

Reappraising the East of England's woodland

The value of trees, woods and forests in the East of England



Woodbank assets 2010:

£1.3 billion

We all know trees provide timber and this versatile resource is regularly used to build or heat our homes, to make paper and much more. But trees are immensely valuable in many other less obvious ways. They support wildlife, benefit human health, add to our economic sustainability, contribute to the attractiveness of landscapes and help to counter the impact of climate change.

All of these contributions have both a direct and indirect benefit for the East of England and this reappraisal exercise has arrived at a monetary value for the 'natural benefits' that the existing woodland provides. But as many of these benefits are hard to quantify, a variety of methods have been applied to put a value on this asset.

In the East of England it has been calculated this woodland asset is worth £1.3 billion.

This is a conservative estimate, as it is the midpoint of a range of values from £1 to £1.5 billion, and this total represents the annual level of wealth generated by forest and woodland each year.

With such a wealth of benefits arising from the East of England's present trees, woodlands and forests, it makes great sense to consider projects that will grow this valuable asset.

From this total it is clear that increasing tree cover and/or timber usage will contribute to the environment, as well as benefiting us economically and socially.

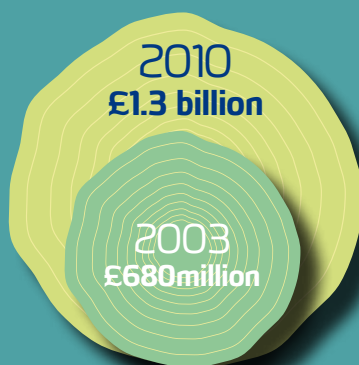


Calculating the woodland asset

This document summarises an in-depth "Woodland Wealth Appraisal" conducted by the University of Gloucestershire in 2010.

The complete document can be viewed at: www.woodlandforlife.net

This study, updated and built on the original appraisal published in 2003, and suggests an increase in asset value:



Has this woodland asset increased?

Yes, to some extent: there is more woodland in 2010 than there was in 2003, and the value of some products have increased. However, the biggest increases are due to more accurate measures of values and of course inflation that has had an impact over the intervening period.

Audience

The Woodbank will be of interest to local authority members and officers, businesses, environmental groups and every active community involved with its trees and woodlands.

Sustainable development

Consideration of trees and woodland in the East of England can enable communities and new development to be more sustainable.

Arising from Defra's Natural Value Programme, the 'natural value' of ecosystem services that woodland provides (such as regulating climate, filtering water, purifying the air and storing carbon), as well as the social benefits (recreation, health, etc.) delivered by wooded areas are as important as the monetary values ascribed to timber. These 'natural values' underpin the three pillars of sustainable development around which this reappraisal has been structured.

Climatic issues

The growing significance of climate change, especially for the East of England, means this issue is now treated as a separate and additional pillar of this reappraisal. As a crosscutting factor, climate change may already be having an impact on all of the natural values that woodland and trees supply.

Trees play a crucial role in regulating our climate and in helping mitigate the effects of climate change. They also extract carbon from the atmosphere and store it; there it remains until the tree is felled for fuel or for timber. If used as timber this carbon may well get locked away in a building or another product for years. In fact wood has a vital potential for displacing the use of carbon intensive materials such as iron, steel and concrete throughout construction.

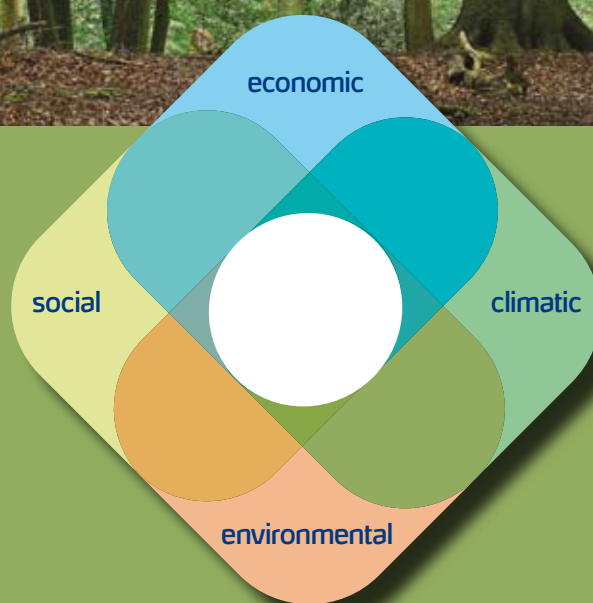
Trees also remove pollutant particles from the air, slow down flooding and provide shade along riverbanks. But these benefits are not confined to trees in rural areas. For example, urban trees have a cooling effect during the summer and provide insulation during the winter – natural air conditioning!

Four pillars of sustainability

Accordingly for this document's structure, along with the accompanying 'woodland for life' website and its data content of case studies, analysis papers and opportunities for action ideas, has been based around these four pillars of sustainable development and how they interrelate (see right).

The contributions made by trees and woodland across the East of England may be defined as falling into two broad categories, namely direct market benefits and indirect contributions.

Overleaf we have summarised all of these benefits and indicated how much each factor contributes to this valuable woodland asset:



The range of ecosystem services provided by woodland:

provisioning services

regulating services

cultural services

supporting services*

*Services/'Natural values' include –

Provisioning: woodfuel, timber, bio-chemicals and fruits

Regulating: climate moderating, water regulation and purification, pollution absorption

Cultural: recreation and tourism, a range of health benefits and cultural heritage

Supporting: soil formation, nutrient cycling and water circulation

Direct market benefits



ECONOMIC

1 Timber and wood products

The woodlands of the East of England provide an input of **£345.5 million p.a.** to the economy.

The main use of trees and woodland is as a raw material for the timber industry. Being predominantly in rural areas managed forests contribute significantly to the diversity of the rural economy. This industry contribution covers suppliers of seedlings, machinery and processing facilities such as mills, plus factories for turning out wood-based products.

The UK is the second largest importer of timber in the world

Although the UK is the second largest net importer of timber in the world, the woodland of the East of England nevertheless supports almost 2800 jobs, arising from direct or indirect aspects of timber production.

2 Renewable energy

It is estimated that woodfuel currently adds around **£5.2 million** to the regional economy.

Wood is a clean renewable, carbon-lean energy source. Approximately half our energy needs in the East of England are used for heating. Woodfuel is a valuable source of energy, especially for heat generation. Yet there are over 60,000 hectares of undermanaged woodland in the East of England that could be providing fuel, in the form of logs or woodchip.

60,000ha of undermanaged woodland

Woodfuel East - a project to stimulate the woodfuel industry and to encourage woodland management in the East of England - has a target of harvesting an additional 110,000 green tonnes of timber per year (with a gross value of approximately £11 million), which will bring over 15,000 hectares of woodland into management, save 90,000 tonnes of carbon dioxide per year and stimulate 120 full time equivalent jobs.

3 Recreation and tourism

The recreation spend generated by woods and forest is **£550 million p.a.**

Woods and forests help make recreation and tourism a major industry for the East of England. There are some 175 million leisure visits each year to woods and forests here. Each visit generated an average spend of £35.69, which amounts to an estimated overall spend of some £193 million.

17.5 million leisure visits to woodland

Holiday destinations that use forests as a backdrop, such as Center Parcs at Elveden, also generate considerable indirect value to the economy of the East of England - amounting to some £15 million from wages and £2.5million from contracts locally and within the East of England. These figures are just a small part of the overall recreation spend generated by woods and forest.

4 Field sports and game

The total gross value added from shooting that can be attributed to woodland in the East of England is estimated to be around **£81 million**.

Field sports are a significant user of woodland and are therefore a principal management consideration for many private woodland owners.

Substantial income

Sporting/shooting usage of woodlands is one of the activities most likely to generate significant income, and can thus strongly influence woodland management and contribute to local rural economies. This total gross value includes spending by both shoot providers and the shooting fraternity.



5 Housing and industry

The many roles of trees conservatively contribute **£30.6 million per annum.**

Woodlands in the East of England perform many roles that benefit both residential and industrial premises/sites. For example the value of green infrastructure, which includes trees' and woodlands' contributions to land and property values, local economic regeneration and inward investment, has been demonstrated by a number of studies. Thus it has been calculated that for every 1% added to the tax base by well-designed and located tree cover, an additional £15.9m of annual revenue could be created.

Property adjacent to trees are valued from 3 - 18% more

Numerous studies of property values influenced by the presence of trees have concluded with such a wide range of answers that no definitive estimate can be produced.

Also in the East of England as many as 125,000 properties are at risk from flooding. Woodland has the potential to ameliorate this flooding by slowing down run-off. If the woodland in the East of England were to reduce this risk by 1%, this would represent an annual worth of £880,000. While the avoidance of not having to remediate damaged land is put at £14 million.



- 1
- 2
- 3

Woodbank
£1.3



CLIMATIC

6 Carbon storage* and sequestration

Based on traded carbon values in 2010 the annual total added is just under **£60 million** per year.

Trees naturally absorb carbon dioxide as part of photosynthesis, capturing a considerable amount of carbon from the atmosphere and acting as a carbon store. Forests and woodlands account for around 80% of the vegetation carbon stock in the UK. Forest soils also sequester carbon through fallen leaves and the undergrowth. In fact plant matter is the single most important source of carbon in the soil.

Our woodlands annually absorb 1.1 million tonnes of carbon dioxide

In the East of England woodland is estimated to absorb a total of 1.1 million tonnes of carbon dioxide per year (CO₂/yr), excluding soil carbon sequestration. Based on traded carbon values in 2010 the annual amount added is just under £60 million per year, and is anticipated to rise to £342 million per year by 2070.

* The current stored carbon stock in the woodlands and trees is estimated to have a total value of £3.534 billion. It is predicted this value will rise over time in line with increases in the value of the traded price of carbon. As this substantial figure skews the total results we have chosen not to include it in the overall calculation of the annual woodland asset.

SOCIAL

The quality of the environment is a vital contributory factor to our health, wellbeing and quality of life. The nature of the urban environment, plus the wider landscape and countryside in which it sits, has a considerable effect, even though we may not realise it. The cleanliness of our water, the air and the character of our neighbourhoods all make important net contributions to our health and trees play an especially important part in maintaining these valuable qualities.

Indirect contributions

7 Health and wellbeing

Over **£19.5 million** of health savings every year.

A considerable body of evidence has been gathered over the past few years about the importance of green infrastructure (of which woodland is a part) and its benefit to our health. Woods and forests provide opportunities for increasing physical activity and the promotion of psychological health and mental wellbeing. Trees directly reduce pollution through acting as filters, capturing particulates that can trigger asthma attacks.

Ill health costs the economy over £1 billion p.a.

The cost to business in the East of England of working days lost through ill health is estimated to be over £1 billion per year.

Less than half of all people undertake adequate levels of physical activity. By increasing the level of activity through access to woodland, avoided health care costs in the East of England could save the economy millions of pounds every year. This is a conservative estimate as it only takes into account one disease (Cardio Vascular Disease) and does not account for the potential of physical activity in woodlands to cause reduction in costs associated with a wide range of other conditions such as Type 2 diabetes and mental illness, which costs the economy an estimated £26 billion a year.

8 Education

Forest Schools in the East of England are conservatively valued at **£1.23 million** per year in educational benefits.

Forest Schools have become well established in the East of England. These schools allow participants to learn and explore in a constructive way and encourage them to be active.

150 forest schools

Forest Schools provide confidence in the outdoors and the tools to develop healthy lifestyles, whilst also providing a unique and unforgettable learning experience. However, the real value of Forest Schools is difficult to estimate in monetary terms as the aim is to develop the individual. Specifically the individual child can gain a wide number of skills that in future will benefit both them and society.

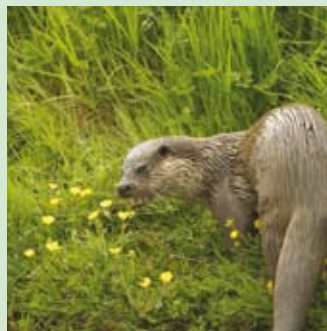


9 Landscape

Estimated to be worth **£124 million** per year.

Trees and woodland help to define the landscape as well as serving as an attractive backdrop to the villages and towns of the East of England. Locally accessible woods are an important aspect of our quality of life, yet only 38% of woodland in the East of England is freely open to the public. Nevertheless, the overall percentage of people with access has increased over the last five years.

The value of this landscape is based on the amount that people are prepared to pay for a view of woodland.



ENVIRONMENTAL

10 Biodiversity

It is estimated that trees and woodland are worth **£71 million** per year for biodiversity.

Woodland habitat is vital for many flora and fauna species. Woodland is an essential feature of many Sites of Special Scientific Interest, including Thetford Forest.

Woodland habitats are vital

Valuing biodiversity in monetary terms is difficult. At the local level, even very small improvements in woodland biodiversity are regarded as significant, and can be highly valued by local residents.

11 Air quality and water management

It is estimated that costs avoided due to the affect of trees amounts to around **£33 million** per year.

Hospital admissions linked to air pollution cost the NHS up to £60 million a year. Studies show that tree lined streets are associated with a lower prevalence of asthma in children, as the trees extract pollutants from the atmosphere. Trees also provide shade and reduce 'heat-island' effects in built up areas.

Trees also attenuate downstream peak water flows, riparian woodlands reduce water temperature through shading, thereby protecting fish populations, and cut soil erosion that, with drier summers and wetter winters forecast, may well increase.

How much woodland?

The East of England has around 145,000 hectares of woodland covering 7.6% of the land area. About 60% of the woodland is made up of broadleaved tree species such as oak and ash.

The Forestry Commission in 2010 was the largest single holding body, managing about 18% of the total area of woodland, with the remainder owned by local authorities, farmers and numerous private land owners, and voluntary and community organisations, charities, social enterprises and cooperatives.

Woodland is typically highly fragmented and small in size. There are over 5000 agricultural holdings in the East of England containing an average of less than 10 hectares of woodland per holding.

Potential timber harvest of 1/2 million cubic metres

It has been estimated that these woodlands in the East of England could sustainably produce over half a million cubic metres of timber every year. However the current harvest is less than a third of this.

Distribution of woodland (over 2 ha) in the East of England 2010.



Reappraisal's Scope

The 2010 document's scope includes the counties of Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk, as well as the respective Unitary Authorities (Bedford, Central Bedfordshire, Luton, Peterborough, Southend-on-Sea and Thurrock).

www.woodlandforlife.net

Partners: Country Land and Business Association, Cover, Department of Health, East of England Local Government Association, East England Development Agency, English Heritage, Environment Agency, Forestry Commission, FC Regional Advisory Committee, Greenlight Trust, Natural England, Norfolk County Council, RSPB, Suffolk County Council, Writtle College.

Photo credits: Andy Excell, Robert Goodison, Forestry Commission, Dynamic Creative.

Communications planning, design and production: www.dynamiccreative.co.uk 01353 661997 01/01/2011