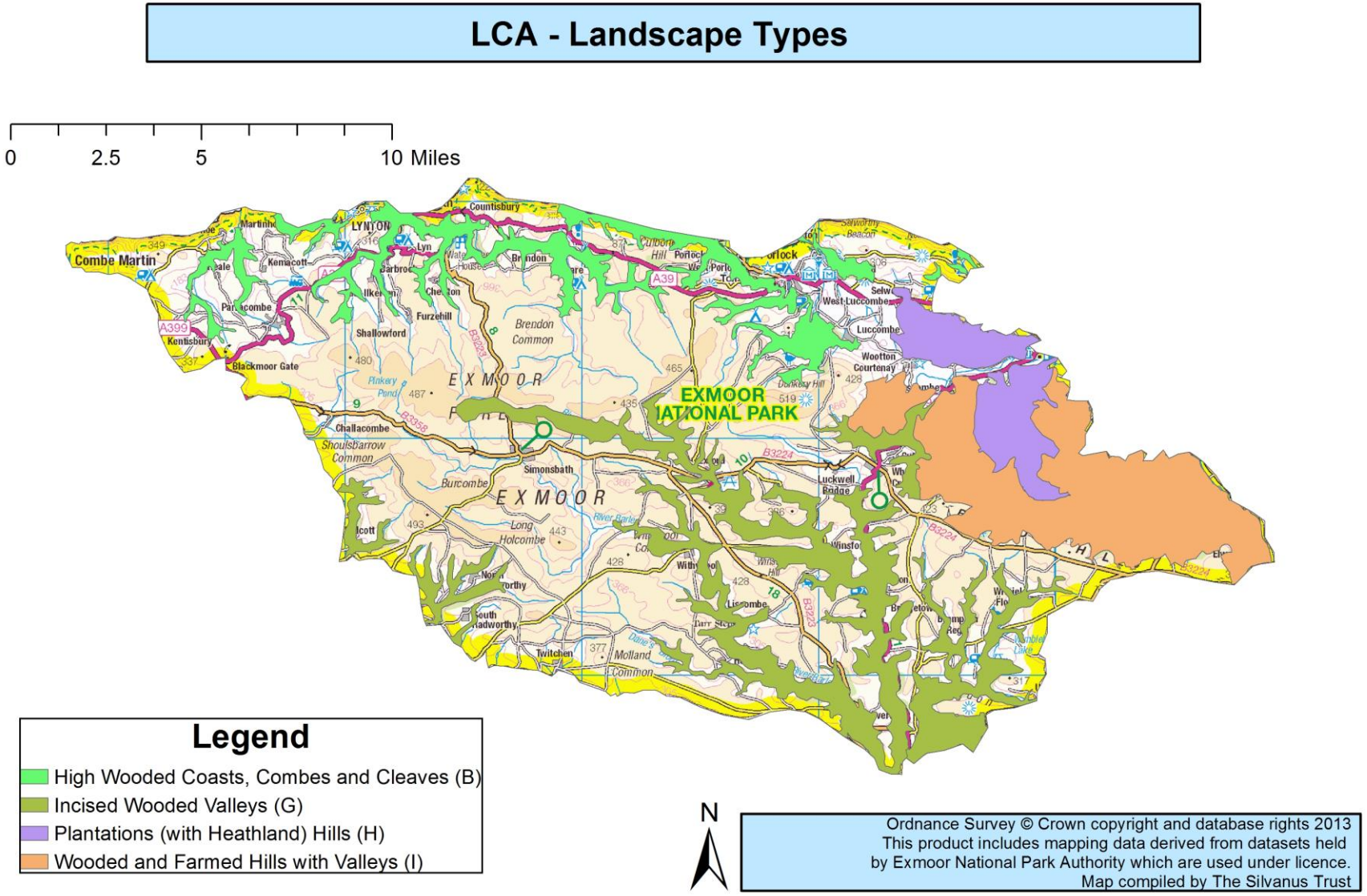
Incised wooded valleys

Plantation (with heathland) Hills

Wooded and Farmed Hills with Combes

[40] All photographs: ©Exmoor National Park Authority.

6.2 Map 3:


LCA - Landscape Types
0
2.5
5
10 Miles
Combe Martin
LYNTON
Countisbury
Kentisbury
Blackmoor Gate
Shallowford
Brendon Common
EXMOOR
EXMOOR NATIONAL PARK
Challacombe
Shoulsbarrow Common
Simonsbath
Burcombe
Long Holcombe
Twitchen
Molland Common
Luccombe
West Luccombe
Wootton Courtenay
Luckwell Bridge
Legend
High Wooded Coasts, Combes and Cleaves (B)
Incised Wooded Valleys (G)
Plantations (with Heathland) Hills (H)
Wooded and Farmed Hills with Valleys (I)
N
Ordnance Survey © Crown copyright and database rights 2013
This product includes mapping data derived from datasets held by Exmoor National Park Authority which are used under licence.
Map compiled by The Silvanus Trust

Exmoor's woodlands: Good for People

7.1 Current delivery

71. Woodlands are noted for their ability to offer and absorb recreational opportunities of a great variety. This is very much the case within Exmoor National Park. There are also strong links to the earlier section noting the cultural services provided by woodlands (Anchors through Change). The absence of any central database may mean we have overlooked some providers and such a database should be considered in future development.

72. It can be seen from the quotes noted at paragraph 26 that there are many benefits already being accrued from Exmoor's woodlands by some. Table 2 outlines the different benefits noted by respondents to the online survey.

Table 2: Benefits deriving from woodland activities

Benefit	No. citing the benefit	Illustrative quotes
Physical health	21	"Free exercise on the doorstep"
Mental health including well-being, enjoyment, peace, relaxation, spiritual, emotional satisfaction	28	"It feeds my heart and soul"
		"I use woodland for peace and tranquillity and for thinking time"
		"The best place in the world to switch off & forget your worries"
		"they are a true peace of mind"
		"I love trees, so to be in a wood is always a happy occasion for me."
Social	11	"Time to think and relax with likeminded people"
Educational	13	"Physical, mental health and perpetually educational, as you can always see something new."
		"One of the challenges is to educate the public that by active management, there are far greater benefits for all, not only from employment, but biodiversity, managed run off, larger canopies, fast growth = greater carbon, larger timber, etc. One of the biggest misconceived views held by the public is that change is bad…… or frightening. Letting the public be part of change helps manage this fear."
Economic	13	"As a long term Forestry estate the key element is to promote Forestry / woodlands, educate the public in the importance of trees and on the value of timber - economics, biodiversity, tree diseases"
Connection with nature (closely linked with mental health and well-being)	6	"pleasure at watching wildlife (deer in the garden ...), relaxation of the quietness."

Benefit	No. citing the benefit	Illustrative quotes
		"Emotional satisfaction and relationship to remote areas and their wildlife"
		"Enjoyment of natural beauty - colours, shape, smells….Light - dappling, shafts, green hues"
Sense of perspective	2	"woodland encourages a long term view, and gives a sense of perspective"

73. In addition the audit has noted the following:

- Areas of accessible woodland according to the Visit Wood dataset are shown in Map 4[41]
- 2 potential community woodlands at Timberscombe (7.5 ha), where interest seems to be waning and Woodcombe (30 ha) where there is considerable progress;
- A significant distance of public rights of way adjoining or passing through woodlands or adjoining woodlands (see Map 5); there are 190 miles of footpaths and a further 181 miles of bridleways within or adjacent to woodlands (both figures are approximate[42]) offering opportunities for both cyclists and riders as well as walkers;
- Waymarked woodland walks at a number of sites including Woody Bay, Tarr Steps, Draper Way, Snowdrop Valley, Watersmeet, Horner Wood and Wimbleball Reservoir, amongst others although there is no one database of woodland walks that we have found or been made aware of;
- Currently a small Walk for Health Programme run by meeting at Dulverton every fortnight led by volunteers under the oversight of Walk4Living West Somerset[43]. Anecdotally these walks can be particularly valued by older, retired individuals including, for example, the recently bereaved[44] when re-establishing their networks which resonates with the National Park's aspiration to support its own communities;
- A number of woodland based events, both large and small, hosted by the National Park Authority and others such as Combe Syndenham Country Park, the Crown Estate, Devon Wildlife Trust and others. These include car rallying (for example the annual Somerset Stages Rally in April hosted by the Forestry Commission[45]), downhill cycling events (hosted by Combe Sydenham Country Park), paintballing and cycle hire provision and a

[41] Accessible woodland dataset was provided by the Woodland Trust. It should be noted that there may be some errors within this (noted by one participant).
[42] The GIS analysis assessed PROW within woodlands or within a 30m buffer of woodlands.
[43] http://www.walkingforhealth.org.uk/walkfinder/south-west/walk-4-living-west-somerset-0
[44] Amanda Godsell, Walk4Living pers. comm..
[45] http://www.somersetstagesrally.com/

number of guided walks and private permissive arrangements such as sled dog racing etc.;

- A number of tourism sites such as camping and caravan sites that have woodlands as part of their site or close by but that was outside the practical scope of this study;
- There are 4 providers of forest education in and around Exmoor at present and 6 providers of outdoor play / educational activities;
- There was also a willingness on the part of some woodland owners to extend this provision within their own woodlands to local schools (e.g. National Trust and Badgeworthy Land Company);
- Some educational material relating to woodland in the Moorland Classroom around the Simonsbath site and within the Exmoor Curriculum;
- A number of bespoke cycle trails which are again not collected in any single database as far as the study team are aware but include those on Forestry Commission managed land, Wimbleball Lake (South West Lakes Trust), Nutcombe Bottom (Crown Estate) and the National Sustrans route. In addition the regional cycling web portal 1SW[46], which seeks to note and grade cycle trails against recognised benchmarks, notes the following:

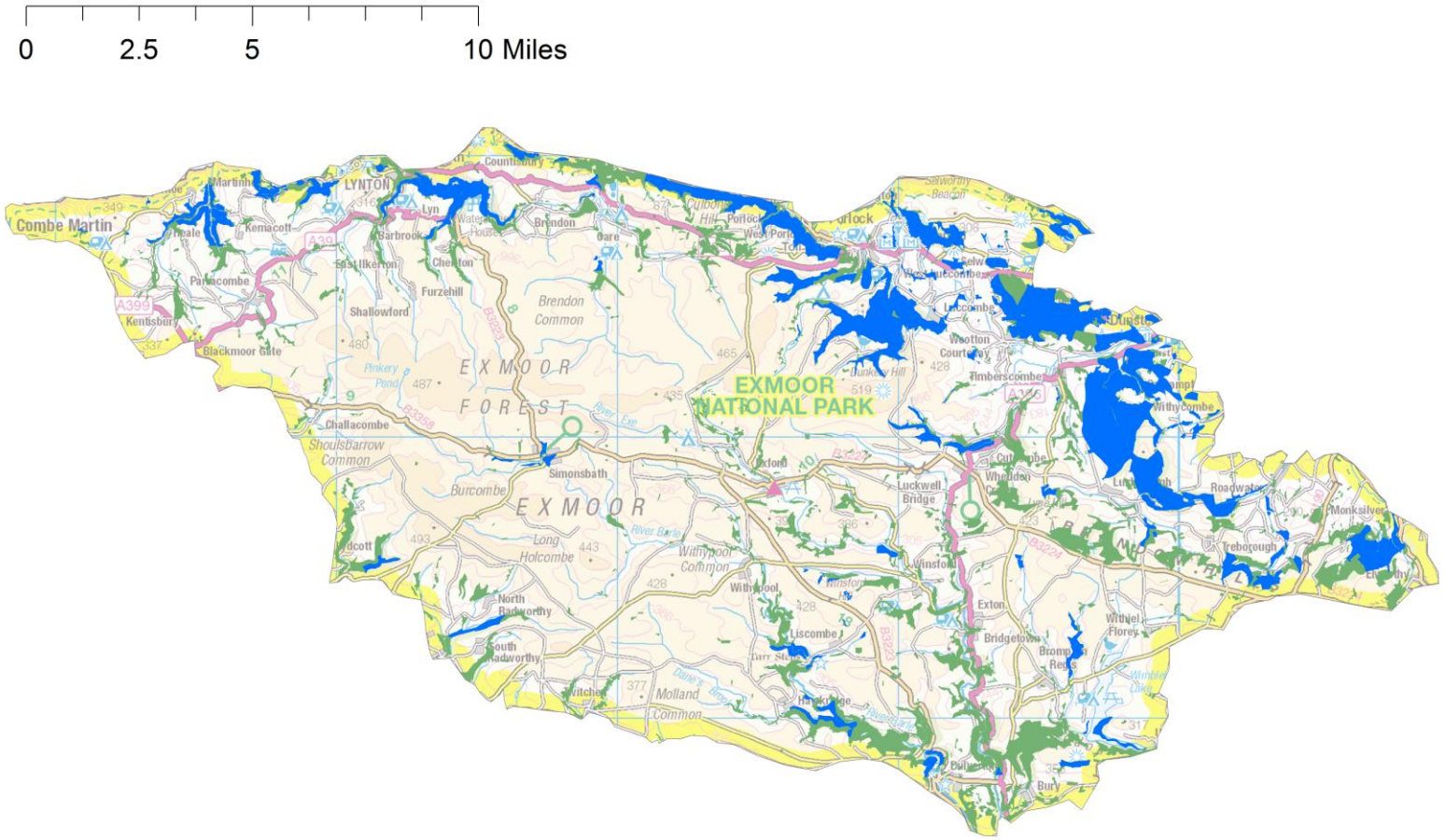
  "With 350 miles of bridleways and cycle-legal tracks, why not explore Exmoor National Park by bike?"

  Trails in Exmoor National Park:33 Green trails, 176 Blue trails, 431 Red trails and 75 Black trails"

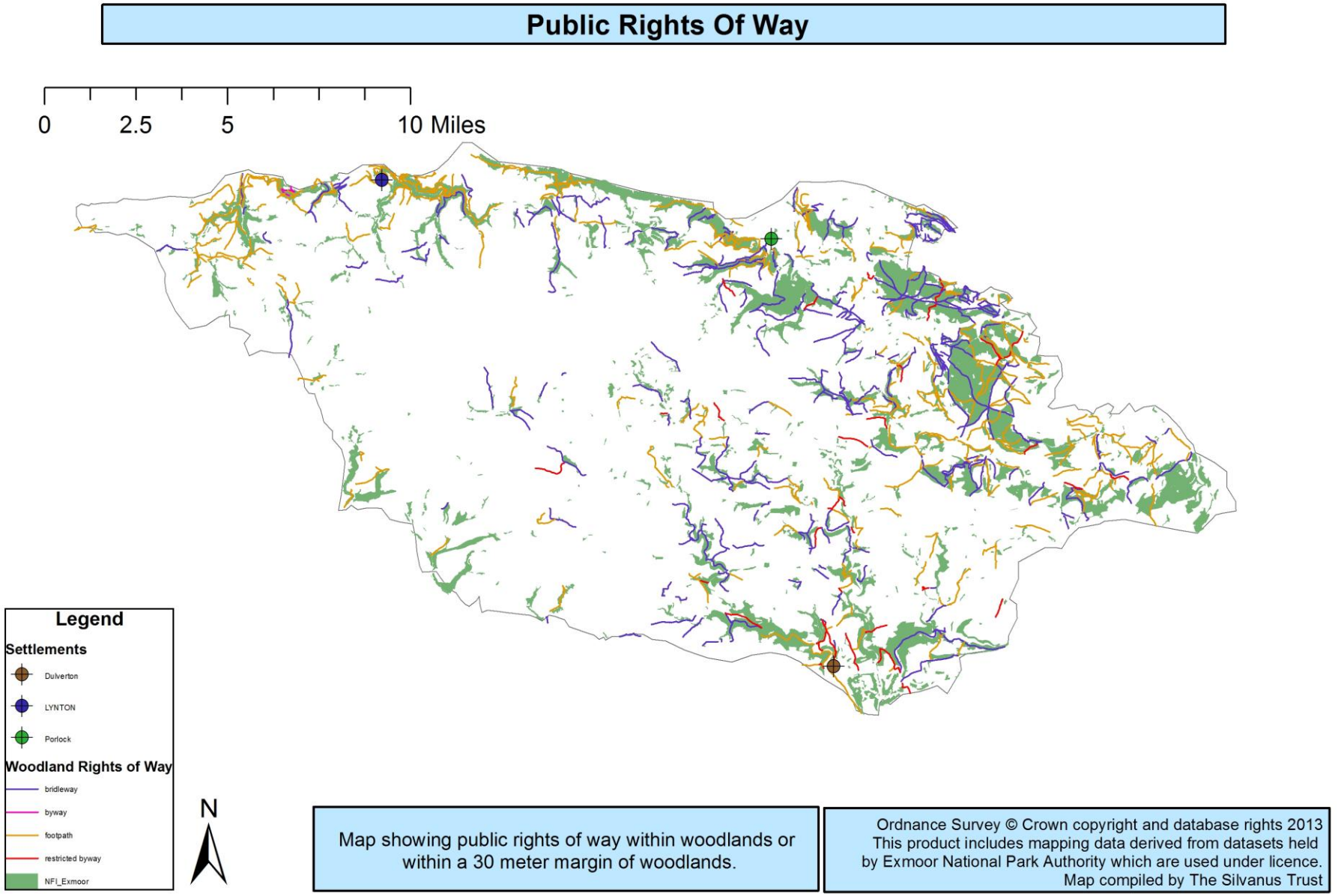
[46] http://map.1sw.org.uk/#!/landscape/19

Map 4:

Publicly Accessible Woodland



Map 5:


Public Rights Of Way
0
2.5
5
10 Miles
Legend
Settlements
Dulverton
LYNTON
Porlock
Woodland Rights of Way
bridleway
byway
footpath
restricted byway
NFI_Exmoor
N
Map showing public rights of way within woodlands or within a 30 meter margin of woodlands.
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Map compiled by The Silvanus Trust

7.2 Potential further delivery

74. Whilst the current policy climate supports active community engagement in woodland management there does not appear to be a strong appetite for this in Exmoor at this time (indicated by experience of the National Park Authority at Timberscombe and feedback from the stakeholder event). This may reflect the areas of existing accessible woodland and some engagement of local communities through woodland planning exercises. This does not mean that there will not be future opportunities to extend community engagement further. However, it is not recommended that energies are put into community woodland development *per se* not least because if some of the other 'people orientated' and cultural services recommendations are developed to support the wider woodland culture of Exmoor then these may well stimulate further interest.

7.3 Education

75. The benefits to children of spending time in the natural environment is widely evidenced and strongly embedded into policy. The Natural Environment White Paper for example notes:

"There is a wide range of evidence showing that contact with nature enhances children's education, personal and social skills, health and wellbeing, leading to the development of responsible citizens. However, research also shows that the connections between young people and nature are weaker now than in the past. Children are becoming disconnected from the natural environment. They are spending less and less time outdoors", and

"Schools should be able to teach outdoors when they wish to do so"

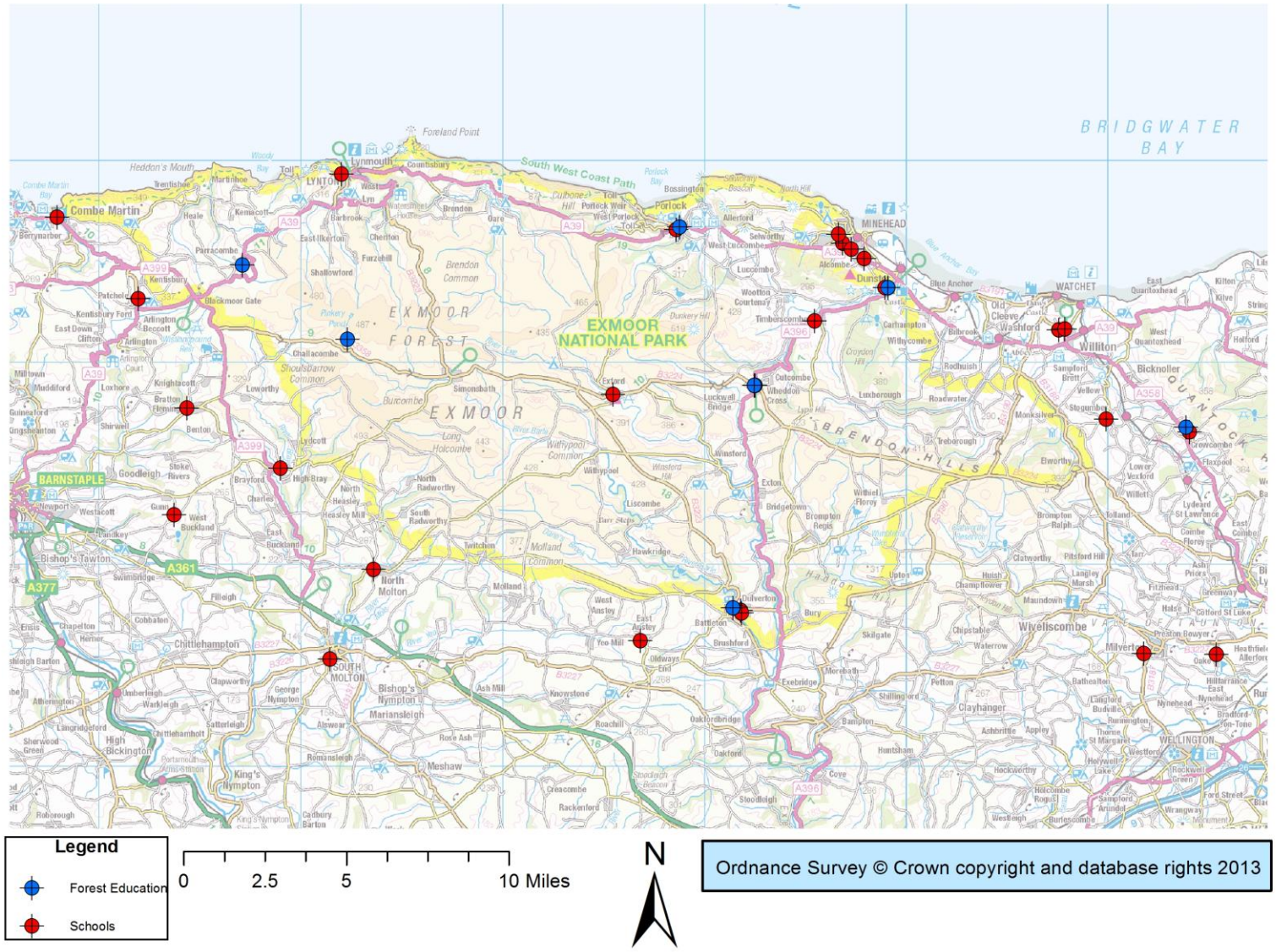
This is reiterated in the Government's Policy statement on forestry and woodlands.

76. There is some education provision that relates to the woodland including through existing forest schools and the Moorland Classroom. However, there is no single database of providers and resources and if one were developed it would enable further potential to be achieved. Such records exist within other networks such as the Devon Forest Education Network, or the England wide Forest Education Network and other former Forest Education Initiative Cluster groups including the Blackdowns, Central Somerset Outdoor Learning Partnership (Wilder Woods).

77. It could be argued that the theoretical potential for educational opportunities is the gap between the current provision and its extension to all schools within and around Exmoor who would welcome it i.e. the potential demand (see Map 6).

Map 6:

Distribution of schools and forest education provision in and around Exmoor



78. There may also be opportunities to expand the woodland elements of the Moorland Classroom[47] and Exmoor Curriculum[48] to complement the excellent material that already exists and a greater opportunity for learning in woodlands and exposure of children to the 'cultural ecosystem services' noted in the earlier sections and the everyday and special woodlands and trees of Exmoor (including endemic Whitebeam and veteran trees). As a *de minimus* this could be achieved by simply linking to some of the national resources such as Forests for the Future[49] so that teachers can be linked to relevant woodland resources. Furthermore, an early action would be to ensure all the forest education practitioners, or Learning Outside the Classroom trained school staff are familiar with these resources and opportunities for site based activities.

79. The Natural Connections Pilot, led by Plymouth University, and arising directly from the Environment White Paper could provide a model for further extension of educational services within Exmoor; for example through recruitment of volunteers who can offer educational services to complement those that can be paid for. Educational activities relating to woodland should be seen in their broadest sense i.e. to incorporate human use of woodlands, economic benefits and business opportunities and the cultural history of woodland, the literary inspiration they provide, just as much as the natural environment elements.

80. Increasing the awareness amongst those of school age in relation to future opportunities for businesses in the National Park may assist the Park in slowing the significant decline that the Park has seen over the last full census period (2001 to 2011) in key working age groups: age groups 30 to 44 reducing by 36.3%, and ages 40-59% by 4.6%. It was noted by one of the online respondents that there was a direct link between the lack of affordable housing for locals with the lack of a local contractor base (a case for an imaginative approach to key workers perhaps?). Others also raised the benefits of local contractors with local knowledge of both the area's woodlands and opportunities. Another suggestion was that a very practical element be introduced into the Moorland Classroom teaching woodland skills or where a piece of furniture could be created from local material.

81. There is also an opportunity to raise awareness and understanding more widely of good woodland management beyond our educational institutions: why it is needed, what is involved - including the extensive planning- and what the benefits are to both man and the natural world. This proved an important message from the stakeholder event and would build positively on the wider public concerns that have been expressed in recent months. Similarly it may be appropriate to consider regular features within the Exmoor Review from woodland owners, workers, furniture makers etc., to raise the general awareness of opportunities.

Recommendation 5: Greater educational opportunity and material should be made available to children in and around Exmoor National Park in partnership, building upon current activities and exploring offers of educational access to other woodlands.

[47] http://www.exmoor-nationalpark.gov.uk/learning/the-moorland-classroom
[48] http://www.dulvertonmiddleschool.co.uk/curriculum.asp
[49] http://www.forestsforthefuture.co.uk/

Recommendation 6: The benefits of increased co-ordination of educational activity and provision should be explored with a view to developing a co-ordinated programme and seeking resources to address key obstacles and opportunities (particularly where linked to other recommendations).

Recommendation 7: Increase the interpretation of woodland management generically

82. Indicative actions may include:

- Linking woodland educational opportunities from ENPA websites, the Moorland Classroom and other partners' websites
- The placing of temporary boards at woodland management sites that explain the management that is taking place, the context (eg UKFS), the planning and the outcomes being sought.

7.4 Health

83. As with education there is a strong evidence base of the benefits of regular experience in the natural environment for mental and physical health (eg National Ecosystem Assessment). The current changes within the health system offer a number of potential opportunities. Notably the passing of responsibilities for public health to the Local Authorities and specifically the new Public Health Outcomes Framework[50] which includes indicators that can be fulfilled and expanded in woodlands and are provided currently to some extent in Exmoor, notably:

- Utilisation of green space for exercise/health reasons
- Fuel poverty
- Social connectedness (detailed indicators yet to be developed)
- Proportion of physically active and inactive adults

The resonance with the activities being provided in Exmoor's woodlands is clear.

84. Similarly the move to local Clinical Commissioning Groups from April 2013 may result in greater interest in locally provided services such as health walks and other woodland activities found to be beneficial in supporting the treatment of mental health issues, lack of physical activity and obesity[51]. The Patient Participation Groups increasingly being established in practices in and around Exmoor could for example extend the health walk provision through volunteer walk leaders, utilising appropriate walks within the woodlands of Exmoor and working with and building upon the existing practitioners.

85. There are indicators being developed for well-being and social cohesiveness under the Good from Woods Project[52] which is capturing the way in

[50] Department of Health, (May 2013)
[51] Good from Woods Research Project: http://www.silvanustrust.org.uk/index.php?page=good-from-woods
[52] http://goodfromwoods.wordpress.com/about/

which people are benefiting individually and collectively from woodland activities in the south west. The indicators being developed will be linked to the NHS ones and may prove a useful framework for thinking as the potential in Exmoor is considered. They are set out in Annex 6.

Recommendation 8: Explore partnership around woodlands and health with existing practitioners, health professionals (especially GPs), local authorities, and woodland owners and managers, building upon existing good practice and reflecting altered policy and delivery contexts and developing indicators.

86. Indicative Actions may include:

- Building on the work of existing health walks and extending provision over time in partnership with local GPs and through existing waymarked walks and owners willing to extend provision.

7.5 Access and Recreation

87. There are a number of key tourism sites within the Exmoor National Park that are associated with woodlands including: the Crown Estate at Nutcombe Bottom including the Tall Trees Trail and cycle trails extending onto the Forest Enterprise managed land, the High Ropes and cycle trail at Wimbleball Lake (part of the 1SW network) and the reservoir's wider setting, Tarr Steps and the woodland walks, the National Trust properties of Watersmeet and Holnicote including woodland walks, and the walks at Combe Sydenham Country Park. There are many other activities that take place including husky racing, horse riding, walking, four wheel drive safaris, riding, cycling, running etc.. The answers to the online questionnaire are noted in Annex 3.

88. There are also a number of woodland sites where major one-off or annual events are held including mountain biking competitions such as the Downhill Series races held at Combe Syndenham Country Park in April 2013 and the annual Somerset Stages Car Rally. These draw people from a wider area and, as with the woodlands in which highly successful commercial shoots are run, provide significant economic spin offs for the local area. In the case of the latter a study, undertaken by the National Park Authority and Greater Exmoor Shoots Association in 2011[53], offered clear evidence of the economic benefits to the woodland owner and local economy of shooting.

89. In addition there are a number of play days, adventure days and led walks that take place in the woodlands.

90. The Exmoor Tourism Partnership notes in their Strategic Action Plan the growing interest in shorter breaks that are associated with outdoor activities. This also reflects a trend in visitor responses to what the primary attractors are of visits to Exmoor reported in this Strategic Action Plan: in 2005 59% of respondents noted outdoor activities as a primary attractor and in 2010 this had

[53] PACEC, The Role of Game Shooting in Exmoor Final Report, 2011

risen to 69%[54]. The plan also notes that the tourism potential of Exmoor could be better developed and that there:

"is a huge growing interest in green tourism and Exmoor is ideally placed to take advantage of this by demonstrating and marketing its sustainable tourism opportunities and track record."

91. Woodland based activities could play an increasing role in this development but key to this would be sharing of information and project plans at as early a stage as is possible and the importance of co-ordination of effort and marketing; some concern, for example, was raised during the study period as to the risk of not providing facilities in a strategic manner e.g. how many high ropes courses can be supported economically? Similarly there are likely to be opportunities to mutually promote the Exmoor tourism offer that relates to woodlands as part of a wider outdoor adventure package or outdoor experience with woodland camping, survival skills etc.. Exploration of this area of potential would require more work but would be worthy of the effort as part of a wider woodland programme.

Recommendation 9: Explore the opportunity to develop an increased woodland-based recreation offer and the benefits of co-ordinated development including the co-ordinated branding or marketing of facilities.

Indicative actions might include:

- Completing the audit and maintain database
- Highlighting the woodland offers through existing portals such as Visit Exmoor[55] and Active Exmoor[56]
- Exploring opportunities for branding woodland events collectively or in a co-ordinated manner to increase uptake.
- Through discussion, exploring what further opportunities there might be for tourism developments (links here to cultural opportunities).

[54] Exmoor Tourism Partnership, Exmoor Strategic Action Plan for Sustainable Tourism 2013-2018, December 2012
[55] http://www.visit-exmoor.co.uk/home
[56] http://www.activeexmoor.com/home

Woodlands for recreation, health and education[57]

[57] All photographs: ©Exmoor National Park Authority.

Exmoor's woodlands: Good for Nature

8.1 Current Status

92. As has been noted previously, the woodlands of Exmoor are significant contributors to the ecology of Exmoor and represent some of the most biologically diverse terrestrial habitats which, when in good condition, support a significant range of important species; for example, many of the 17 bat species, the endemic red deer, bryophytes (i.e. mosses, liverworts and hornworts), lichens, dormice.

93. The woodlands of Exmoor have been identified as particularly important for priority upland woodland bird species: redstart, pied flycatcher, wood warbler and tree pipit as can be seen from Map 7[58]. These values reflect in part the continual dynamic between man and nature including past woodland management such as coppicing cycles for iron smelting and tanning with the cycle of cutting providing good scrub nesting opportunities and habitats for fritillary butterflies.

94. Commercially managed woodlands also contribute notable ecological value for example important groups of species depend on young stages of growth such as nightjar, woodlark, tree pipit, whinchat, grasshopper warbler and lesser redpoll; more mature stands offer nesting sites for goshawk.

95. Much of the woodland also stands out on a national and in some instances international stage and is designated as such either as a Site of Special Scientific Interest and/or as a Special Conservation Area (the Exmoor and Quantock Oakwoods) and there are three National Nature Reserves designated in the Park at Horner, Hawkcombe and Tarr Steps Woods; Map 2 highlights the designated woodlands and the woodland County Wildlife sites are noted in Map 8.

[58] Helen Booker, Senior Conservation Officer, RSPB. Data is drawn from the Repeat Woodland Bird Survey (RWBS) undertaken in 2002/3

Exmoor's National Nature Reserves and rare species[59]

Diverse habitats at Hawkcombe Woods National Nature Reserve near Porlock

Horner Woods National Nature Reserve contains a large number of ancient trees

National Nature Reserve around the ancient monument of Tarr Steps

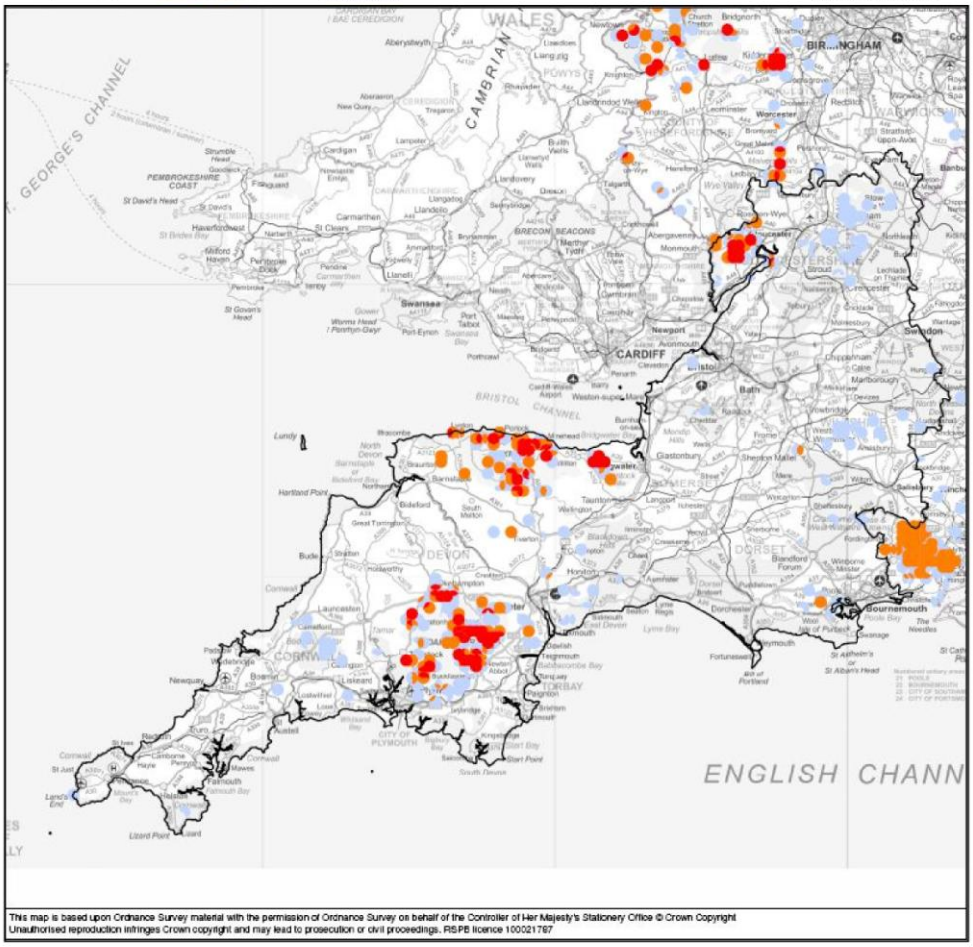
Usnea lichen thriving in Exmoor's excellent quality air

The Silver Washed Fritilary, a specialist woodland butterfly found in Exmoor's ancient woodlands

[59] All photographs: ©Exmoor National Park Authority.

Map 7:

Woodland Assemblage, South West target areas for redstart, pied flycatcher, wood warbler and tree pipit



Number of species present 2003-2007*
- 4 species
- 3 species
- 2 species

* Includes some 2008 data

Boundaries
- UK and Ireland
- South West England
- Government Office Regions

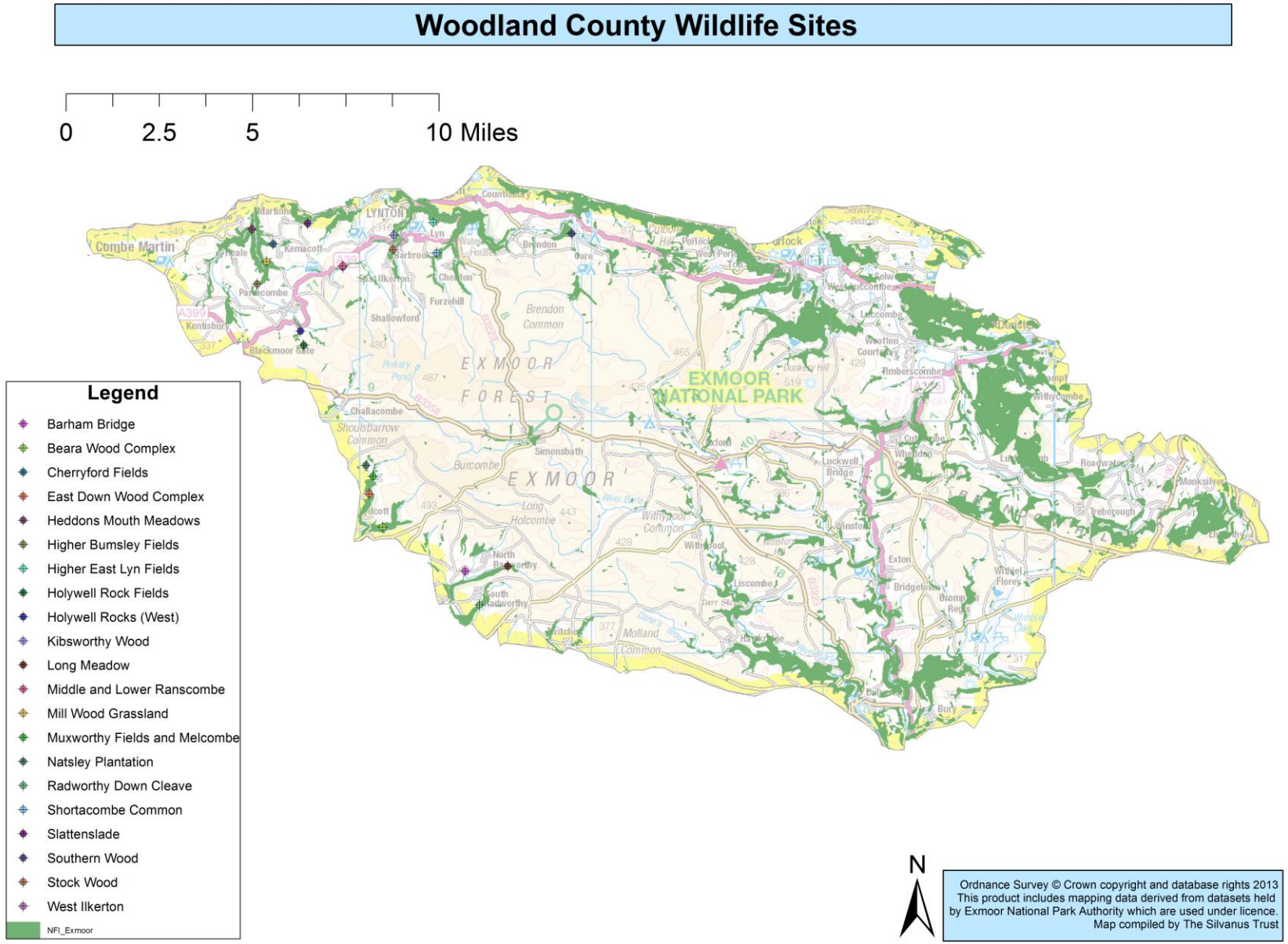
N

0 30 60
Km

The Bird Conservation Targeting Project partners would like to thank all those who have contributed data towards this project especially bird clubs and county recorders. For a full list of contributors, log on to www.rspb.org.uk/targeting

The Bird Conservation Targeting Project is supported by a partnership between the British Trust for Ornithology (BTO), the Centre for Environmental Data and Recording (CEDaR), the Countryside Council for Wales (CCW), the Department of Agriculture and Rural Development (DARD), Forestry Commission England (FCE), Forestry Commission Wales (FCW), Forest Service (FS), Natural England (NE), the Northern Ireland Environment Agency (NIEA), the RSPB and Scottish Natural Heritage (SNH)

Map 8:


Woodland County Wildlife Sites
0
2.5
5
10 Miles
Legend
Barham Bridge
Beara Wood Complex
Cherryford Fields
East Down Wood Complex
Heddons Mouth Meadows
Higher Bumsley Fields
Higher East Lyn Fields
Holywell Rock Fields
Holywell Rocks (West)
Kibsworthy Wood
Long Meadow
Middle and Lower Ranscombe
Mill Wood Grassland
Muxworthy Fields and Melcombe
Natsley Plantation
Radworthy Down Cleave
Shortacombe Common
Slattenslade
Southern Wood
Stock Wood
West Ilkerton
NFI_Exmoor
EXMOOR NATIONAL PARK
EXMOOR FOREST
EXMOOR
N
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Map compiled by The Silvanus Trust

8.2 Ancient semi-natural woodland

96. Ancient woodland in England is defined as an area that has been wooded continuously since at least 1600 AD. Ancient woodland can be subdivided into 'ancient semi-natural woodlands' (ASNW) and 'plantations on ancient woodland sites' (PAWS). The latter are areas of ancient woodland where the former native tree cover has been replaced by planted stock and often of a species not native to the site. Within Exmoor National Park there are approximately 3,350 ha of ancient woodland of which 2,004 ha is ASNW and 1,346 ha is PAWS. This represents one third of all woodlands in Exmoor and importantly they are often at a landscape scale such as at Horner wood and the Barle Valley woodlands.

97. ASNW is a scare resource nationally and whilst much changed, are the woodlands that most closely reflect the ancient 'wildwood' that pre-dated significant human intervention.

98. Whilst the focus here is on the nature value of these woodlands, and the veteran trees often found within them, it would be remiss not to capture their historical and cultural value. This was captured in the government's policy statement on Ancient Woodland, Keepers of Time[60]

"England's ancient woodlands and trees represent a living cultural heritage, a natural equivalent to our great churches and castles. They are also our richest wildlife habitat and are highly valued by people as places of tranquillity and inspiration."

99. The ASNW of Exmoor is significant for its ecological value, frequently recognised through designation, and also because of the scale of some of the woodlands which increases both its inherent value and future resilience. Within the Park there are 1,688 ha of woodlands designated as Special Areas of Conservation. These are highlighted on Map 2.

100. The citation for these woodlands highlights their special qualities and some of the challenges they face:

*"This site supports extensive tracts of **old sessile oak woods** in conjunction with heath. They are rich in bryophytes, ferns (including Dryopteris aemula) and epiphytic lichens, the latter often associated with old pollards, since parts are former wood-pasture rather than the oak coppice that is more common with this type. In the Barle Valley the woods also occur in mosaic with glades and small fields and the combination results in good populations of fritillary butterflies."*[61]

101. The Natura 2000 data form[62] notes the vulnerability of these woodlands as follows:

"Some grazing/browsing is essential to maintain conditions suitable for lower plant assemblages, which are a key feature of the woodlands. However, many woods are grazed by sheep and/or red deer and this can prevent regeneration and change the ground flora. Cases of overgrazing may require action using

[60] Defra Keepers of Time: A Statement of Policy for England's Ancient and Native Woodland, 2005 http://www.forestry.gov.uk/pdf/anw-policy.pdf/$FILE/anw-policy.pdf
[61] http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?EUcode=UK0030148
[62] http://jncc.defra.gov.uk/protectedsites/sacselection/n2kforms/UK0030148.pdf

environmental conditions of livestock subsidy schemes. Invasive non-native species are a problem in some woods, particularly Rhododendron and Japanese knotweed. These species are being eliminated by conservation bodies or management agreements. Beech is also a problem, as it is replacing oak in places and does not support such a diverse or specialist wildlife on Exmoor as oak.

Dense monocultures of coppiced oak occur, of little structural or species diversity. Although minimum intervention is mostly desirable, opportunities are being taken to diversify age and species composition to restore near-natural conditions where possible."

102. The above citation on vulnerability captures many of the issues that can cause a reduction in the nature value and the consequent reduction in ecosystem services of many woodlands on Exmoor, namely: overgrazing or uncontrolled browsing, lack of structural diversity, increasing incidence of other species that impact on the ecological balance and require careful management and monocultures.

103. Wider woodland management can often be understood in negative terms and misunderstood and even be seen as a threat to woodland. Many are unaware of the levels of guidance, planning and regulation that goes into the process of management.[63] The lack of appropriate management is often the real, but slow, threat for example where thinning is considerably delayed on PAWS sites or structural diversity not encouraged following the loss of an industry such as the tanning industry or, more widely, insufficient structural diversity within commercial conifer plantations to support nightjar populations.

104. Addressing the reasons for under management generically combined with appropriate management on a site by site basis will ensure that the 'nature benefits' of woodlands are maintained.

8.3 Plantations on Ancient Woodland Sites

105. Plantations on Ancient Woodland Sites as a subset of the ancient woodland category are important as they frequently contain ecological characteristics of ancient semi-natural woodland. They therefore represent a potential ecological opportunity through careful and gradual management to increase the native elements and ancient woodland features and characteristics of those woodlands where the woodland owners are willing and able to do so. There are a number of grant opportunities which support such work and frequently the 'light touch' approach advocated in the Keepers of Time policy can be accommodated within woodland operations.

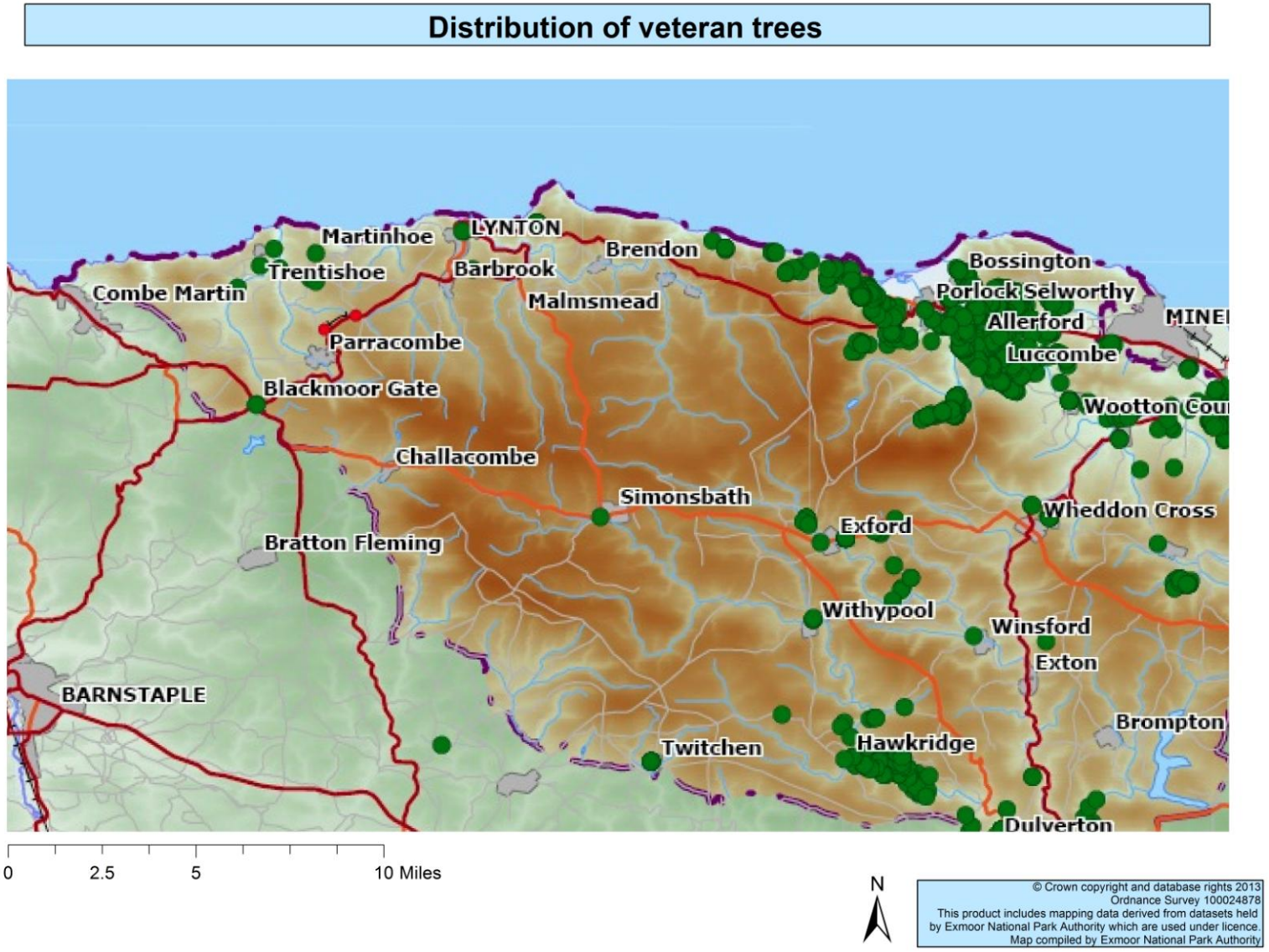
8.4 Veteran trees

Exmoor National Park contains some excellent examples of veteran trees. The recording of ancient and veteran trees has increased over recent years and a map of known veteran trees is presented at Map 9. The importance of veteran trees spans both the ecological and cultural / historical spheres and their

[63] The UK Forestry and accompanying guidelines (http://www.forestry.gov.uk/ukfs) have to be complied with for felling licences or woodland and other woodland related grants (including Higher Level Stewardship grants) to be issued.

appropriate management and the recruitment of potential new veterans should be actively encouraged.

Map 9:


Distribution of veteran trees
Martinhoe
LYNTON
Brendon
Trentishoe
Barbrook
Bossington
Combe Martin
Malmsmead
Porlock
Selworthy
Allerford
Parracombe
Luccombe
Blackmoor Gate
Challacombe
Simonsbath
Wheddon Cross
Exford
Bratton Fleming
Withypool
Winsford
Exton
BARNSTAPLE
Brompton
Twitchen
Hawkridge
Dulverton
0
2.5
5
10 Miles
N
© Crown copyright and database rights 2013
Ordnance Survey 100024878
This product includes mapping data derived from datasets held by Exmoor National Park Authority which are used under licence.
Map compiled by Exmoor National Park Authority

8.5 Stakeholder feedback

106. Whilst the stakeholders present on the 13th June were in consensus that the woodlands of Exmoor were generally well protected by designation and statute, lack of management was seen as a significant threat[64] to the nature value of Exmoor's woodlands. Other threats noted at the event included:

- the presence of wild boar in some of the woodlands to the south of the Park, including the Barle valley;
- impact of grazing by stock reducing the ground flora interest;
- lack of access (ie tracks and loading bays) to facilitate management;
- management needing to be economically viable to happen;
- continued negative impact of grey squirrels, and;
- disease threats.

107. The positive changes in woodlands resulting from the increased removal and management of *Rhododendron ponticum* was noted by many.

108. The management of deer was recognised as being important and necessary to ensure it is not reaching damaging levels; it was also noted how ground flora improved when deer were moved on from woodlands. In wider discussions the subject of deer management has been one in which there are diverging views. Some note that the management of deer is adequate whilst others note the need for better co-ordination of management to ensure that vulnerable sites are protected and more proactively managed. There are organised counts of deer undertaken annually in many areas of the National Park for example by the Exmoor and District Deer Management Society whilst the Crown Estate noted their intention to move from setting an historic cull level to an approach focussing on the monitoring of impact from which cull levels can be set.

109. In 2008/9 the National Park Authority and partners commissioned a piece of work[65] to look specifically at the impacts of deer on the woodland ecology of the upland sessile oak woodlands within the National Park. The study noted that red deer have probably been present in Exmoor's oak woodlands since the end of the last Ice Age and the woodlands have been sustained throughout this period. However the study also notes that:

"numbers appear to have substantially increased since the beginning of the century, and are now at a level where ecological impact is probably exceeding benefits in some cases."

[64] Interestingly the online survey did not mirror this concern and was far more ambivalent about the potential threat of over or under management.

[65] Boyce, Exmoor National Park Deer Study, commissioned by ENPA, NE and in consultation with Exmoor and District Deer Management Society, the Forestry Commission and the Deer Initiative. "An assessment of Deer Impact and other Aspects of Ecological Condition in Exmoor's Upland Oak Woods, 2008-2009", 2009.

110. This study noted high deer impact scores on a number of the woodlands studied with a notable exception being the woodlands around Cuddycleave Wood (Woody Bay) and Tarr Steps; at the latter an interesting gradient of browsing pressure was observed from lower levels where levels of public access were highest and where the woodland structure included seedlings and saplings of oak, ash and hazel as well as banks of bramble whilst further upslope away from the public access the signs of deer activity increased 'very rapidly' and there were no seedlings observed other than beech and holly and only very limited bramble. The simplification of woodland structure that this study observed needs to be carefully considered alongside the recommendations for preparing for climatic change noted in the section on Climate Change.

111. It is important to note that a detailed consideration of deer (and other species impacting on woodlands) is outside the scope of this report. However, our findings suggest that the proactive management of deer is important and will remain so and ensuring that its impact, alongside the impact of other species including grey squirrels and invasive plant species, is monitored carefully and their collective management co-ordinated (as in some cases it is) to ensure greatest efficacy.

112. There was a strong consensus from stakeholders at the event of the 13th June that grey squirrels were very damaging and required more control as well as greater national leadership in the form of stronger policy and research from Government.

113. Within the stakeholder meeting there was an understanding that climate change would mean changes to the woodlands but that lack of precision in those predictions suggested a precautionary approach to make the woodlands more diverse and that use of a wider palette of species was appropriate, provided suitable stock can be sourced safely (the experience of *Chalara fraxinea* was referenced).

8.6 Future potential

114. The importance of the ancient woodland habitats is strongly reiterated in many policies from the Natural Environment White Paper and Biodiversity 2020[66] to the National Planning Policy Framework and the policies that support them have been reiterated in the recent Government response to the Independent Forestry Panel. The high conservation value of Exmoor's woodlands – particularly designated but also undesignated - and including some of the mature predominantly conifer forest - makes retaining the current 'nature value' the starting point. In order to do that well-informed management and monitoring (e.g. in relation to grazing and browsing levels) should continue and be extended to those woodlands currently unmanaged. This management should be interpreted to the general public and visitors alike.

115. A more detailed assessment than is possible in this study would be required but it may be helpful for Exmoor to ask whether it would also be reasonable to aspire to the Government's vision of 80% of the woodlands coming into management through further market development. This would mean a further 1,300 ha of Exmoor's woodlands coming into management. In reality,

[66] Defra Biodiversity 2020:A strategy for England's wildlife and ecosystem services 2011

some woodlands will not fit a formal management plan but the more woodland owners and managers who make conscious and informed choices about their woodlands and who feel able to act upon them when appropriate the better. Thus, an aspiration to increase the extent of woodland management is appropriate.

116. There are a number of areas of further future potential within Exmoor. Using the priorities of "Protect, Improve and Expand" these include:

Protect:

- Continued protection of ASNW and veteran trees from development;
- Continued identification of veteran trees, their appropriate management and identification of potential future veterans;
- Extension of sustainable management generically;
- Improved awareness of threats to these habitats:
    - Addressing the threat of climate change, for example through allowing the gradual expansion of some of the Atlantic Oakwoods 'up the hill' to allow them the same climatic envelope and ensure their quality for longer. It is noted that it is occurring naturally anyway in some areas as livestock numbers have reduced;
    - Identify incised wooded valley 'refugia' for these woodlands where the climatic conditions are likely to continue for a longer period;
    - Greater awareness of disease risks (including their consequential risks) such as *Phytophthora ramorum* and *kernoviae* and threat to *Vaccinium myrtillus* (bilberry) currently present and other diseases such as Acute Oak Decline and *Chalara fraxinea*. It is important that the associated disease pathways are understood to ensure avoidance of accidental importation (for example through ensuring contractors use exceptionally good biosecurity when moving from an acute oak decline area);
    - Continued monitoring of grazing and browsing pressures and the consequent appropriate management of stock and deer;
    - Consideration of more intensive grey squirrel management to reduce impacts in woodlands;
    - Monitor impacts of wild boar in the south of the Park.

Improve:

- The continued gradual and strategic restoration of PAWS sites (see projects below) within the existing ecological networks;
- Increasing structural and genetic diversity within conservation woodlands to improve habitats;
- Continue programmes to remove invasive species such as *Rhododendron ponticum;*

Expand:

- The increased connectivity of ancient woodlands in the landscape (through both woodland creation and wider sympathetic habitat management);

Recommendation 10: Continue to protect woodlands, especially ASNW e.g. through planning and raising general awareness of their value.

Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity.

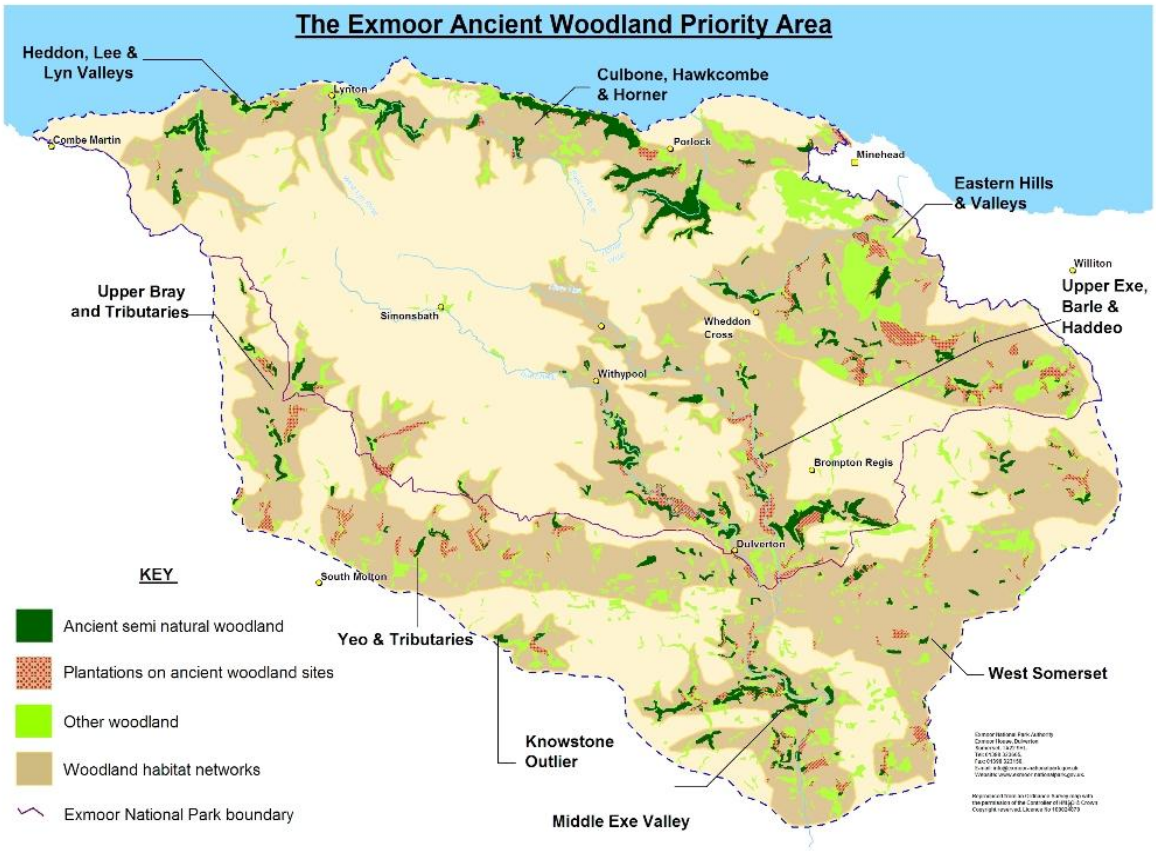
Recommendation 12: Address the causes of under-management of woodland in Exmoor to ensure continued or improved delivery of ecosystems services including biodiversity.

Recommendation 13: Continue the gradual restoration of PAWS whilst respecting and maintaining the productive potential of the woodland resource.

117. Exmoor is already approaching the management of these special habitats with an appropriate landscape ecology bias; most notably through the Ancient Woodland Priority Area partnership (now ended) with the Forestry Commission and others[67] which sought to prioritise woodland creation to reinforce these landscape corridors and management which was sympathetic to restoration principles in PAWS (see Map 10 below). During the partnership landowners were offered a premium package of Forestry Commission woodland grants as well as free help and advice to help target areas for improvement.

[67] Other partners included Natural England, Deer Initiative and the Woodland Trust.

8.7 Map 10: Ancient Woodland Priority Area



118. The PAWS work of this partnership is now being taken forward by the Woodland Trust and partners in their Ancient Woodland Restoration Project for which funding has just been confirmed[68]. This project will place a full time project officer with the National Park woodland team to work in the area and engage with the relevant owners and drawing information from volunteer assessors. This is a very welcome resource for realising the nature potential of these woodlands and therefore for unlocking the woodland potential of Exmoor's woodlands and should be considered a key element of any wider programme.

[68] James Mason, Woodland Trust, pers. comms.

Exmoor's Woodlands: Good for the Economy

119. There is little data for the woodland economy for Exmoor *per se* and so we are reliant on drawing upon data that can be extrapolated, wider relevant data and the significant experience and knowledge of those interviewed or who attended the stakeholder event.

9.1 Current Situation

120. There are a several points about the **wider economy of Exmoor** that are of relevance to this study which are summarised in the following paragraphs.

121. There is a high proportion of businesses (39%) and high proportion of employment (25.6%) in agriculture, forestry and fishing within Exmoor. This is higher than the figures for all National Parks (24% and 9.6% respectively) and significantly higher than the figures for England's businesses in the sector (5%) and the UK's employment figures (0.9%)[69]. Whilst the majority of these are going to be in agriculture it is still pertinent to this study.

122. Tourism is also a significant element in Exmoor's economy; for example accommodation and food services represent 14% of the businesses, in comparison to 9% for all national parks and 6% for England as a whole. Figures for the Greater Exmoor area are given in the Exmoor Strategic Action Plan for Sustainable Tourism 2013-2018[70]. The contributions that woodlands make to this sector has not, to our knowledge, been specifically measured within Exmoor but there have been studies undertaken at the South West Regional level which noted significant sums attributable to woodlands and woodland based activities, for example the Strategic Economic Study of South West England Woodland and Forestry (2009)[71].

123. Similarly the value of shooting activity in the woodlands of Greater Exmoor is of significant value with a recent study[72] noting that £4million, as measured by Gross Value Added, is retained in the Exmoor area.

124. Average gross household income levels are relatively low at £28,668 and Exmoor imports heat. The majority of householders are off the gas grid and are generating their heat through LPG or heating oil. Both are more expensive than grid gas and alternatives and have a higher carbon footprint. It is anticipated that the costs of these 'imported' fuel types will remain high or even increase further.

125. The current situation in terms of **the woodland economy** in Exmoor is summarised in the following paragraphs.

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[69] Cumulus et al *ibid..*
[70] www.exmoortourismpartnership.org.uk
[71] Ekogen, Lockhard Garratt and Prof. Colin Price, Bangor University, "Strategic Economic Study of South West England Woodland and Forestry, 2009 http://www.silvanustrust.org.uk/index.php?page=resources-and-publications
[72] PACEC, The Role of Game Shooting in Exmoor, 2012 on behalf of the National Park Authority and in association with the Greater Exmoor Shoots Association and other partners.

126. Many woodlands are being managed economically (albeit, frequently with grants) but many of the economic benefits of woodland management are not accrued by the owners but by other businesses (e.g. accommodation providers). Woodlands used for shooting are amongst the most profitable woodlands within Exmoor and the woodland owners do receive income directly from this economic activity. The additional economic benefits of shooting to the wider economy is highly significant as noted above.

127. There are numerous woodland businesses within and around Exmoor. Map 11 highlights some of these businesses but it is important to note that it is incomplete. There is not always a clear understanding of what is out there, even amongst woodland practitioners themselves[73].

128. Whilst heat is largely 'imported', the majority of timber felled in Exmoor appears to be 'exported' (e.g. recent or planned operations on the Holnicote estate, Forestry Commission operations at Croydon Hill etc.,). It is important to note there are notable exceptions to this with local timber being felled, processed and used locally for example at Combe Syndenham estate. Haulage prices have mirrored the increases in fuel and will continue to do so making the export of timber by road less viable. A number of respondents and interviewees did note the increasing use of wood on their own properties, as timber or as fuel and the latter trend looks set to increase which may be an impetus for more farm woodland to be managed.

129. The firewood market is improving significantly with increasing prices with figures of £50 plus per tonne at roadside being quoted and likely to extend the area of woodland in which management becomes viable. In addition, the Renewable Heat Incentive (non-domestic) and Exmoor Woodfuel Project are encouraging the development of wood boilers.

Exmoor Woodfuel Project

- The project has so far installed 23 systems and has another 25 in progress due to be commissioned by the end of the project in August 13. Of the 23 commissioned:
- 12 are domestic of which 9 are pellet and 3 are log boilers
- 11 are non-domestic of which 7 are chip, 3 log and 1 pellet

(No pellet boilers are supplied with local pellets).

130. The timber quality within the broadleaved woodlands is generally poor with end uses usually lower value but the advent of advances in lamination and local development, such as the Glulam facility at Buckland near Crediton may mean that higher values may be achievable. Timber quality and growth rates can be high when on the right sites for example the Douglas fir on the Crown Estate, including those that can be seen at and adjoining the Tall Trees Trail,

[73] Feedback from stakeholder event

demonstrate the potential quality of timber production on appropriate soils, as does feedback from other interviewees.

131. The challenge of local timber meeting necessary building regulation requirements (such as stress grading and demonstrable assurance of sustainability[74]) as barriers to local wood use in higher value markets has been recorded. However, there is evidence that the 'usability' of wood has been under-recognised by the market, for example the PhD study focussing on Douglas fir undertaken by Jonathon Bawcombe at the University of Bath "South West Forestry for Future Construction"[75] reported that mechanical properties were being underestimated.

132. A significant challenge to economic management of woodlands is access (capital costs and processes required for basic infrastructure such as tracks and loading bays) and steepness of slope (higher working costs). Grants such as those used for infrastructural improvements have been important to many owners when making such capital investments in their woodlands. Many small woodlands are, in themselves, unattractive to work due to limited returns and would need to be combined with others to minimise additional costs (eg transportation and marketing). There are some examples of local co-operation and co-ordination: for example on a continuing basis between estates.

133. There were a number of stakeholders engaged in woodland management who raised concerns over the European Protected Species (EPS) and perceived risks of prosecution, despite the importance of management to healthy populations of some of the EPS species (e.g. dormice).

134. Niche markets do operate within Exmoor for example in bespoke furniture (eg John Lowday) and locally grown oak flooring (Bernard Dru Oak);

135. Future influences on the woodland economy are likely to include the following:

- continued growth of woodfuel demand further stimulated by the introduction of the domestic RHI, currently programmed for this year but unconfirmed. This will add a further opportunity to manage existing woodlands if other obstacles such as the restrictions of access can be addressed. It may also act as an additional consideration in potential new plantings over time;
- the new Rural Development Programme, the grants provided under it and the mechanisms by which they are delivered, as yet unconfirmed in detail;
- continued policy development such as the development of payment for ecosystems markets and the drive for low carbon new housing, and payment for ecosystems services including potential for woodland planting to alleviate water run off or quality issues.

[74] Exmoor National Park and Rural Housing Project, Helen Asher et al., *Timber Industry and Affordable Housing Research Project : Greater Exmoor Area* (2011)
[75] http://www.silvanustrust.org.uk/index.php?page=bath-phd

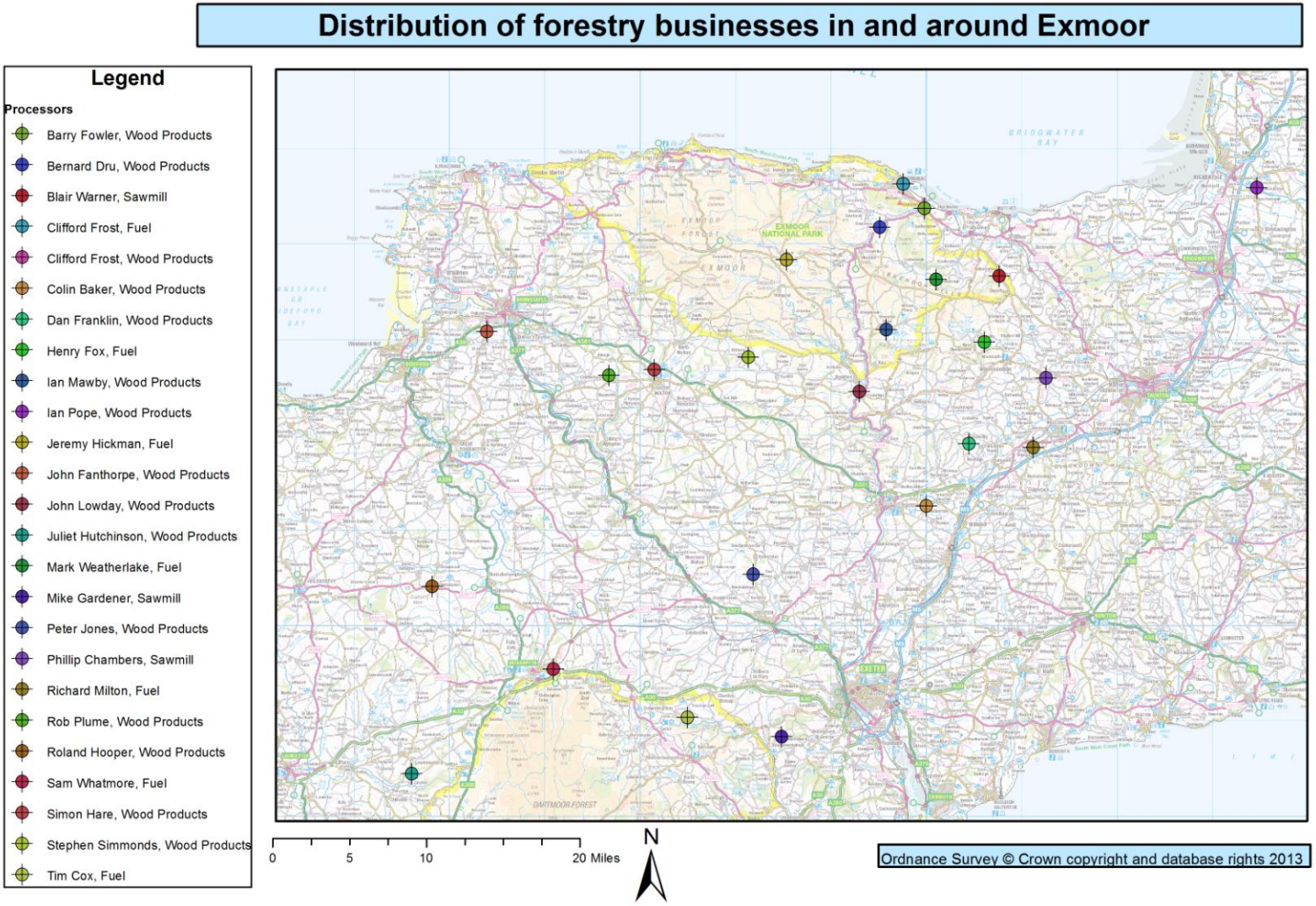
- within new woodland planting, the potential development of the carbon market and wider corporate social responsibility interest in woodland creation and its carbon and wider benefits

Working Woods – stacking timber[76]

Partially-harvested beech hedges[77]

[76] Photograph: ©Exmoor National Park Authority.
[77] Photographs: Laura Jones

Map 11:


Distribution of forestry businesses in and around Exmoor
Legend
Processors
Barry Fowler, Wood Products
Bernard Dru, Wood Products
Blair Warner, Sawmill
Clifford Frost, Fuel
Clifford Frost, Wood Products
Colin Baker, Wood Products
Dan Franklin, Wood Products
Henry Fox, Fuel
Ian Mawby, Wood Products
Ian Pope, Wood Products
Jeremy Hickman, Fuel
John Fanthorpe, Wood Products
John Lowday, Wood Products
Juliet Hutchinson, Wood Products
Mark Weatherlake, Fuel
Mike Gardener, Sawmill
Peter Jones, Wood Products
Phillip Chambers, Sawmill
Richard Milton, Fuel
Rob Plume, Wood Products
Roland Hooper, Wood Products
Sam Whatmore, Fuel
Simon Hare, Wood Products
Stephen Simmonds, Wood Products
Tim Cox, Fuel
0
5
10
20 Miles
N
Ordnance Survey © Crown copyright and database rights 2013

9.2 Developing the future potential

136. Opportunities for wider sector development such as tourism are dealt with in paragraph 122 and sectors such as shooting are beyond the scope of this report but their significant contribution and further potential is noted.

137. The opportunities to further develop the other contribution that woodlands make to the economy can be grouped around the following areas

- improving the resource itself;
- increasing demand and seeking out new opportunities; and
- developing the sector itself.

138. Critical to developing this potential is working with owners and managers to develop the more detailed action planning stages of any future Woodland Programme on Exmoor (see also Next steps).

Recommendation 14: Develop, with partners, an action plan to improve the resource itself

139. A number of opportunities exist for improving the resource. Due to the long term nature of forests and woodlands they can only be considered with climate change scenarios in mind. Opportunities (from which indicative actions might be drawn) include:

- improving silvicultural practice to maximise return from current woodlands and reflecting climate challenge; sharing existing good practice and celebrating recognition for example Combe Sydenham's winning of the Excellence in Forestry award for Multipurpose forestry in 2012;
- where necessary, further co-ordination of deer management to ensure vulnerable woodland areas are protected (eg restocking or regeneration sites), including through fencing;
- improving access to woodlands that are marginally economic in order to make them economic to manage; for example some of the less accessible sites. Under the current Rural Development Programme there have been opportunities to do this under the Woodfuel and other Woodland Improvement Grants. These are not always possible to access and where they are not there may be a case for local funding to enable the potential of woodlands to be realised. It is worth noting that woodland access, created for economic reasons, can often supply safer off road parking such as that on the Combe Sydenham estate where the timber access is also used to access a car park;
- improving management of grey squirrels;
- maintaining the 'productive capacity' of the woodlands for example woodland conversion from PAWS to ASNW should be promoted alongside encouragement of woodland creation with good economic potential;

Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new opportunities

140. Increasing demand for local timber is vital to the development of the woodland potential including:

- promotion of local timber in all its forms from, for example, high quality artist's and "restaurant grade" charcoal such as from the Bulworthy Project near Rackenford,[78] to high quality sawlogs and locally sourced woodfuel. This might include showcasing such material at Exmoor National Park centres or through galleries offering wood products linked to a celebratory programme for the 60th anniversary of Exmoor National Park's designation;

- consideration of the use of a locally badged Grown in Britain[79] badge – for example "Grown in Britain: Exmoor";

- continued promotion of woodfuel installations and particularly those that support local woodlands (i.e. chip and log). A notable opportunity for this has arisen in the current Government interest in woodlands and the discussions that are ongoing[80] between Government and the National Parks in relation to piloting further delivery of the Woodfuel Strategy[81]. Notably, this might include simple access grants;

- promotion of specific opportunities for use of wood within existing businesses through development of further case studies such as those being used for the Carbon Neutral Exmoor project (for example the Exmoor Forest Inn Low Carbon case study of the installation of a wood chip biomass heating system at a rural pub[82]) and /or low key events or articles in existing newsletters and journals (eg NFU newsletters, training events for woodfuel audits on farms etc.) with costs and savings clearly shown and the use of "local voices";

- work with particular projects where there are potential step changes for woodfuel demand, for example owners of larger estates with woodland and houses and where there is a coincidence of ambition eg is there potential to link the woodland resource with the estate cottages at Holnicote to create a local business opportunity, to reduce the carbon footprint and to deliver some of the wider ambitions of the organisation?

- Highlight particular opportunities, for example properties with predominantly unmanaged woodlands or with extensive Beech hedges which may be economically viable to manage for firewood production or

[78] Outside the Park
[79] http://www.growninbritain.org/index.jsp
[80] Noted in the Government's Forestry and Woodland Policy Statement Implementation Plan, July 2013
[81] Woodfuel Implementation Plan: 2011-2014, published 2011.
[82] http://www.exmoor-nationalpark.gov.uk/communities/sustainable-exmoor/sdf-projects/exmoor-forest-inn-low-carbon-case-study

be worked through social enterprise activities such as is the case in some areas on Dartmoor[83];

- increased interpretation of woodland management (noted above) and the products that the material harvested is going to supply to raise awareness of linkages to the public and visitors alike. This will be strengthened if it is done as part of a wider awareness raising and engagement of the community with woodlands making clear more of the 'product narrative' and deepening the Woodland Culture of Exmoor. The interest in local product is one of the stated attractors for visitors to Exmoor in the sustainable tourism action plan and can be utilised for woodland products as for food products;

- increasing awareness of businesses working in woodland and with wood for example by engaging with the South West Regional Directory of Woodland Products and Services[84].

Recommendation 16: Develop, with partners, an action plan that will further develop the sector

141. Further developing the contribution that woodlands make to the economy requires that the sector itself develops, for example by:

- seeking ways to package smaller or lower quality material to make it more economically viable; for example consider holding annual woodfuel / firewood auctions where owners can offer their smaller woodland areas and / or mature beech hedges for thinning to allow sufficient volume to be brought to market. This would help to reassure local businesses that material is available on a sustainable basis. The Lincolnshire woodfair, which started in 2009, is an annual event and highlights the benefits of burning wood, the standards associated with woodfuel and is a day out, during which over 250 lots of firewood are auctioned and the attendance noted is 1,500 on the day[85]. Locally, the successful Blackdowns Woodfair, organised by the Blackdowns and East Devon Woodland Association[86], has followed on from the regional event initiated by the South West Forest. These type of events offer a platform for increasing awareness of the need for woodland management;

- similarly, this type of produce could be achieved through promoting the Ward Forester approach[87] which may also encourage investment in equipment to work and haul from such sites;

- exploring the potential of an "Exmoor Woodlots";

- encouraging younger people to seek opportunities within the woodland sector by incorporating business orientated elements in the woodland educational packages rather than focussing predominantly on the environmental aspects;

[83] www.dartmoorcircle.org.uk
[84] http://www.woodland-directory-sw.org.uk/
[85] http://www.lincolnshirefirewoodfair.co.uk/aboutus.html
[86] http://www.woodbiz.co.uk/index.asp
[87] http://www.wardforester.co.uk/

- exploring the opportunities to support further career links for woodlands; for example linking forest education at a younger age to level 1 certificates and level 2 diplomas as a step onto apprenticeships, or running 'Week in the Woods' events where participants can get a taste of a career in forestry whilst gaining a recognised qualification. From August 2013 there may be potential to link the local woodland sector with young people looking to gain experience through traineeships[88];

- creating greater awareness in the sector of "who else is operating locally" for example through web portals (such as the SW Directory, and MyForest[89]) and WoodMeet style structures[90] and sharing local niche demand such as small diameter ash for chair making, boat quality material etc.;

- improving communication and technical ability of the local sector through local practical events (highlighted through a WoodMeet forum), for example marking of timber prior to sale[91];

- considering the role and membership of the Woodland Advisory Group in relation to the above needs.

9.3 Exploring innovative opportunities

142. There are a number of areas in which some innovative thinking is worthy of further exploration and / or influencing or continued monitoring in the next steps. Amongst these are:

- the development of payment for ecosystems services including carbon opportunities (monitor);

- exploring the opportunities for developing links with corporate social responsibility programmes: monitoring developments. This area seems to be becoming increasingly recognised and opportunities to develop some kind of framework for standardising benefits are being developed (for example work being explored by the Forestry Commission (GB) to develop and pilot measures of socio-economic gain associated with woodland creation schemes). Such a framework may also be applicable to existing woodland (explore locally).

- Consider developing a 'prospectus of opportunities' for potential investors (eg corporate social responsibility funds) for elements of the "Exmoor Woodlands Programme" with which they may feel affinity, and explore the links that Exmoor may have with the corporate world such as through the Crown Estate, senior executives with second homes, some of the evolving funds such as Grown in Britain work etc.(explore locally).

- Localised Grant delivery. This has proven to be a useful tool in the Pontbren project in Wales[92] where the conventional grant scheme was too

[88] Skills Funding Agency
[89] http://www.sylva.org.uk/myforest/
[90] http://www.cornwall.gov.uk/default.aspx?page=27615
[91] One sawmiller commented that the state of woodland management advice is tantamount to "silvicultural vandalism"

rigid to support the actions that the farming community sought and which, when adapted, was very effective in delivering enhanced ecosystems services such as increased infiltration and improved farm business performance. There may be opportunities through discussions with the Local Enterprise Partnership as they take up a role in the delivery of the next Rural Development Programme. Thought may also be given to imaginative local piloting of subsidising elements of a supply chain where favourable habitat type is an outcome rather than supporting that habitat management directly; for example if by supporting a local coppice worker (or a business with the skills and prepared to take on an apprentice) the habitat is improved **and** a local business developed then there may be a greater benefit in the medium and longer term.

- Consideration of greater support to social enterprise opportunities within the woodland sector and learning from other parts of the country such as the community share offers of Woolhope woodheat or Green Fox Energy Co-op[93] and more locally, Axewoods[94].

Recommendation 17: Consider innovative funding approaches alongside the wider woodland programme development.

Woodland Creation

143. As noted in paragraph 31 the extent of woodland cover has changed in the last century. Woodland creation rates in Exmoor are low with approximately 36 small woodland creation schemes since 2000 equivalent to 128 ha, an average of 3.6 ha/scheme[95]. There are many sound reasons for woodland creation including:

- extending woodlands to increase their robustness (as already noted);
- extending the ecological network as has been done through the Ancient Woodland Priority Area (17 new native woodlands have been created in the woodland habitat network);
- extending woodland in areas where it can have a positive effect on water management issues. The pilot work at Holnicote has noted opportunities to reduce flow rates through increased woodland cover (or scrub encroachment);
- aspirations noted within the low carbon programme[96] for increased woodland creation of over 160 ha per annum and the installation of around 3,000 boilers by 2025;
- ensuring the productive potential of Exmoor's woodland resource is maintained alongside PAWS restoration work.

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[92] Clunie Keenleyside, Crex "The Pontbren Project: A farmer-led approach to sustainable land management in the uplands"
[93] http://woolhopewoodheat.org.uk/ and http://greenfoxcommunityenergy.coop/
[94] www.axewoods.org
[95] ENPA data (pers. comms.)
[96] Exmoor National Park Carbon Neutral Programme Consultation

144. An appetite for some increase in woodland area was suggested in the on-line survey and whilst accepting this may be a self-selecting group the indication is interesting: of the 39 responses to the question relating to woodland cover preferences (i.e. more, the same or less) 25 noted there should be more, 13 that the level should remain about the same and one noting that the woodland cover should reduce. The preferences for types of woodland were diverse and noted in Annex 3.

145. There is often insufficient financial incentive for woodlands to be created. Those projects that have proven successful in raising the woodland creation rate have been embedded into a deep understanding of the wider land management context and drivers within that community such that opportunities can be matched or developed to the local circumstances of an area. Examples include the work of the Pontbren project already noted and more locally the work of the South West Forest. The agricultural context and therefore the context for woodland creation is changing and anecdotally we understand that smaller areas of land are changing hands to people moving to the area. New opportunities to support the capital costs of woodland creation may become available including:

- potential for off-site capital payments for woodland creation to be an allowable solution under the low carbon building regulations from 2016;
- the current Price Review for Water (PR14) in which it is understood there is potential for woodland creation to be fundable;
- Carbon investments.

146. Woodland creation needs to be undertaken in a manner that reinforces the special qualities of the National Park. Within this overall framework it is recommended that a detailed "opportunities mapping" approach is explored that identifies areas where woodland can contribute multiple benefits (or ecosystems services). There will, for example, be areas of land which, if wooded, would contribute positively to ecological networks, flood mitigation issues as well as the generic benefits of emissions reduction, carbon storage and / or future woodfuel potentials etc. By focussing woodland planting and its incentives in such areas the generic resilience of Exmoor is improved.

147. In order for a woodland creation programme to be achievable a number of conditions need to be in place including acceptable financial incentives. For some there will never be sufficient financial incentives while for others the existing incentives have proved adequate. By combining a GIS based opportunity map with additional innovative funding (such as carbon or Payment for Ecosystem Services (PES)), the location of planting can be positively influenced.

Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top-up' funding as incentives to target areas of greatest impact

Governance

In order for any future Woodland Programme to be effective it must be fully embedded into a wider partnership and the structures of the National Park with clear accountabilities for activities.

Conclusions and next steps

12.1 How the Recommendations support Exmoor's Vision and Partnership Plan

148. The conclusions of this report are that there is significant existing delivery against the key areas of

- Exmoor's woodlands: Good for People
- Exmoor's woodlands: Good for Nature
- Exmoor's woodlands: Good for economy

It is also noted that this is generally under-recognised for example in the Partnership Plan (see below). This is not uncommon and perhaps reflects a wider tendency to take these woodland benefits for granted; a tendency that is only exposed when crises arise such as the threats from diseases or concern over perceived political threats. The area that is least recognised or interpreted is the rich interdependencies of communities with woodlands throughout historic time and it would be in this reconnection that the strongest foundations for a woodland programme would be laid. The conclusion of the study team is that if Exmoor can recapture and interpret a deeper and more widespread understanding of communities' interdependency with woodlands and trees then, over time, the woodland culture will grow and 'reinvest' in that woodland environment. A child who is encouraged to spend time in woodlands consequently builds self-esteem, self-confidence and an empathy for the outdoors and is more likely to appreciate the rich environment in adult life, to make purchasing choices that support local woodland produce, to be inspired to make contributions to activities through volunteering their time and skills and potentially even see opportunities for their own future career to be within that environment.

As a more detailed action plan is drawn up across all the headings of this report, engaging the expertise and experience of the existing woodland community will be key and capturing the opportunities that exist through collective effort will create a greater synergy of effort.

It is also the conclusion of the study team that there are many important foundation stones to such a programme in Exmoor not least in the strength of expertise and experience of the existing 'woodland community' and woodland network, the strength of information and the generic sense of place that Exmoor evokes.

12.2 Next steps

149. In order for the further potential of Exmoor's woodlands to be realised, it is necessary to draw together a wider partnership to develop a visionary and

creative programme from these recommendations. Such a partnership would oversee the development of a more detailed programme of activities and develop the existing co-operation and collective effort that exists; in doing so much can be learned from the experiences and success of the Moorland Partnership.

150. There is also an opportunity to look at some of the more innovative ways of resourcing a Woodland Programme such as through corporate social responsibility investment, social enterprise and volunteers as well as through the more traditional sources of funding.

151. Exmoor National Park has a number of existing, strong building blocks for such a partnership. These include a network of woodland owners who manage considerable areas of the woodlands, a strong sense of commitment from many that we spoke to, and an emerging consensus that the opportunities exist. Thus, the wider momentum that such a partnership would provide is timely as well as providing a very strong knowledge base.

152. In drawing up the actions it will be important to work *with* the realities on the ground and the opportunities that present themselves from those realities – for example the increasing price of firewood and renewable heat incentive opportunities, the scrubbing up of some woodland edges or combes with reduced livestock grazing pressures, the opportunities that some incoming land purchasers may offer, their interest in positive woodland management and desire for advice; and the continuing changes within the agricultural community that may impact on decision making.

153. A good example of the latter can be seen in the Pontbren upland areas in Wales where farmers themselves started to explore the potential of their own woodlands and hedges to improve their farm efficiency and started to manage them as part of their wider farming system rather than as an adjunct. This resulted in additional hedges and woodlands being planted – for example hedges on the contour to reduce water flow, woodlands being drawn into management and wood products being used on the farm etc.,

154. These opportunities and influences will change with time and the subsequent programme will need to be flexible to reflect such changes. Now the opportunities are significant, the enthusiasm and expertise is strong and the timing opportune for the development of an exciting woodland programme that will unlock more of Exmoor's woodland potential.

12.3 Summary of Recommendations

Our recommendations for unlocking Exmoor's woodland potential are drawn together below. As mentioned above (paragraph 148) woodland benefits are often overlooked. Annex 7 illustrates how our recommendations, through the multiple benefits that woodlands provide, support and align with Exmoor's Vision and the strategic aims of the Partnership Plan.

Recommendation 1: The principles and priorities for adaptation set out in the "Read Report" should be applied to the woodlands of Exmoor and the action plan should reflect these

Recommendation 2: The joint post with the Forestry Commission should continue and the network of relationships with owners be built upon as the action plan is developed

Recommendation 3: A proactive approach should be taken to the challenge of pests and diseases (including working up and implementing those actions set out below)

Recommendation 4: The 'cultural services' contribution of woodlands within Exmoor National Park should be recognised and better interpreted. This constitutes a major theme of the subsequent action plan and links across many other recommendations and is worthy of considering as a potential wider programme seeking funding.

Recommendation 5: Greater educational opportunity and material should be made available to children in and around Exmoor National Park in partnership, building upon current activities and exploring offers of educational access to other woodlands.

Recommendation 6: The benefits of increased co-ordination of educational activity and provision should be explored with a view to developing a co-ordinated programme and seeking resources to address key obstacles and opportunities (particularly where linked to other recommendations).

Recommendation 7: Increase the interpretation of woodland management generically

Recommendation 8: Explore partnership around woodlands and health with existing practitioners, health professionals (especially GPs), local authorities, and woodland owners and managers, building upon existing good practice and reflecting altered policy and delivery contexts including developing indicators.

Recommendation 9: Explore the opportunity to develop an increased woodland-based recreation offer and the benefits of co-ordinated development including the co-ordinated branding or marketing of facilities.

Recommendation 10: Continue to protect woodlands, especially ASNW e.g. through planning and raising general awareness of their value.

Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity.

Recommendation 12: Address the causes of under-management of woodland in Exmoor to ensure continued or improved delivery of ecosystems services including biodiversity.

Recommendation 13: Continue the gradual restoration of PAWS whilst respecting and maintaining the productive potential of the woodland resource.

Recommendation 14: Develop, with partners, an action plan to improve the resource itself

Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new opportunities

Recommendation 16: Develop, with partners, an action plan that will further develop the sector

Recommendation 17: Consider innovative funding approaches alongside the wider woodland programme development.

Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact

Annex 1: List of interviewees

Face to face interviews:

Sarah Bryan	Exmoor National Park Authority
Loren Eldred	Exmoor National Park Authority
Nigel Garnsworthy	National Trust
Nigel Hester	National Trust
Chris Marrow	Chris Marrow
Graeme McVittie	Exmoor National Park Authority /
Mark Prior	Forestry Commission
Clare Reid	Independent consultant
Evelyn Stacey	South West Lakes Trust
Nigel Stone	Exmoor National Park Authority
Rachel Thomas	Exmoor Society
Guy Thomas Everard	Everard Partners
Hugh Warmington	Woodland Owner (Quantocks)
Ben Williams	Badgworthy Land Company

Telephone interviews:

Dan Barnett	Exmoor National Park Authority
Amanda Godsell	Walking 4 Living
Dave Gurnett	Exmoor National Park Authority
Debbs Harding	Sunnyside Farm
Rebecca Isted	Forestry Commission
Louise Kennedy	Woodland Play Centre
Mike Mann	Sawmiller
James Mason	Woodland Trust
Andy Player	Crown Estate & Dunster estate
Suzanne Richards	Walking 4 Living
Zdenka Rosolova	South West Water
Tim Stokes	Exmoor National Park Authority
John Stower	Deer Initiative
Flemming Ulf-Hansen	Natural England
Sam Whatmore	Forest Fuels
Rob Wilson North	Exmoor National Park Authority

Annex 2: Stakeholder event, June 13th 2013

An informal stakeholder event took place during the evening of July 13th at Dulverton Town Hall. The event attracted nearly 40 participants including the study team.

List of attendees

Hen Anderson
Andrew Bavin
Steven Bedford
Mo Best
William Blight
Sara Carnac
Philip Chambers
Jo Down
John Edwards
Jackie Edwards
Oliver Edwards
Loren Eldred
Steve Fox
Henry Fox
Howard Gibbons
Charlie Goscomb
Tim Greenland
Jo Griffin
Molly Groves
Jeremy Hickman
Douglas King
John Lowday
Graeme McVittie
Peter Page
Ray Steele
Anne Steele
Victoria Thomas
Peter Topham
Tom Vanstone
Sue Wakeham
Hugh Warmington
Michelle Werrett
Wesley Wyatt
Richard Yabsley
Laura Jones
Sarah Vaughan
Jez Ralph
Jane Hart
Chris Clare

On arrival participants were divided into 3 groups and during the evening each group discussed Exmoor's woodlands around the three themes of Good for People, Good for Nature and Good for the Economy. Each discussion was facilitated by a member of the study team and participants encouraged to annotate large scale maps of Exmoor provided for the purpose.

The following questions were posed to stimulate discussion:

Good for People

1. What do you / your family / your community get out of Exmoor's woodlands currently? Is there anything (place, activity..) missing from the map?

2. What more would you like to get out of the woodlands, what more could they do for you?
3. What would have to happen for this to be possible? Why isn't is happening now?
4. Any contentious issues /areas of agreement/disagreement

Good for Nature

1. Are the woodlands under any threat?/what are you worried about?
2. In the face of climate change, pest and disease outbreaks – are you happy for woodlands to change in order to cope?
3. Would you be happy for NEW WOODLAND in order to gain additional benefits eg
   - to link existing habitats
   - along river banks to provide shade/ lower temps for fish
   - to improve water quality
   - to reduce flooding
   - to increase resilience of existing woodland
   - to provide recreational resource close to community centres?
4. Would you want to remove any woodland eg
   - From heathland
   - Beech
   - Conifer
   - Rhododendron
5. Any contentious issues/areas of agreement/disagreement

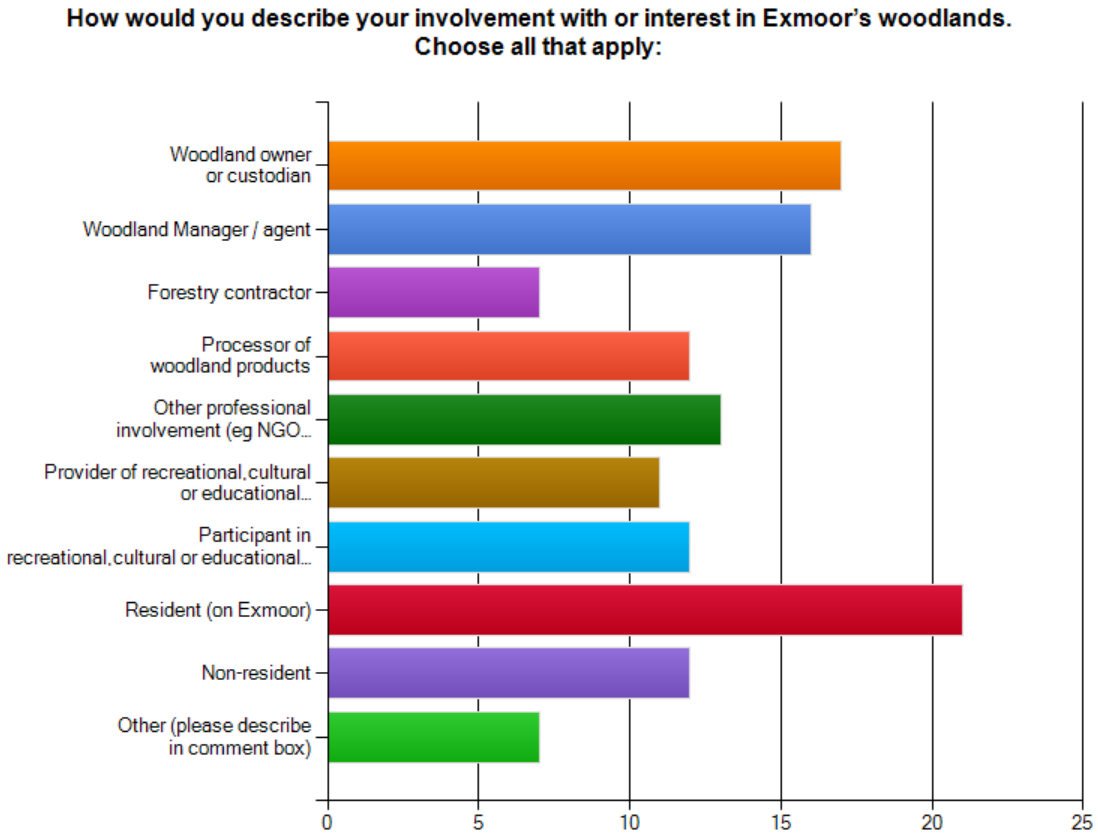
Good for the Economy : woodland sector

1. What other forestry / wood product businesses are there in and around Exmoor
2. Do they use Exmoor wood and wood products?
3. Could they use more? What would need to happen for this to be possible?
4. What other woodland based businesses (wider economy – tourism / recreation) are there in and around Exmoor?
5. Is there potential for more of these type of businesses? What would need to happen for this to be possible?
6. Any contentious issues/areas of agreement/disagreement?

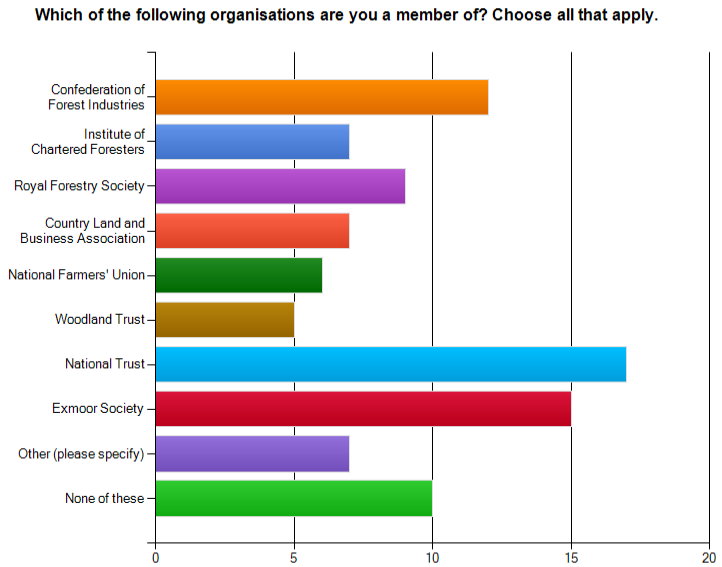
Following discussions in these three groups, a further plenary discussion was held to ensure everyone had had the opportunity to give their views. The feedback from this event including the annotations from the maps was used together with the feedback from interviews and the online survey, to inform the development of the recommendations arising from this study.

Annex 3: Extracts from Online Survey

70 respondents submitted a survey. The survey was targetted at those who were likely to have a professional or personal (or both) interest in woodlands. This is demonstrated below:

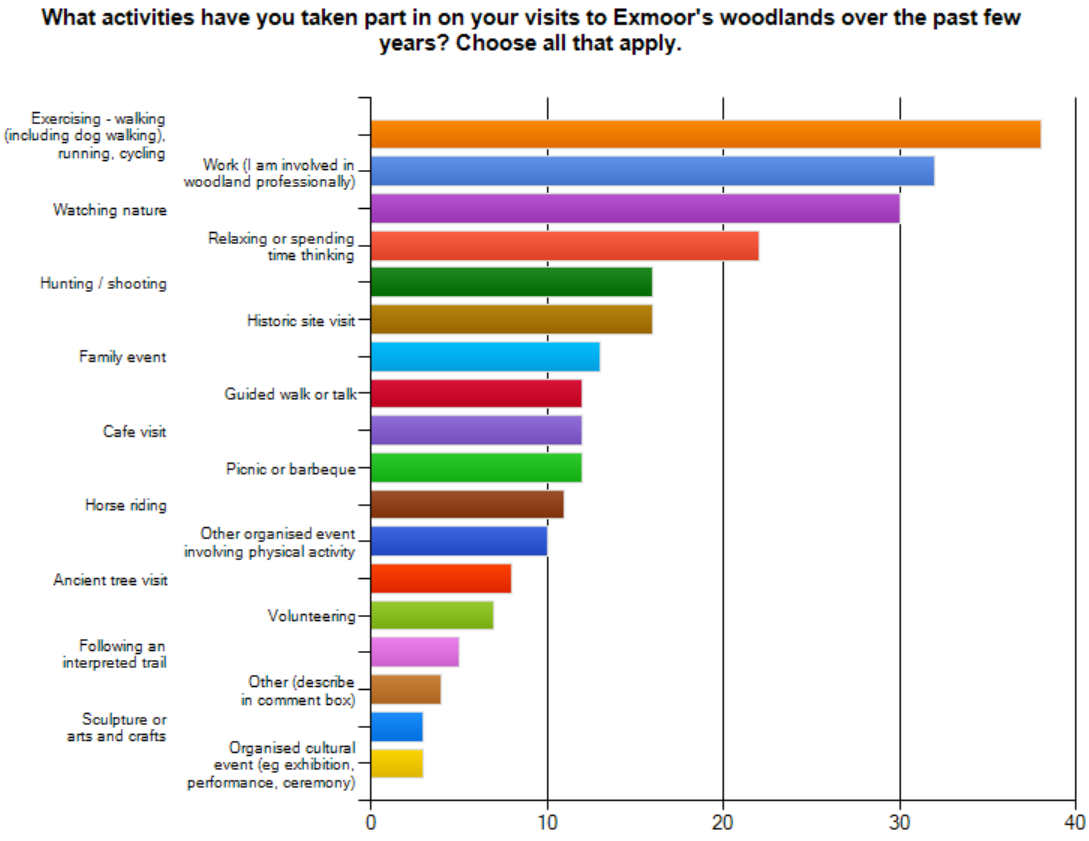


Respondents were members of the following organisations:



Other organisations mentioned included: Exmoor Uprising, Exmoor Trust, Exmoor Natural History Society, CPRE, Continuous Cover Forestry Group, Devon and Cornwall Tree Officers Group, Devon Wildlife Trust, Arb Association, Butterfly Conservation, Ancient Tree Forum, Forum 21, Climate Action West, British Ecological Society, British Lichen Society, Chartered Institute of Ecology and Environmental Management, FWAG SW, BAIML.

Respondents take part in the following activities in Exmoor's woodlands:



Other activities mentioned included:

- Swimming
- Canoeing/kayaking
- Volunteering eg ancient tree surveys, maintaining bridle paths
- Attending meetings eg Royal Forestry Society, deer management group
- Judging RFS Excellence in Forestry competition 2012
- Carrying out scientific research eg re lichens
- Providing access for disadvantaged people
- Walking for the pleasure (as opposed to exercise)

The following benefits were mentioned as deriving from these activities:

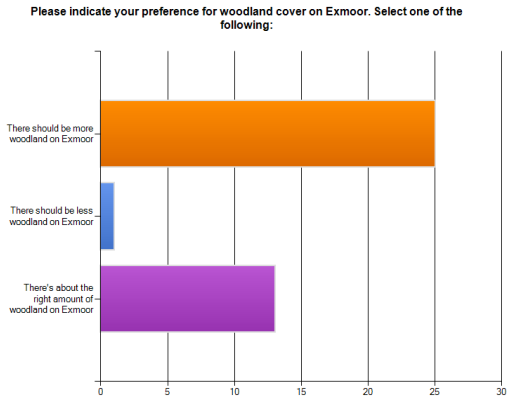
Benefit	No. of respondents citing the benefit	Illustrative quotes
Physical health	21	"Free exercise on the doorstep"
Mental health including well-being, enjoyment, peace, relaxation, spiritual, emotional satisfaction		"It feeds my heart and soul"
		"I use woodland for peace and tranquillity and for thinking time"
		"The best place in the world to switch off & forget your worries"
		"they are a true peace of mind"
	28	"I love trees, so to be in a wood is always a happy occasion for me."
Social	11	"Time to think and relax with likeminded people"
Educational	13	"Physical, mental health and perpetually educational, as you can always see something new."
		"One of the challenges is to educate the public that by active management, there are far greater benefits for all, not only from employment, but biodiversity, managed run off, larger canopies, fast growth = greater carbon, larger timber, etc. One of the biggest misconceived views held by the public is that change is bad…… or frightening. Letting the public be part of change helps manage this fear."
Economic	13	"As a long term Forestry estate the key element is to promote Forestry / woodlands, educate the public in the importance of trees and on the value of timber - economics, biodiversity, tree diseases"
Connection with nature (closely linked with mental health and well-being)	6	"pleasure at watching wildlife (deer in the garden ...), relaxation of the quietness."
		"Emotional satisfaction and relationship to remote areas and their wildlife"
		"Enjoyment of natural beauty - colours, shape, smells….Light - dappling, shafts, green hues"
Sense of perspective	2	"woodland encourages a long term view, and gives a sense of perspective"

Respondents' perceptions of potential threats to Exmoor's woodlands now and in the future are summarised in the following table:

Threat	**Notable quotes**
Pests (eg deer, grey squirrels) and tree diseases	
The majority of respondents perceived pests to be a high threat and that they would become a greater threat in the future	"I am extremely concerned about the escalating rate of disease and pests being imported from abroad to our trees and woodlands which have no resistance. I see this as the single most pressing area for concern." "I do not class 'deer' as a pest. Deer are part of our heritage and an essential component of our woodland landscape if managed properly…..They are a valuable resource and should never, unlike the Grey Squirrel, be considered a pest." "No point planting hardwoods if we do not control grey squirrels." "Currently the greatest threat to the future of realising Exmoor's woodland's renewable resource is pests."
Climate change	
Ambivalent - Climate change perceived as either a low threat or a high threat but becoming a greater threat in the future although more declared they didn't know in the future	
Over use (eg recreational pressures)	
Over use generally not considered much of a threat now but becoming increasingly so in the future	
Under- or over- management	
A split opinion - both under- and over-management was perceived by some as a low threat and some as a high threat with little change in perception for the future.	"I do think over management can be a problem and lack of creativity in planning, ... I have questions about always being able to bring unmanaged wood into management as a good thing.....I don't think woodland management is an economic venture for the owner but it does provide local employment"
Reduced availability of grant schemes	
Similarly, the reduced availability of grant schemes was perceived as either a low or high threat with little change into the future	

Threat	Notable quotes
Reduced availability of advice and information	
This was not considered much of a threat now but becoming increasingly so	
Inadequate capacity of contractor base	
Already considered to be a high threat becoming greater into the future	"If the affordable housing for LOCAL BORN PEOPLE was more available to youngsters in the villages where their families are we would have a full top quality contractor base." "Need more markets led by increased demand and hence increased price for wood products which would then stimulate contractors to get involved. Contracting in many of Exmoor's woods is too hard work for too little money especially if you have to commute to the job at great expense in terms of time or money or ship produce to market at great expense in money."
Too much or too little demand for woodland products and services	
As with the woodland management there is divided opinion with both currently considered a threat and increasingly so into the future	The situation that we are in is a combination of the effects of supply and demand and the intervention of government . Where we are depends on how society values things or is forced to value things.

Among the 39 respondents who gave a preference for whether there should be more, less or about the same amount of woodland, the majority felt there should be more, with few who felt there should be less:



Although a majority were in favour of greater woodland cover there was a mix of views around what should be planted and where. This is illustrated in the table of quotations below:

If there were to be more woodland on Exmoor, what type of woodland do you think should be planted, where and why? What proportion should be managed (more, less or the same as is managed currently)?

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
Commercially all areas should be considered as such, otherwise we go back to the current state of under managed, inaccessible sites; without sound silvicultural /ecological management the wider benefits of woodlands will not exist.	If woodland area were to be increased I feel that there should be a balance of woodland types that have both commercial and amenity benefits.	Ideally more native woodland, but not only.	If woodland area were to be increased I feel that there should be a balance of woodland types that have both commercial and amenity benefits.	All should be managed in some way	Realistically there would be a focus on small scale, shelter type woods due to land pressures,
Economics is why primarily- if people benefit by taking out fuelwood and reducing their bills then they will be encouraged to plant more. Biodiversity and landscape benefits will follow if people plant more trees and manage the ones we have better.	Sufficient areas where people can visit and enjoy forest recreation are also key- be it conifer or broadleaf, people like to spend time in big, well grown trees- so long as they have a place to park, and have trails or routes to follow/wildlife to spot.	Broadleaved, predominantly oak, should be the main new planting--Biodiversity would increase year by year. In a new conifer plantation the biodiversity would reduce year by year.	Mixture, designed according to needs of owner, potential for wildlife and landscape character.	All should be managed in some way	On the top - Moor should be moor. In the rich fertile valleys - the government (ENP) should plant hardwoods, private should be encouraged to plant, therefore softwoods.

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
more softwood where appropriate we will be short in the future!	Assisting in flood management. coppice all trees in danger of falling into rivers and remove fallen branches and trees well back from the flood levels. Not leaving piles of wood by the feeder streams and rivers to wash in and form dams blocking the rivers and causing serious damage.	Intuitively I would save more planting of native broadleaf woodland	Primarily broadleaf, though well grown conifers have a major role to play to help the economics- basically a diverse mix that is as robust to climatic influences as possible.	At least as much woodland should continue to be managed, in order to safe guard woodland quality and usefulness.	Native broad leaf species should be planted where there is no commercial incentive to plant faster growing conifers (within existing coniferous plantations). Planting trees and hedgerows on spare pieces of ground helps to provide wildlife corridors and therefore support biodiversity and species threatened with loss of habitat. Planting a variety of woodland species ensures a varied landscape and a variety of wildlife habitats.

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
It has to be economically viable so that implies a good if not dominant proportion of conifer.	Adaptation for climate change and developing more resilient woodlands will mean existing woodlands should be buffered, linked or expanded - expansion may be into areas currently considered unavailable such as headwaters of rivers and streams and into more upland habitats and landscapes.	I would not like to see an increase in softwood plantations. In my view they pose an unacceptable risk to the current landscape quality. Large scale woodland, planted solely for wood fuel or major industrial use, should be outside of the National Park Boundary and even then the impact on our unique landscape needs to be considered. Even the accumulative affect of small scale commercial woodland planting needs to be considered very carefully.	Encourage greater area woodland planting with a mixture of species.	All the commercially viable woodland should be managed.	I don't think it would be practical to increase the cover beyond present levels because there will never be sufficient grant funding available to compensate for the loss of agricultural land and we must not lose moorland. Moorland is an internationally scarce and valuable habitat and a very important element of the Exmoor landscape, contributing significantly to the special character of the area.
Some short coppice rotation might be appropriate in some locations for generating wood fuel. More/better use of hedgerows for wood fuel would be desirable.	Trees that are considered resistant to disease and climate change.	Plant steep valley sides with hardwood - provided squirrels are controlled	A broad range that allows natural adaption to potential climate change and disease threats	Management same as at present	Everywhere
More planted woodland should be aiming for timber and woodfuel production with a proportion eg 10% to 20% aiming more for wildlife and biodiversity and landscaping function.		chestnut oak - adaptability - but generally broadleaf essential	Both conifer and broadleaved woodlands should be encouraged to meet the wide spread of priorities.	More should be managed.	The valleys offer most scope in the context of an open moorland landscape, but the potential for expanding existing blocks to improve their appearance and reduce their disjointedness should not be overlooked

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
					either.
Planting of indigenous species is clearly important from a conservation point of view.		More native trees.	Theoretically all should be managed.	All should be managed .. but for different objectives - non-intervention might be a deliberate management choice -	I would like to see regeneration of coppiced habitat on the edges of the woodland and the open fields/ moorland areas. This will produce habitat for wildlife that has been largely lost in this part of the world.
There should be more woodland, which will enable increased biodiversity.		Replace larch decimated by disease.	Mixed species woodland to fit with a continuous cover management plan that encompasses the triple bottom line.	Of course a higher proportion than now should be managed.	Plant steep valley sides with hardwood - provided squirrels are controlled
More open structured woodland i.e. reduced densities of trees, less ill thought out conservation plantations		The extra woodland should be broadleaf angiosperm, including British historic species.	Mixed hardwoods and some carefully managed softwood with care taken to positioning in order to keep the views unchanged	we should be managing our existing woodland better first.	It is important that woodland planting is appropriate to the area in question, obviously the high moor is not an appropriate place for woodland but the moorland fringes and valleys would benefit from more woodland cover. In high designation areas oak woodland is still the most important woodland type, but in lowland fringes on improved land there is a place for more productive, non-native species.

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
Since Oct.1st 2006, every authority has a DUTY to promote biodiversity. In Britain we buy French oak: we could grow our own. Conifer timber is now exported from Bideford to Germany.		Rowan, oak, hazel, hornbeam perhaps some beech but no conifers	As the future affects, within the maturity time of trees from Climate Change are unable to be predicted and the emergence of new pests and diseases, it is necessary to plant wide and varied species, less those currently under threat.	I would also like to see some re-wilding but making it clear this would be 'managed' wilderness which would address some concerns about access.	I don't think that it is necessary to plant more woodland. The woodland that is already present should be allowed to naturally expand and areas that are managed purely due to financial incentives or because we happen to like what is currently there should be left to their own devices, the inevitable conclusion of which will be re-colonisation by trees.
Mixture, designed according to needs of owner, potential for wildlife and landscape character.		Native woodland	Diversity has to be the key, mixing hard and soft wood species, making areas available to small scale operations.	Greater care to identify the origin of the seed than where the young tree is initially grown and all new stock will need both quarantine and greater professional woodland management.	New planting should not be at the expense of valuable wildlife habitat such as hay meadows or rick ancient grassland.

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
Native woodland that is managed for conservation and biodiversity.			With the increased threat of disease (and the loss of ash would be particularly devastating) more woodland cover should concentrate on mixtures including conifers	I think having large stands encourages the large contractors and smaller blocks that can be managed by a man with a tractor do less damage yet still provide employment and management.	Wildlife and biodiversity take a very long time to establish in new plantations so should be concentrated on the edge of existing diverse woodlands and unimproved pastures capable of reverting to natural woodlands. New plantations should aim for timber production where possible with woodfuel as an extra and be surrounded by "native/natural " landscaping plantations and wildlife corridors around and through the woodland and along water features etc. This would create all the priorities above with sensible design.
			mixed woodlands (NO monocultures)	all should be managed even if minimum intervention in places	

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
			Mixed woodlands, oak, ash, beech, cherry, sycamore etc.	Virtually all woodland should be managed where possible, inc. wet woodland. There are potential wildlife benefits which are being missed through neglect e.g.. fish spawning areas.	
				with about the same percentage as now managed,	
				As much woodland should be managed as is necessary to meet the demands of timber products. If there is no demand there doesn't need to be any management. So on balance, probably less than is currently managed.	
				Woodlands are dynamic and ever changing and growing and have been managed for many centuries if only by neglect and sheltering stock and deer. Only very truly natural woodlands should be left and most other woodlands will always benefit from some occasional form of	

Productive / commercial or Conservation / Biodiversity	Amenity and other ecosystem services	Broadleaf / Conifer / Native	Mixture	Managed	Where
				management for a mixture of outcomes.	
				New woodland should be carefully matched to the local conditions and designed to meet stated objectives. It should complement the landscape character but there should be a realisation that new woodland landscapes which may not follow current guidelines for stated landscape character areas can be designed and developed sympathetically. There should no strict adherence to species with the clear understanding that robust and resilient woodlands may require a broader palette of novel species. Theoretically all should be managed.	

Only 25 responded to the question "Are you are aware of any particular current controversies or areas of disagreement relating to Exmoor's woodlands?". Of these 25, 8 were of the view that there were no significant issues, 4 referred to the view that beech should not be a part of native woodland with one additional reference to a native v. non-native issue, 3 made reference to land use policies, while there were only two references to pests such as squirrels and only 1 response referred to fox hunting.

Annex 4: Types of ecosystem service provided by woodlands[97]

Ecosystem service provided by woodlands	Examples of goods and benefits in the UK	Key references
Provisioning services		
Crops, livestock and fisheries	Little tradition of agro-forestry other than grazing particularly as part of wood-pasture systems; non timber forest products (NTFPs) for commercial and domestic use, e.g. meat (including from culled deer), berries, honey, fungi, medicinal derivatives and drugs.	Martin *et al.* (2006); Emery *et al.* (2006); Kirby *et al*. (1995)
Trees for timber	Provision of raw timber materials for use in commercial and domestic enterprises; provision of wood chips for boards and pulp for paper. Use of timber as an alternative for other building materials such as steel and concrete in order to reduce use of fossil fuels and enhance building standards.	Forestry Commission (2003a) Suttie *et al*. (2009)
Trees for bio/woodfuel	Timber products (e.g. harvesting residues, stumps and roots, recycled wood) as fuel for heat and power plants, as domestic firewood, for biochar and as raw material for processed hydrocarbon fuels.	Chapter 14 Ireland *et al.* (2004)
Woodlands and water supply	Wooded catchments especially in the uplands provide important water supplies for major urban areas (e.g. Thirlmere and Manchester).	Ritvo (2009)

[97] UK National Ecosystem Assessment (2011) *The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge*. Chapter 8 Woodlands

Regulating services		
Climate	Avoidance of climate stress. Tree cover can help dampen the climatic effects experienced in the open, thus protecting soils, animals and humans from extremes of temperature, strong winds and UV light.	Mason *et al.* (2009)
	Carbon sequestration. Woodlands and their soils are important reserves of terrestrial carbon, and timber products can also be considered.	Morison *et al*. (2009); Lorenz & Lal (2010)
Hazard	Soil protection. Tree cover can offer protection from soil erosion and slope failure. Forest management will reduce exposure to chemicals and pesticides and likelihood of soil compaction compared to agriculture.	Moffat (1991); Nisbet *et al.* (2008)
	Flood and water protection. Woodlands moderate rainfall events and river and stream hydrographs, delaying and reducing flood events.	Nisbet *et al*. (in press)
Disease and pests	Woodland dwelling organisms can help in regulating the incidence and spread of insect pests of crops and pathogens of importance to humans, livestock, crops and ecosystems.	Chapter 14
Detoxifixation and Purification	Water quality. Because of minimal use of pesticides and fertilisers, woodlands managed under sustainable principles also offer benefits of water quality.	Nisbet *et al*. (in press)
	Soil quality. Woodland cover can stabilise contaminated brownfield land and hinder the pathways between source and receptors.	Moffat & Hutchings (2007)
	Air quality. Capture of atmospheric pollutants in tree canopies can lead to consequent reduced exposure for humans, crops, buildings etc.	NEGTAP (2001)
	Noise reduction. Belts of trees between residences and transport routes can absorb sound.	Huddart (1990)
Pollination	Woodlands likely provide habitat for diverse wild pollinator communities of importance to trees, crops and other plants.	Devoto *et al*. (2011)

Cultural services	Edwards *et al.* (2009)	
Wild species diversity	Biodiversity. UK forests, including plantations, provide habitat for a wide range of fauna and flora but a limited genetic resource (e.g. compared to tropical forests).	Humphrey *et al.* (2003)
Environmental settings	Trees and woodlands are valuable for personal enlightenment and as places or catalysts for social activity and cohesion.	O'Brien (2006); Lawrence *et al*.(2009)
	Forests are increasingly acknowledged for their educational value.	O'Brien & Murray (2007)
	Trees have been perpetual motifs in fine art, and influenced many other art forms.	Phythian (1907); Hohl (1998)
	Many forests are open to the public for the enjoyment of outdoor pursuits and recreational activities. Their access facilitates exercise and benefits human health and longevity.	Woodland Trust (2004); O'Brien & Morris (2009)
	Trees and woodlands increase the diversity of landscape character; their existence provides a link with the past when man's existence was more closely linked to woodlands and their products; woodlands reduce the rate of, or eliminate the need for, cultivation, a significant cause of archaeological destruction.	Rackham (1976); Smout (2002); Crow (2004)

Supporting services		
Soil formation, nutrient cycling, water cycling, oxygen production	Forests facilitate soil formation and other biogeochemical processes essential to life.	Fisher & Binkley (2000)
Biodiversity	Little in way of unique species (endemism) at least amongst the well-know groups, but locally adapted provenances and distinctive assemblages associated with some species being at the edge of their range in Britain; a distinctive maritime climate; and historical differences. These include 'Atlantic' elements such as the abundance of bluebells, rich bryophyte communities in western oak woods, ash hazel dominated woods (beyond range of beech), abundance of veteran trees with associated lichen and saproxylic associated species.	Rodwell (1991); Peterken (1996); Kirby *et al.* (2005)

Annex 5: A summary of the Landscape Character types including woodland

B. High Wooded Coast, Combes and Cleaves

The overall landscape strategy for the High Wooded Coast, Combes and Cleaves is to conserve the many features of the landscape that combine to create a high quality landscape. The woodland is fundamental to the character of the landscape as well as to the wider landscape scene of Exmoor. So, conserving its extent, density and variety is imperative. Internal views of the landscape are important, as are views into the landscape from adjacent areas of higher ground. It is important therefore that the quality and variety of viewing opportunities into (and within) the landscape are retained. There are a number of areas where a certain degree of remoteness can still be experienced and it is important to ensure these are protected in the light of visitor pressure.

Landscape issues	**Objectives**	**Priority Areas**
Key Issues:		
Loss of natural / seminatural character of woodland (as well as views into and through woodland areas) due to rhododendron encroachment.	Manage levels of encroachment to prevent mono-species coverage of the ground flora and under storey.	B2.Woody Bay
Secondary Issues:		
Threats to remoteness and tranquillity due to visitor numbers and associated facilities.	Ensure that any additional development/infrastructure does not intensify the degree of human influence / people-presence in the landscape.	B1. Heddon's Mouth B3. Lyn
Weakening landscape pattern in farmed areas due to declining condition of field boundaries – hedges and stonewalls.	Strengthen the landscape pattern by encouraging boundary management techniques using traditional (local) methods and materials.	B3. Lyn (Doone Valley)

G. Incised Wooded Valleys

The overall landscape strategy should be to **conserve** landscape character – the intimate, wooded, sheltered valleys and natural river systems. There are some opportunities for landscape **enhancement** e.g. rhododendron removal, prevention of road urbanisation, removal of fencing along riverbanks and repair of post and rail fencing along roads. Such implemented change would simplify the landscape, improve the overall state of repair/intactness thereby improving landscape quality.

Landscape issues	Objectives	Priority Areas
Key Issues:		
Loss of natural/semi-natural character of woodland (as well as views into and through woodland areas) due to rhododendron encroachment.	Manage levels of encroachment to prevent mono-species coverage of the ground flora and under storey.	G3. River Barle G4. River Exe
Erection of post and wire fencing along river and stream banks has diluted the natural sense of connection and interrelationship between rivers, riverbanks and flanking meadows and pastures.	Conserve open riverbanks and encourage removal of fencing along watercourses. Particular attention should be given to lengths of fencing that align public footpaths e.g. where recreational enjoyment of the river is being inhibited.	G4. River Exe
Urbanisation of main road corridors through the valleys due to highway signage, kerbing and road markings.	Work closely with the Highways Authority to seek more visually sympathetic / subtle road safety solutions.	G4. River Exe
Secondary Issues:		
Cumulative impact of infrastructure associated with game shoots – pens and feeders are frequently seen, are often conspicuous (brightly coloured feeders) and detract from overall visual amenity.	Minimise the impact of game shooting in the landscape to ensure a less interrupted, smoother landscape scene. Encourage landowners to position feeders and pens in less visually sensitive areas.	G3. River Barle G4. River Exe G5. River Haddeo

H. Plantations (with heathland) Hills

There are three landscape strategies that should be aimed at the Plantation (with Heathland) Hills landscape – **restoration, enhancement and conservation**. Providing appropriate, successful management techniques can be employed, further restoration and enhancement of heathland areas will create greater landscape diversity and offer more of a balanced mix of both wooded and non wooded areas – a true heathland-woodland mosaic. This will, in turn, being greater visual amenity in the form of wider views and, with that, appreciation of connectivity to surrounding inland and coastal landscapes. Importantly, a greater sense of connection with nearby moorland area (at Dunkery) will be realised – enhancing the presence of moorland on Exmoor. Conservation of a number of landscape features is also important – existing view lines such as that from Black Hill to Dunster and on to the coast is an example as is the sense of calm and tranquillity due to the lack of vehicular and other noise intrusions. Every effort should be made to conserve and enhance surviving historic features and where these have eroded, opportunities for restoration should be explored e.g. medieval deer hunting park landscape which provides important references to previous land uses (ha-ha) as well as historic and cultural depth.

Landscape issues	Objectives
Key issues:	
Loss of texture and colour of heath land areas due to encroachment of bracken and gorse, coniferous and deciduous woodland species.	Continue with existing heath land restoration schemes to reinstate and extend areas of heath land cover – working, with forestry interests, towards a woodland-heath land mosaic for greater visual diversity.
Loss of views and reduced quality and extent of surviving views from heath land areas due to intervening encroaching vegetation such as gorse and coniferous trees that protrude above ridgelines.	Restore open views from heath land areas through selected felling of conifers breaching ridgelines (blocking views) and removal of gorse. This will improve visibility across the heath land and improve visual connection with other heath land areas e.g. views across to Dunkery.
Threats to the setting of archaeological features in the landscape due to woodland and scrub encroachment.	Manage bracken and gorse encroachment and employ selective tree felling to restore / create open settings to important archaeological features and sites.
Secondary issues:	
Lack of management (lack of grazing) of surviving pockets of pasture aligning tributary streams – probably as a result of poor access.	Encourage traditional grazing of the floodplain area - conserving and enhancing flanking meadows and pastures.
Poor visual amenity in areas of ongoing heath land restoration due to burning and cutting (scorched stumps and damaged ground).	Where possible and appropriate, identify future heath land restoration sites where there would be least adverse visual impact.
Diluted expression of historic landscape features e.g. decline of surviving stone faced banks within the plantations.	Reinforce the historic landscape grain through a process of restoration and enhancement.

I. Wooded and Farmed Hills with Combes

Strategy not available. Aims and key characteristics for Wooded and Farmed Hills with Combes taken from Exmoor Landscape Action Plan, 2011.

Aims:

- Conserve and enhance historic landscape elements, particularly hedgebanks
- Conserve and enhance designed landscape elements
- Ensure management for game shooting conserves and enhances landscape condition
- Prevent further intrusive development.

Key Characteristics:

- Elevation ranging from 100m AOD to almost 400m AOD with a strongly articulated rounded landform.
- Low-lying narrow combe valley floors meet steep valley sides that give rise to a series of interconnected rounded hills.
- Open hilltops offer extensive coastal and inland panoramas.
- The landscape has significant woodland cover– deciduous, coniferous and mixed - ranging from geometric plantations to sinuous swathes.
- Geological strata of slate, siltstones and sandstones predominantly underlie this landscape but there are localised areas of limestone in the river valleys.
- The rolling hillsides reveal a clear pattern of field enclosure.
- Fields are medium-sized and delineated by banked, mixed hedges.
- The secondary roads and rural lanes connect the linear hamlets and small villages dispersed throughout the area - Luxborough, Treborough, Roadwater and Monksilver for example that nestle in the valley bottoms.
- Parkland character due to the Grade II listed Parks and Gardens surrounding Nettlecombe Court and Deer Park.

Landscape issues	**Objectives**
Key issues:	
The straight edges and blunt lines of game crops threaten to dilute the rounded, sinuous, organic form of the landscape.	Conserve the organic, rounded shapes of the landscape – working with landowners to encourage more sensitive design of game crop planting e.g. responding to landform and field shape. Encourage game crop planting in less visually sensitive areas – away from the upper slopes and rounded hilltops.
Cumulative impact of infrastructure associated with the game shoots – pens and feeders are frequently seen, are often conspicuous (brightly coloured feeders) and detract from overall visual amenity.	Minimise the impact of game shooting in the landscape to ensure a less interrupted, smoother landscape scene. Encourage landowners to position feeders and pens in less visually sensitive areas.
The erection of prominent vertical elements in the adjacent landscape. Although sited outside the National Park boundary these are having a notable influence on local skylines as well as wider views. Radio station masts at Brendon Hills Farm and a	Protect sensitive skylines and the integrity of views by preventing the positioning of prominent vertical features that would have an adverse effect on landscape character. There is a need to work with neighbouring planning authorities to ensure tighter control (through a consistent, cross-boundary,

Landscape issues	Objectives
wireless station at Elworthy Barrows are examples of large, prominent masts with latticed towers that vary in shape and structure and have a cluttering effect above the treeline.	proactive approach) over location of prominent vertical elements such as communication masts and wind turbines.
Secondary issues:	
Decline of estate railings surrounding the historic, designed landscape of Nettlecombe Court.	Maintain the historic estate and parkland influences in the landscape by conserving and repairing estate railings and other small scale features that offer references to historic landscape character.
Potential for energy cropping (miscanthus and short rotation coppice).	Undertake targeted capacity and sensitivity study to understand impact on the landscape.

Annex 6: Good from Woods Wellbeing indicators

Good from Woods[98] is exploring how people are benefitting, personally and socially, from woodland activities in the southwest by collaborating with and supporting organisations who provide woodland activities to:

- develop with them research tools and methods that can investigate and provide evidence of the social and well-being effects of the woodland activities they provide
- train their staff to undertake this research and explore its results, confirming good practice and highlighting how projects can be further developed, and
- collaboratively create a shared database of the results to provide robust evidence to inform future work in this area

This shared database[99] is currently in development and includes a tool kit[100] with the following well-being indicators:

Type of wellbeing	Indicator
Psychological well-being – positive functioning	Feelings of being in control
	Feelings of being competent (and seen
	Energetic
	Purposeful
	Developing oneself
	Connecting with others through shared beliefs
	Secure with personal limitations
Emotional Well-being	Experiencing positive emotions and
	Absence of negative emotions and
	Feeling even-tempered
	Relaxed
	Optimistic about the future
Social Well-being	Feelings of being confident
	Feelings of being accepted
	Safe and supported within and through
	Supporting others through social
Physical Well-being	Feelings of physical health
	Confidence in and enjoyment of physical activity
	Feelings of physical comfort
Biophilic Well-being – connection to nature	Feelings of closeness to the natural
	Being engaged in a relationship with nature

[98] Good from Woods is a lottery funded research project, led by The Silvanus Trust and The University of Plymouth, in partnership with the Neroche Scheme, The Woodland Trust and Forest Research. It started in April 2010 and will run until December 2014.
[99] http://goodfromwoods.wordpress.com/about/ (July 2013, in development)
[100] http://goodfromwoods.wordpress.com/the-tool-kit/

Annex 7: The Recommendations and Exmoor's Vision and Partnership Plan

The tables below illustrate the ways in which the recommendations of this report align with and support Exmoor's Vision and Strategic aims of the Partnership Plan. Woodland is only explicitly mentioned in actions supporting the Strategic Aims for Programme A – A Thriving, Living Landscape and not at all for Programmes B and C Connecting people and Places and Towards a Sustainable Future emphasizing the multiple benefits that woodlands provide and which are often under-recognised.

Exmoor's Vision is "Working together for Exmoor" so that by 2030:	**Recommendation**
Exmoor's distinct and diverse landscape is maintained and enhanced with an increased awareness of its importance.	Recommendation 2: The joint post with the Forestry Commission should continue and the network of relationships with owners be built upon Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact
There is an increased extent of wildlife habitats and linkages between them, more habitats are in good condition and populations of valued native plants and animals are thriving.	Recommendation 3: A proactive approach should be taken to the challenge of pests and diseases Recommendation 10: Continue to protect woodlands, especially ASNW e.g. through planning and raising general awareness of their value. Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity. Recommendation 18: The National Park Authority, in

Exmoor's Vision is "Working together for Exmoor" so that by 2030:	Recommendation
	partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact
There is an enhanced knowledge of the historic environment of Exmoor; increased awareness of the value of its cultural heritage, and the most important historical sites, settlements, buildings and features are conserved and their historical character retained.	Recommendation 4: The 'cultural services' contribution of woodlands within Exmoor National Park should be recognised and better interpreted.
Exmoor's natural resources are used sustainably, and the full benefits of its ecosystems are understood and harnessed. Pollution is minimised, air and water are high quality, and soils are conserved and in good condition.	Recommendation 10: Continue to protect woodlands, especially ASNW e.g. through planning and raising general awareness of their value. Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity. Recommendation 12: Address the causes of under-management of woodland in Exmoor to ensure continued or improved delivery of ecosystems services including biodiversity. Recommendation 13: Continue the gradual restoration of PAWS whilst respecting and maintaining the productive potential of the woodland resource. Recommendation 14: Develop, with partners, an action plan to improve the woodland resource itself Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland

Exmoor's Vision is "Working together for Exmoor" so that by 2030:	Recommendation
	opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact
We are closer to achieving a carbon-neutral National Park to help mitigate climate change, and have introduced measures to adapt to changes in climate that are already happening.	Recommendation 1: The principles and priorities for adaptation set out in the "Read Report" should be applied to the woodlands of Exmoor and the action plan should reflect these
There is increased public awareness and enjoyment of the National Park; a warm welcome and high quality experience for everyone seeking inspiration, tranquillity and active outdoor recreation, leading to greater understanding of Exmoor and its way of life, and a wider appreciation of the contribution that National Parks make to quality of life.	Recommendation 5: Greater educational opportunity and material should be made available to children in and around Exmoor National Park in partnership, building upon current activities and exploring offers of educational access to other woodlands. Recommendation 6: The benefits of increased co-ordination of educational activity and provision should be explored with a view to developing a co-ordinated programme and seeking resources to address key obstacles and opportunities Recommendation 7: Increase the interpretation of woodland management generically Recommendation 8: Explore partnership around woodlands and health with existing practitioners, health professionals (especially GPs), local authorities, and woodland owners and managers, building upon existing good practice and reflecting altered policy and delivery contexts including developing indicators. Recommendation 9: Explore the opportunity to develop an increased woodland-based recreation offer and the benefits of co-ordinated development including the co-ordinated branding

Exmoor's Vision is "Working together for Exmoor" so that by 2030:	Recommendation
	or marketing of facilities.
Exmoor's communities retain a continuity of connection with the land; and communities are taking the lead in shaping future development to meet their needs and aspirations including access to services, housing, communications and infrastructure.	Recommendation 8: Explore partnership around woodlands and health with existing practitioners, health professionals (especially GPs), local authorities, and woodland owners and managers, building upon existing good practice and reflecting altered policy and delivery contexts including developing indicators. Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new opportunities Recommendation 16: Develop, with partners, an action plan that will further develop the woodland sector
There is a strong, diverse and resilient economy where farming, forestry, land management and rural enterprises are playing a lead role in conserving and enhancing Exmoor's special qualities; producing high quality food and other produce, and conserving local breeds. There is a sustainable tourism and recreation economy in harmony with local communities and the environment.	Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new opportunities Recommendation 17: Consider innovative funding approaches alongside the wider woodland programme development

Programme A - A Thriving, Living Landscape

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
A1: Protect and manage the special character of Exmoor's unique landscapes	Manage the impacts of development to protect Exmoor's special qualities by ensuring that development is sensitive to the location and conserves the scenic quality of the area	Recommendation 9: Continue to protect woodlands, especially ASNW e.g. through planning and raising general awareness of their value.
	Encourage land management that conserves and reinforces landscape character A1.7 Support the conservation and restoration of landscape elements and features including designed landscapes, parklands, hedgerows, veteran trees and other notable trees, orchards, and ponds. (Link to Priority A3 and A4) A1.8 Explore opportunities for new woodland planting to deliver multiple benefits including strengthening landscape character, storing carbon and enhancing wildlife A1.9 Encourage redesign of conifer plantations to deliver landscape, wildlife and cultural heritage benefits A1.10 Manage landscape impacts from forestry and woodland including new	Recommendation 10: Continue to protect woodlands, especially ASNW e.g. through planning and raising general awareness of their value. Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity. Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact Recommendation 3: A proactive approach should be taken to the

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
	tracks and management of Phytophthora	challenge of pests and diseases
	Monitor change and trends in landscape character to inform future policy and practice	Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity.
A2: Maintain the open character of moorland and the range of public benefits that moorland landscapes deliver	Establish moorland management practices which maintain the open character of moorland and deliver a range of public benefits	
A3: Maintain in good condition, extend and connect Exmoor's important wildlife habitats and the species they support	Maintain Exmoor's important habitats and seek to improve their condition where appropriate A3.3 Undertake targeted woodland management to improve habitat for woodland birds, invertebrates and lichens, and make links with the developing SW Woodland Wildlife Initiative (SWWWI) A3.4 Establish a better understanding of the condition of Plantations on Ancient	Recommendation 12: Address the causes of under-management of woodland in Exmoor to ensure continued or improved delivery of ecosystems services including biodiversity. Recommendation 13: Continue the gradual restoration of PAWS whilst

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
	Woodland Sites (PAWS) and seek opportunities to improve the condition of PAWs in 'at risk' condition	respecting and maintaining the productive potential of the woodland resource.

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
	Support habitat restoration through control of invasive species and diseases A3.10 Undertake targeted control of invasive species such as rhododendron and laurel in priority habitats A3.11 Monitor and control where possible the spread of diseases such as Phytophthora and explore opportunities for habitat restoration where appropriate	Recommendation 3: A proactive approach should be taken to the challenge of pests and diseases Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity.
	Extend and connect Exmoor's important wildlife habitats and the species they support A3.14 Extend, link and buffer woodland through new planting in suitable areas. Improve the network of woods, hedges and other wildlife corridors within and beyond the National Park boundary, including to the Quantock Hills	Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact
	Improve understanding of wildlife on Exmoor and monitor trends and changes in their Populations	Recommendation 11: Monitor and, where appropriate, address wider threats to woodland ecology including deer impacts and presence of invasive species building on existing co-ordinated activity.

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
	Engage with the public and communities to better understand and celebrate Exmoor's important habitats and species A3.20 Explore opportunities for increased community engagement through community woodlands, orchards and raising awareness of ancient trees A3.23 Reconnect people with the natural environment to help them better understand and appreciate it	Recommendation 4: The 'cultural services' contribution of woodlands within Exmoor National Park should be recognised and better interpreted. This constitutes a major theme of the subsequent action plan and links across many other recommendations and is worthy of considering as a potential wider programme seeking funding. Recommendation 5: Greater educational opportunity and material should be made available to children in and around Exmoor National Park in partnership, building upon current activities and exploring offers of educational access to other woodlands. Recommendation 6: The benefits of increased co-ordination of educational activity and provision should be explored with a view to developing a co-ordinated programme and seeking resources to address key obstacles and opportunities (particularly where linked to other recommendations).

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
		Recommendation 7: Increase the interpretation of woodland management generically Recommendation 8: Explore partnership around woodlands and health with existing practitioners, health professionals (especially GPs), local authorities, and woodland owners and managers, building upon existing good practice and reflecting altered policy and delivery contexts including developing indicators.
A4: Engage people in understanding, protecting and managing Exmoor's cultural heritage and historic environment	Engage the owners and managers of heritage assets in their conservation and protection Encourage participation and community engagement in learning about and conserving Exmoor's historic environment and cultural heritage Increase knowledge and understanding of Exmoor's historic environment	Recommendation 4: The 'cultural services' contribution of woodlands within Exmoor National Park should be recognised and better interpreted. This constitutes a major theme of the subsequent action plan and links across many other recommendations and is worthy of considering as a potential wider programme seeking funding.
A5: Maintain and improve the quality of Exmoor's natural resources	Support land management practices that deliver integrated objectives for water quality, water resources, ecological	Recommendation 12: Address the causes of under-management of woodland in Exmoor to ensure

Priority	Strategic activity (including those actions explicitly mentioning woodland)	Recommendation
	status, flood alleviation and reduce soil compaction, erosion and run-off	continued or improved delivery of ecosystems services including biodiversity. Recommendation 14: Develop, with partners, an action plan to improve the resource itself Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact
	Maintain Exmoor's local sheep, cattle and pony breeds to retain important genetic diversity and local distinctiveness	

Programme B – Connecting People and Places

Priority	Strategic activity	Recommendation
B1 Promote Exmoor National Park as a special destination and develop the Exmoor brand	Strengthen the Exmoor National Park brand and its association with high quality experiences.	Recommendation 9: Explore the opportunity to develop an increased woodland-based recreation offer and the benefits of co-ordinated development including the co-ordinated branding or marketing of facilities.
	Work with the local community, tourism businesses and providers to provide a high quality experience	
	Develop a programme of promotional and marketing activities using the Exmoor brand	
B2 Maintain high quality rights of way, services and facilities to enable people to explore and experience the special qualities of the National Park	Maintain a high quality rights of way and access network, services and facilities, undertake targeted improvements and make linkages	
	Ensure recreation is well managed to maximise enjoyment and protect National Park's special qualities from damage	
	Promote and facilitate more sustainable modes of travel to Exmoor and leisure use within the National Park	
B3 Inform, inspire and engage people about Exmoor's special qualities	Provide information on Exmoor's special qualities through a variety of media and outlets responsive to user needs	Recommendation 5: Greater educational opportunity and material should be made available to children in and around Exmoor National Park in partnership, building upon current
	Inspire and engage people about	

Priority	Strategic activity	Recommendation
	Exmoor's special qualities and encourage enjoyment and understanding amongst new audiences including families and younger people	activities and exploring offers of educational access to other woodlands. Recommendation 6: The benefits of increased co-ordination of educational activity and provision should be explored with a view to developing a co-ordinated programme and seeking resources to address key obstacles and opportunities

Programme C - Towards a Sustainable Future

Priority	Strategic activity	Recommendation
C1 Support community led initiatives that help to meet local needs	Support and work in partnership with Exmoor's communities to plan for and achieve their aspirations	Recommendation 16: Develop, with partners, an action plan that will further develop the sector Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new opportunities
	Encourage the delivery of local and affordable housing that is appropriate to and meets the needs of local communities	
	Maintain and where possible improve accessibility and sustainable modes of travel	
C2 Help businesses to be more sustainable, support entrepreneurship and improve economic prospects for young people living and working on Exmoor	Improving economic prospects for young people living and working on Exmoor	
	Support entrepreneurship and help local businesses to become more sustainable	
	Encourage businesses and entrepreneurs in activities that utilise and add value to Exmoor's sustainable local resources such as food, wood and wool	
C3 Help farmers, foresters and land managers to produce food, timber and other produce while protecting and enhancing Exmoor' s special qualities and delivering ecosystem services	Explore different land management practices which produce food, timber and other produce whilst protecting and enhancing Exmoor's special qualities and delivering ecosystem services	Recommendation 14: Develop, with partners, an action plan to improve the resource itself Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new

Priority	Strategic activity	Recommendation
		opportunities Recommendation 16: Develop, with partners, an action plan that will further develop the woodland sector Recommendation 18: The National Park Authority, in partnership with others, should undertake a woodland opportunity mapping exercise and explore opportunities for 'top up ' funding as incentives to target areas of greatest impact
	Undertake a series of actions to help improve the economic prospects of livestock farming in the National Park	

Priority	Strategic activity	Recommendation
C4 Make progress towards becoming a carbon-neutral National Park	Support initiatives that help businesses and communities to mitigate and adapt to climate change	Recommendation 1: The principles and priorities for adaptation set out in the "Read Report" should be applied to the woodlands of Exmoor and the action plan should reflect these. Add woodfuel elements here Recommendation 14: Develop, with partners, an action plan to improve the woodland resource itself Recommendation 15: Develop, with partners, an action plan that will increase demand and seek out new opportunities Recommendation 16: Develop, with partners, an action plan that will further develop the woodland sector
	Encourage land management practices that help to reduce greenhouse gas emissions, increase carbon storage and build the resilience of the landscape to the impacts of climate change	
	Develop the evidence base required to inform the approach to achieving carbon neutrality and climate change adaptation	