

‘Unlocking the Potential’ - Delivering Ecosystem Services in the Wimbleball Catchment. Phase 1 Project Development



Project summary

Phase 1 of the project has been a pilot running for six months from Sept 12 to March 13, focused on the south eastern part of the National Park around the Wimbleball catchment. The project is investigating the range of ecosystem services provided in the catchment, helping to provide a better understanding of the natural and cultural assets, and how to optimise the public benefits that are provided by them.

In summary, the project aims to:

- explore what makes the Wimbleball catchment special
- identify the range of benefits it provides to local people and more widely
- identify the issues and opportunities arising from looking at ecosystem services within the catchment
- use this understanding to shape decisions on how the catchment can be cared for and managed in the future

Phase 1 of the project involved development of the project including establishment of a partnership group, developing a joint vision for the area, undertaking initial audits of ecosystem services, preparing GIS maps of the different ecosystem services, piloting farm-scale ecosystem service audits, and identifying potential landscape, biodiversity and historic environment enhancements. A variety of events have been held to engage with the local community, businesses and users.

Project partners

Exmoor National Park Authority is leading development of the project, working with Natural England, Forestry Commission, Environment Agency, West Country Rivers Trust, South West Water, South West Lakes Trust, Exeter University, Exmoor Society, National Trust, Exmoor Hill Farm Project, local farmers and foresters, local community groups and recreational users.

Phase 1 outcomes

The first stage of the project is helping us to understand more about the specific ecosystem services provided in the Wimbleball catchment:

Food provision

The catchment is an important source of food, particularly meat from livestock farming. It is more intensively farmed than other parts of the National Park, and consequently has a different landscape character. However overall numbers of beef and sheep are declining, mirroring trends across Exmoor and nationally. The work we have done so far has clearly demonstrated the importance of land management to delivering the other ecosystem services, including water quality and supply.

Government policy is to drive sustainable intensification of food production which could lead to a move for increased livestock numbers and inputs. At the same time, changes in funding through CAP reform are likely to mean that there is less public money available for agri-environment schemes, and that future schemes will be more targeted at designated sites. This could have a particular significance for land management around the reservoir, as very few farms are likely to be targeted for higher level schemes. Farmers are therefore likely to be interested in alternative sources of funding, such as payments for ecosystem services, carbon payments.

The project piloted the approach of looking at ecosystem services on a farm scale. The farmers interviewed as part of this pilot were interested in how an ecosystem services approach to the farm might help provide them with ideas to improve the range of services delivered, including resource protection. In particular, the project highlighted the broad range of ecosystem service benefits that well-

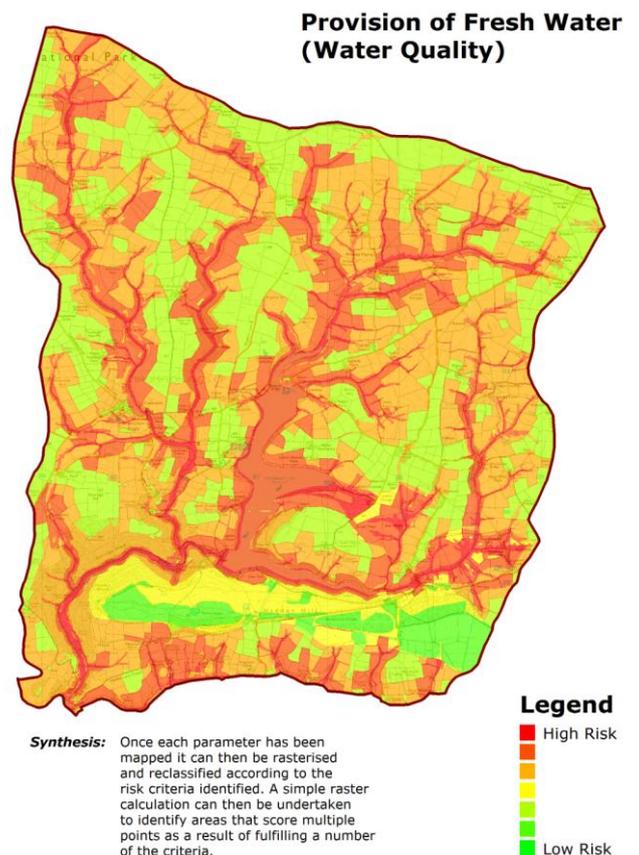
managed soils can have including food production, reducing sedimentation and diffuse pollution, and climate change mitigation. It also identified the potential for future work to be 'clustered' in target areas, utilising the GIS mapping to identify the areas of greatest risk, providing the basis to work with a group of farmers and landowners to collectively look at and tackle the issues. An integrated approach bringing together different initiatives to provide consistent messages and advice to farmers, would also be a more effective and efficient means of delivery.



Image Trevor Short, © ENPA

Water supply – the catchment and reservoir are particularly important for providing clean drinking water. Wimbleball reservoir and the river Exe directly provide water for around 220,000 people in Tiverton and Exeter. Water is also pumped to Clatworthy reservoir to supply households in parts of Somerset, and transfers can also be made to the Roadford supply area. Water from the reservoir is used to recharge the river Exe at times of low flow to help maintain water quality and ecological status.

Water quality – this is influenced by land management in the surrounding catchment. Upstream Thinking has provided funding for some capital works to avoid point source pollution, but diffuse pollution is still an issue. The rivers Pulham and Haddeo are failing in Water Framework Directive terms, and further work is being undertaken by EA, SWW and partners to investigate why, with a focus on farming, forestry management and sewerage. GIS mapping identified high risk areas for water quality.



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Woodlands – Woodlands and hedgerows provide multiple ecosystem services. They provide timber, woodfuel, places for recreation, and ancient semi-natural woodlands are important wildlife habitats. They can also help with resource protection, for example by reducing erosion, slowing down the flow of water, and intercepting pollutants. Around 10.5% of the catchment is wooded including ancient woodland but also a significant amount of secondary woodland. There are 462km of hedgerows, about 40% of these are more mature, traditional hedgerows and the remainder are thinner, tightly-flailed hedgerow and/or gappy ones. In addition there are nearly 1900 individual trees.

Hedgerow and woodland data

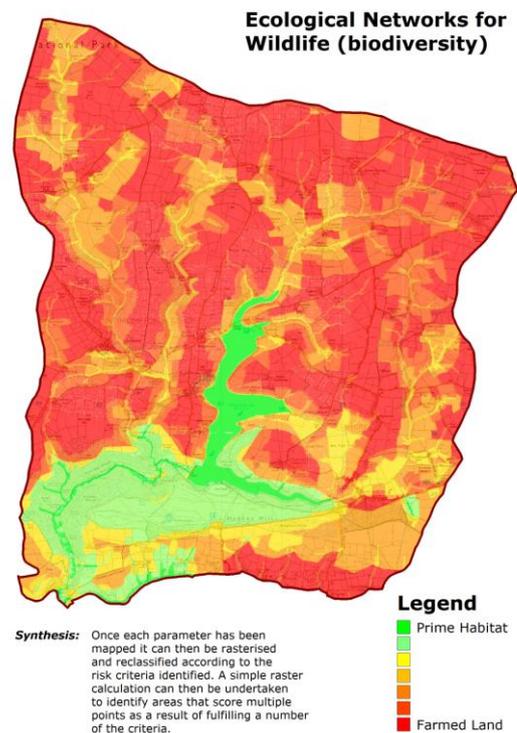
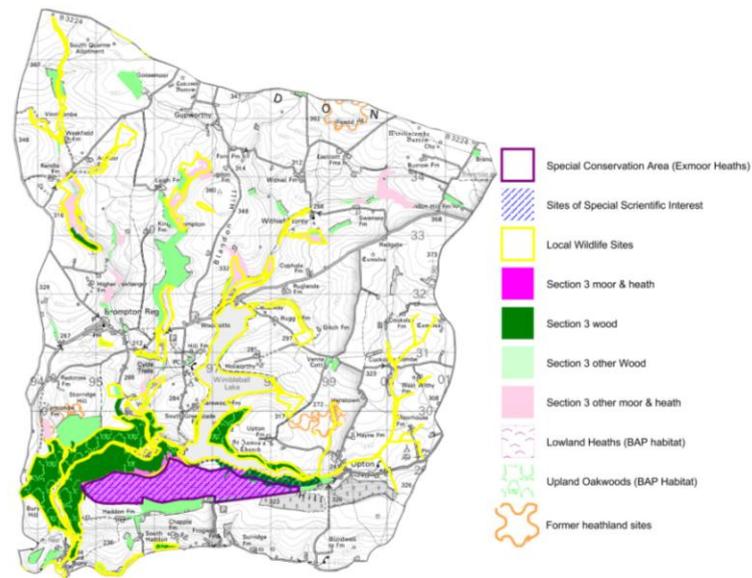


Carbon – the main opportunities for carbon storage and sequestration are likely to be from woodlands. Overall it is estimated that there are 517,675 tonnes of CO₂ stored in existing woodlands, individual trees and hedgerows in the project area. Over the next 20 years it is estimated that existing woodlands, trees and hedgerows in the project area will generate around 3,600 tonnes of ‘carbon gain’ every year, through carbon sequestration in tree biomass and wood products, and direct and indirect fossil fuel substitution. Along with carbon gain from hedgerow management, this has the potential to sequester about a third of the greenhouse gas emissions from agriculture in the project area annually. The ‘offsetting’ potential could be increased through new woodland creation. The carbon storage of soils and grassland in the project area were not investigated but could also be significant.

Biodiversity - habitats

The project area contains sites of international, national and local importance for wildlife. Haddon Hill lies within the Exmoor Heaths Special Area of Conservation (SAC) and within South Exmoor Site of Special Scientific Interest (SSSI). The area contains 41 Local Wildlife Sites (LWS) including unimproved grassland, marshy grassland, ancient woodland, semi-natural broadleaf woodland, and mosaic sites (typically containing different grassland types, bracken, scrub and woodland). The rivers and lake are also LWSs, the latter being selected due to its growing importance for wintering wildfowl, passage migrants and breeding birds. 21 of the LWSs within the project area are of particular interest for wildlife due to their association with the reservoir and its tributaries. The Biodiversity Action Plan (BAP) priority habitats include lowland heathland on Haddon Hill and upland oakwood on the surrounding slopes and valley systems. There are Section 3 habitats¹ such as the moor & heath of Haddon Hill, and surrounding woodland. Areas of 'other moor & heath' are found on the steep valley sides of streams feeding into the lake, and other woodland. There are some scattered areas of former heathland which were lost between the 1950s and 1980s, which mostly now consist of improved grassland. GIS mapping identified areas of opportunity for habitat enhancements.

Ecological data - habitats



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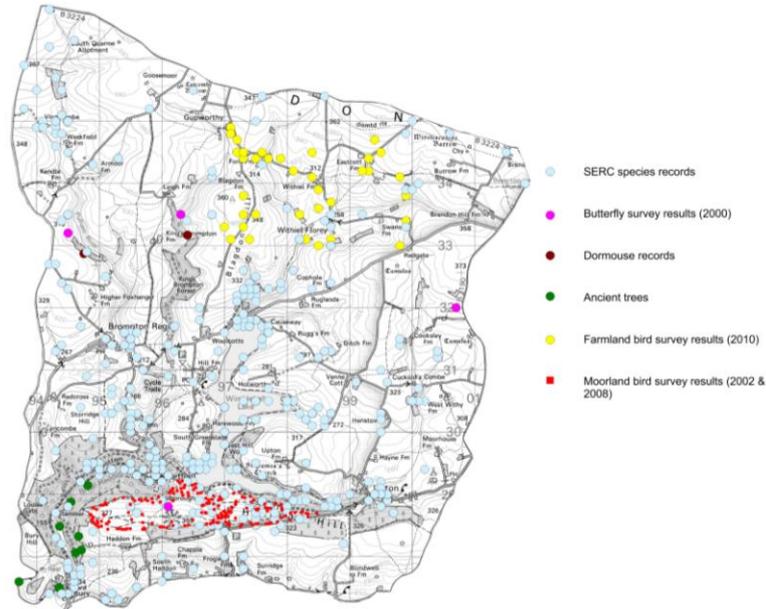
¹ listed under of the Wildlife and Countryside Act

Biodiversity - Species

Although survey data is not complete, there are around 1500 species records. The number and diversity of species has been a surprise, including BAP priorities such as dormice, otter, nightjar, pink waxcap, whitebeams, barn owl, heath / high brown fritillaries, bats, labaria pulmonaria (lichen) and others. There are also records of typical farmland and woodland birds, such as skylark and pied flycatcher, within the area.

Funding was made available from the Exmoor Landscape Conservation Grant Scheme to support enhancements.

Ecological data – species



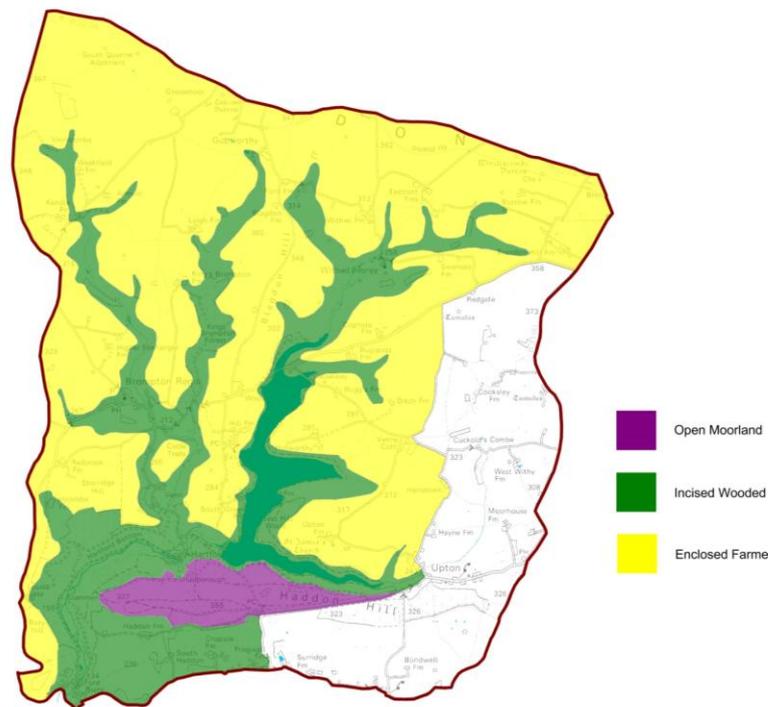
Landscape character

Landscape character is not identified as an ecosystem service in itself, but it forms part of the 'cultural services' that people value including places that provide inspiration, spiritual and aesthetic values, social associations and sense of place. The benefits of these services are difficult to define and quantify, but are likely to be valued by local people and visitors alike. However, the landscape, natural beauty and tranquillity are often cited as key reasons why people visit, and can be linked to the economic value generated from recreation and tourism.

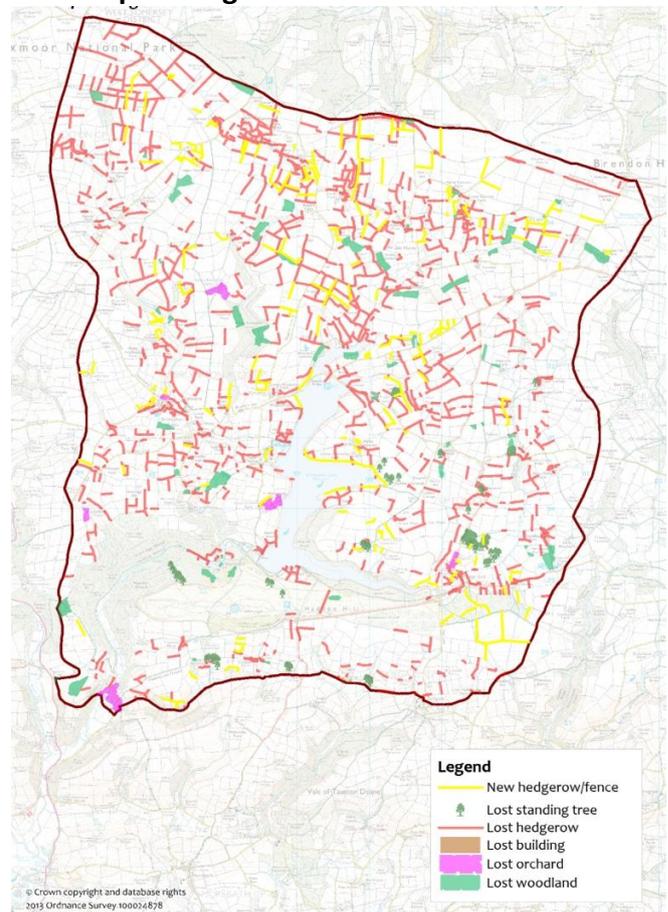
The Wimbleball catchment has a distinct feel and character, compared to the rest of the National Park. There are three main landscape types: the moorland of Haddon hill, the incised wooded valleys, and the enclosed farmed hills with commons. The lake forms an important part of the landscape but is not included as a specific landscape type.

An assessment of changes in the landscape since the early 1900s has shown the loss of certain characteristic features such as hedgerows, orchards traditional buildings and some woodlands. Funding has been made available from the Exmoor Landscape Conservation Grant Scheme to support landscape, historic environment and biodiversity enhancements which may enable restoration of some of these features or other positive management.

Landscape Character Types



Landscape change – lost features



Historic environment

The landscape is the result of thousands of years of people living and working the land. Today's landscape reflects the history of these changes, and remnants of different times remain. The historic environment record has 414 records in the area, including 8 scheduled monuments and 26 listed buildings.

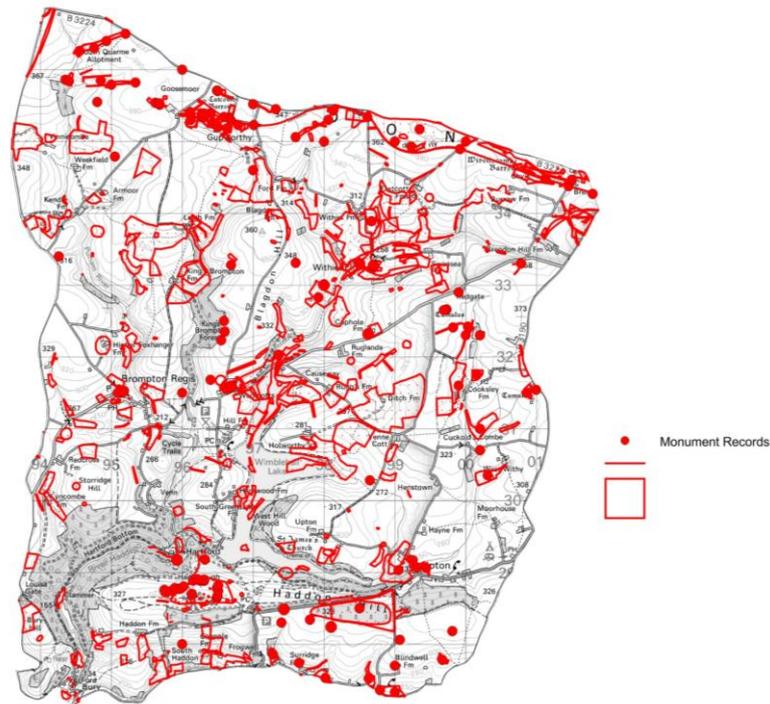
There is evidence of prehistoric activity from Bronze Age barrows (burial mounds dating from 2400-1500BC), although there is not much evidence of the associated enclosed settlements and field systems. The most surprising discovery recently was the identification of a Roman Fort Rainsbury Farm in Upton and records of chance finds of Roman coins indicate further activity.

Iron working has been an important feature of the landscape, most notably during the mid-late 19th century to exploit the high quality iron ore lode which was workable from Raleigh's Cross mine to Gupworthy and beyond. The West Somerset Mineral Railway ran intermittently from 1861 until 1916 carrying iron ore to Watchet for transhipment to the South Wales smelting furnaces.

In the 18th and 19th centuries small scale attempts at landscape design were initiated including a minor country house and park built at Withiel Florey (demolished in the 1820s). Other elements of designed landscape are tree enclosure rings on the ridge south of Upton and Hadborough on Haddon Hill.

During World War II there were military camps on Treborough Common (although little evidence remains), and Haddon Camp which was much larger and visible on old aerial photographs.

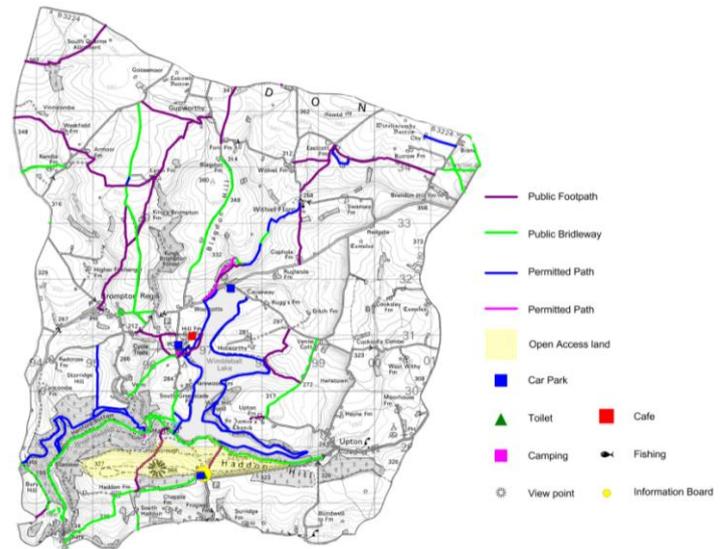
Historic Environment Record



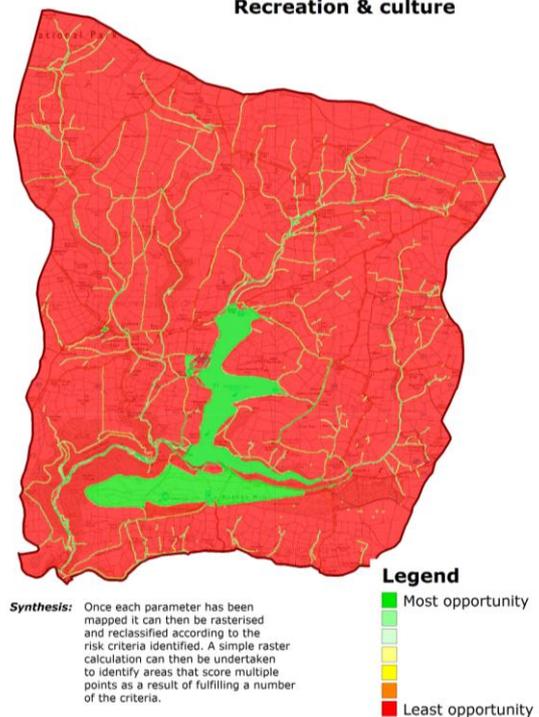
Recreation and tourism

Wimbleball lake provides an important centre for tourism and recreation, with around 126,000 people visiting annually. It is a place for quiet enjoyment and recreation with fishing, sailing, walking and bird watching as the key activities. The annual UK Ironman triathlon attracts over 6000 spectators and competitors. Haddon hill is also popular with locals and visitors. GIS mapping identified areas of opportunity for access and recreation.

Access and recreation



Recreation & culture



For further information about the project please contact:

Clare Reid, Project Manager
Exmoor National Park Authority
Email: CREid@exmoor-nationalpark.gov.uk
Tel: 01398 323665