

A Natural Capital Valuation of the Tamar Valley AONB



Report For

Tamar Valley AONB

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1.1 What is a Natural Capital valuation, and why is it useful?

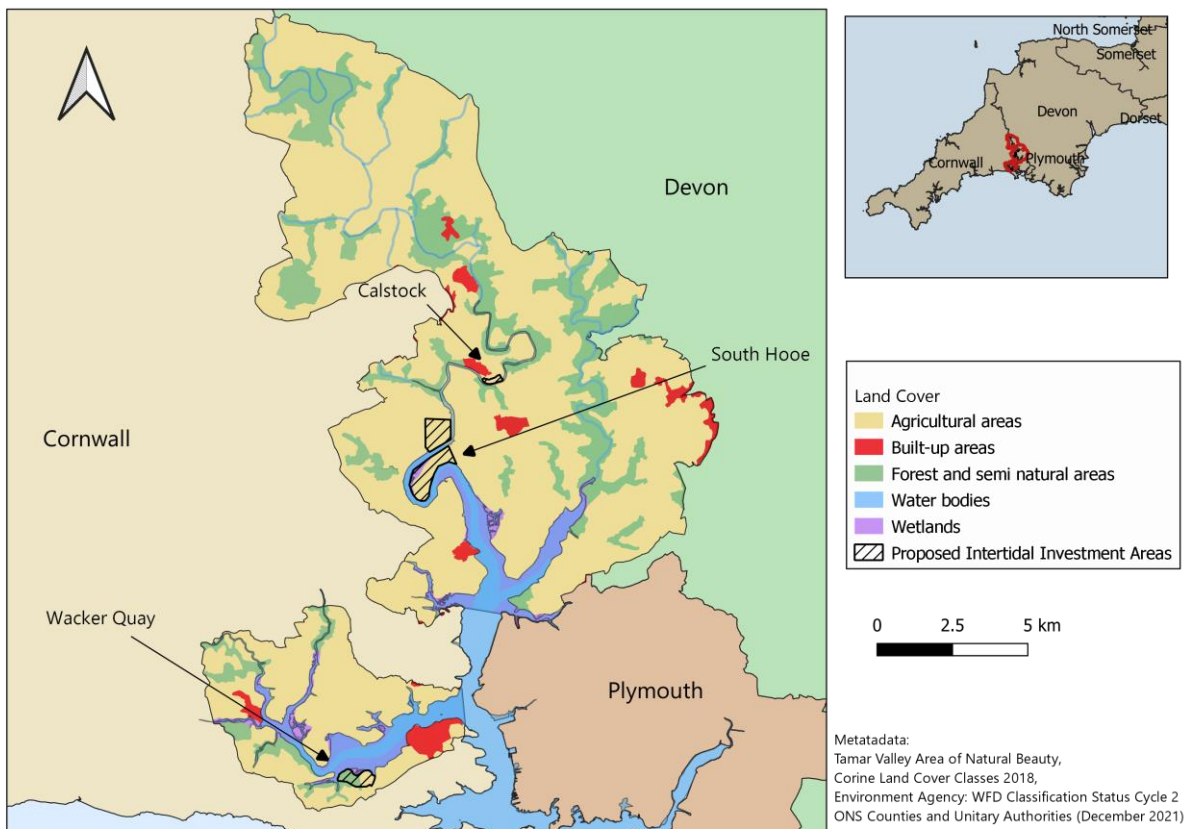
We all enjoy benefits from the landscapes around us. This list of benefits is substantial. Without varied environments and the goods and services these environments provide, we would cease to exist as a species. Some of these benefits will feel obvious, such as food produced and water filtered for drinking. Many benefits though may be less evident in our day-to-day lives, such as the contribution of biodiversity to ecosystem resilience, the health benefits of accessing green spaces, and the mitigation of flooding events.

Often the value of these benefits goes unnoticed in the economy. We're not used to paying for the benefit of things like climate regulation or improved mental health. The notion of 'Natural Capital' attempts to acknowledge the fact that all these benefits contribute to our economy.

Without them, we would reduce our capacity to grow as a society. It follows that by putting a value on these services we are likely to make better decisions about how we use our landscapes. When considering a change in land use, acknowledging the Natural Capital value means we can avoid making decisions that diminish the total value of the environment, rather than just thinking about conventional, often short-term economic gains.

The value which a Natural Capital assessment puts on benefits delivered by the environment is expressed in monetary terms. This is not to say that all these benefits have direct monetary value, in that they could be bought for cash. Rather, the monetary value of the services is used to present an equivalent to the type of value

Figure 1: The Tamar Valley AONB and its habitats



we are used to interpreting – how much things cost. By presenting Natural Capital in monetary terms, we are able to compare benefits with ‘real’ costs and revenues which could be purchased with cash. We can then see whether any proposed landscape change is really delivering an overall benefit for society – or whether it is undermining the value of goods and services provided by the environment.¹

The Tamar Valley AONB is a spectacular piece of British countryside nestled on the Devon/ Cornwall Border. There is a heavy presence of agricultural land (like much of rural England), as well as a rich array of habitats, including rivers, wetlands, woodlands, and urban environments of a range of sizes (see **Figure 1**).

As part of its work for the Tamar Valley AONB’s Natural Environment Investment Readiness Fund (NEIRF) project, Eunomia has undertaken a

Natural Capital assessment of the Tamar Valley AONB to support the development of investment interest in the region’s environmental services. This report contains the findings of our Natural Capital valuation, a description of the method used to calculate these results, and some suggestions of how Natural Capital could be enhanced in the AONB in years to come.

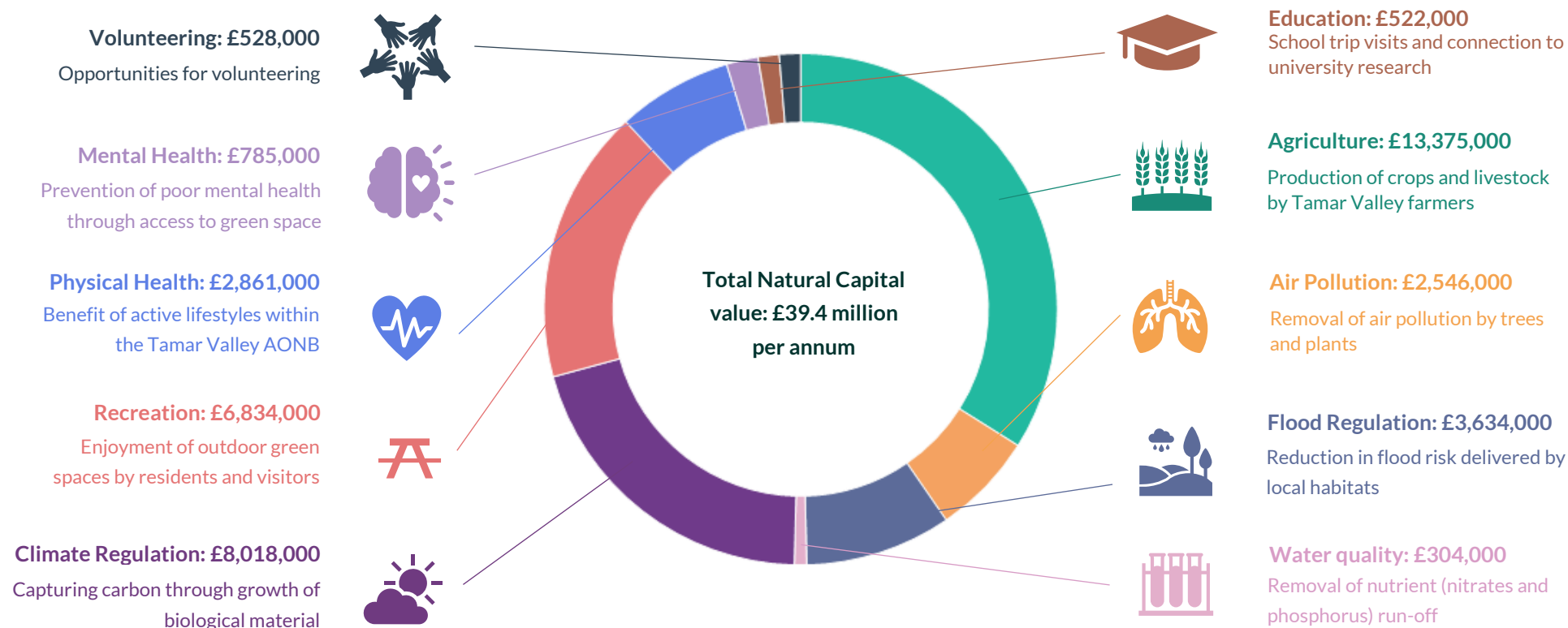
Eunomia has also been looking at three sites in particular, each labelled on the map. These are a restored wetland at Calstock, the potential for restored wetlands at South Hooe, and a potential woodland creation project at Wacker Quay. These sites each deliver their own environmental and social benefits, and have the potential for their Natural Capital values to be improved through land-use change. Work to consider possible investment opportunities in these sites continues, with further information available via the Tamar Valley AONB team.



¹ It’s difficult to identify every benefit delivered by an ecosystem, and therefore, we almost certainly under-value Natural Capital in our assessments.

1.2 What is the Natural Capital value of the Tamar Valley AONB?

The results of our Natural Capital assessment of the Tamar Valley AONB are included in the diagram below. Each category provides a short description of the Natural Capital category and the estimated valuation. All the values present the benefits provided each year by the Tamar Valley AONB (in 2022 prices). The biggest contributors to Natural Capital in the Tamar Valley AONB come from **Agriculture, Climate Sequestration, and Recreation**.



In addition to these values, the value of **Biodiversity** in the Tamar Valley AONB is estimated to be almost **£2 billion!** This is not an annual figure, but a total stock of biodiversity, hence being presented separately to the values above.



1.3 How do we get to this value?

In broad terms, our approach to Natural Capital valuation applies a method of ascertaining the quantity of an environmental good or service provided, and multiplying this by a value per unit of the good or service. Our approach is consistent with Defra's Enabling a Natural Capital Approach (ENCA) guidance with some additional services added (e.g. water quality). Our modelling has been duly cautious to give a fair representation of Natural Capital in the Tamar Valley. The following descriptions set out the calculation approach for each of the values presented above.

Agriculture: Quantities of food production are estimated based on average yield per hectare data for wheat, dairy cows, beef, and lowland sheep. These yield quantities are multiplied by the gross margins (i.e. market prices minus production costs) for these products.

Recreation: Recreation values were assessed through the Outdoor Recreation Valuation tool (ORVal) developed by the University of Exeter. This tool estimates the number of visitors to a site using information such as site accessibility and local socioeconomic characteristics. Value placed on time spent in greenspaces is calculated using a detailed econometric model, with further information available from the ORVal website.

Education: Visitor numbers were assessed using ORVal, with 1% assumed to be educational. A conservative calculation of educational value is applied which assigns value based on estimated costs of travel to the Tamar.

Air pollution: Quantities of air pollutants removed by green spaces are estimated using data on habitat areas and factors for per hectare pollutant removal rates. The value of the pollutant removal is established by multiplying tonnes of pollutants removed by damage costs per tonne of pollutant removed.

Flood regulation: Quantities of flood water absorbed by woodland is estimated using data on areas of woodland and quantities of water storage per hectare of woodland. A value is placed on this water storage by using the cost per m³ of water stored which would be incurred if reservoirs were required in lieu of the habitat. The valuation of flood regulation benefits provided by wetlands uses per hectare values derived by the National Ecosystem Assessment.

Water quality: Quantities of Nitrates and Phosphorus removed or leached were estimated for land uses in the Tamar, using removal/leaching rates for various habitats. A value of these benefits/disbenefits has been calculated using damage costs per kg of Nitrates and Phosphorus released into water courses.

Volunteering: Quantities of time undertaken volunteering in the Tamar were estimated as 0.5% the ORVal visitor numbers. The value of this time is estimated using a potential fee per hour if this time was not given for free.

Mental Health: Visitor numbers were assessed using ORVal. The value is derived based on estimates of avoided costs to mental health services as a result of visiting green spaces.

Physical Health: Visitor numbers were assessed using ORVal. An estimated number of 'active' visits was estimated as approximately 45% of all visitors. The number of active visits is converted to Quality Adjusted Life Years (QALYs) of benefit, with each QALY assigned a value based on reduced healthcare costs.

Climate Regulation: Quantities of CO₂e removed and emitted by habitats in the Tamar were estimated using sequestration and emission factors per hectare of various land uses. These GHG sources/sinks were valued using social costs of CO₂e emitted to the atmosphere.

Biodiversity: The extent of various habitats within the Tamar are multiplied by metrics for 'biodiversity units' per hectare. A value for each unit is based on the likely market price for each unit.

1.4 Could more Natural Capital value be created in the Tamar Valley AONB?

Though already providing high levels of Natural Capital, the Tamar Valley AONB has great potential to deliver even more environmental and social benefits through its landscapes. A range of actions could be taken, with varying implementation timelines and costs. Our suggestions are provided below.

Enhancing garden diversity:

Providing support and materials for residents to improve the diversity of planting types in gardens will enhance habitat availability for a wide variety of species.

Hedgerow expansion:

Hedges provide important corridors for wildlife. Expanding their length and allowing existing hedges to mature will lock up carbon and provide additional habitat for wildlife.

Footpath and access

improvements: Ensuring footpaths are well maintained and creating more access points to green spaces will facilitate greater visitor numbers and boost associated physical and mental health benefits.

Small scale tree planting:

This is possible on marginal land, providing scattered habitats for a range of species and enhancing the diversity of agricultural landscapes.

Shorter term, simpler to implement

Longer term, more challenging to implement

New wetland creation:

Wetlands are vibrant habitats rich in nutrients and species. The river Tamar and its tributaries provide exciting opportunities for expanding wetland habitat, with several projects already in progress. Undertaken with consideration of local residents, these projects can attract more wildlife to the local area, store carbon, and compensate for coastal habitats squeezed by hard coastal defenses.

Reducing agricultural fertilisers and herbicides/pesticides:

These steps require careful thought given their relationships with agricultural productivity, but delivered carefully could reduce environmental pollution and enhance biodiversity. Guidance on these steps is rapidly emerging from organisations such as the AHDB and WWF.

Creating green spaces in new housing developments:

Ensuring new housing developments include high quality, extensive green space will ensure residents have great opportunities for recreation, whilst increasing the availability of habitat for urban wildlife. Planned effectively, these new developments can provide green corridors throughout urban environments.

Native woodland planting:

Converting land with low biodiversity value to woodland can bring numerous benefits – storing carbon, enhancing biodiversity, and creating opportunities for access to green space. Converting large areas of land requires greater consideration of what existing land use will be displaced, but could create opportunities for new revenue sources such as carbon credits.

