Valuing oak

Gabriel Hemery

If we look at the utility of trees in a new light, and through a new lens, we may be surprised by what we can see and what we can value. Among all trees, the oak is perhaps best placed to gift us a renewed sight.

Dr Gabriel Hemery co-founded and is chief executive of the Sylva Foundation and a member of the Woodland Trust's conservation advisory committee. Author of *The New Sylva* (Bloomsbury 2014), his latest book *Green Gold* is a fictional biography of Victorian plant hunter John Jeffrey.
www.gabrielhemery.com
@gabrielhemery

> "We had better be without gold than without timber."
> John Evelyn, 1664

Not so long ago, any article concerning utility and trees would have focussed solely on the properties of timber, how it could be grown faster or straighter, with fewer defects, or with greater structural density. There would be mention of hoppus cubic feet (the standard British volume measurement for timber before metric units), basal area, and yield class. Fortunately rising timber prices[1] are encouraging landowners to think again about investing in forestry, but there's more to tree valuation than timber prices. Times have changed, language evolved, and understanding deepened.

In the 21st century there's not only a new lexicon to use when considering societal and economic benefits, but there is a new rule book to adopt for a new world.

Wooden walls

To be utilitarian means to provide a range of benefits. It's well known that oak supports more life forms than any other tree, and people have relied upon the strength and durability of oak for centuries. It was John Evelyn, in his 1664 book *Sylva*, who wrote about Britain's 'wooden walls', meaning the importance of timber to build ships to defend our shores from enemies. Shipbuilders placed highest demand on oak, without which we would not have emerged as the world's first superpower.

In the 17th, 18th, 19th, and much of the 20th century, we 'conserved' our forests to ensure their utility for our own needs. We employed forest conservators to ensure that we had pit props, gun stocks, boiler fuel and more, to feed our engines of war. In between, for everyday society, our forests fuelled our bread ovens, supported our bridges and buildings, and heated our homes. Britain's oaks were champions among all trees, at least until the Victorian plant hunters were successful in introducing a greater diversity of tree species to our shores, offering faster growth rates even if not the durability.

Conservation

Environmental consciousness gave birth to a new meaning for conservation. So blind were we to our own utilitarian needs that it took those with foresight and determination to awaken society to the increasing impact of human activities on the natural world. Through no fault of these early pioneers, early conservation was closer to 'preservation' - putting boundaries around the most important biodiversity areas and giving them designated status, attempting to freeze time and ecological processes. Later, our understanding of ecology began to incorporate the interaction of man with other species of animals, and with plants and fungi. Ecologists realised that a woodland managed for its utility for centuries and then abandoned so it would become more 'natural' was not necessarily the right thing to do; species had adapted and often thrived under the conditions created by certain forest management practices, although the full complexities were not entirely understood.

Ugly words, vital meaning

In recent times, a plethora of ugly and impenetrable words have emerged to mean important and inspiring concepts. In their singular meaning, these words are appropriate, but it's human nature to use these as labels, aiming for simplicity where perhaps a few more words would avoid misunderstanding and misapprehension. Any mention of 'sustainable', 'natural capital' and 'ecosystem services' is liable to confuse and confound, but their concepts are vital to life on earth (see Box 1).

Sustainable development: meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Natural capital: the earth's stock of natural assets. These include abiotic (geology, soil, water, air) and biotic (all living things).

Ecosystem services: a range of services derived from natural capital, which make human life possible. These include;

- provisioning (food, fibre, fresh water, genetic resources)
- regulating (climate, hazards, noise, diseases and pests, water/air/soil quality)
- supporting (soil formulation, nutrient cycling, water cycling, primary production)
- cultural services (spiritual enrichment, cultural heritage, recreation, tourism, aesthetics).

Real world environmentalism

Before 2000, the term 'green economy' was rarely used, but it grew to prominence in the United Nations' Agenda 21 action plan process, which aimed to support sustainable development while not degrading the environment. Businesses started to deploy 'corporate social responsibility' (CSR) in their business strategic planning. While governments came to view this as voluntary regulation, environmentalists or social activists can be sceptical about its real purpose, and critics sometimes call it 'green washing'. Businesses are thinking more deeply about their connection with the landscapes around them, how they can affect the health of their employees, attract a workforce, reduce their pre-processing costs and so on.

Such thinking is related to ecosystem services; those provisioning, supporting, regulating, and cultural services derived from natural capital. Surely they are worth quite a lot of money, but who will pay for them? In one sense, the members of the Woodland Trust are paying through their annual membership, perhaps with a focus on spiritual enrichment, cultural heritage, recreation, tourism, aesthetics (ie. cultural services). But what about the 30,000 hectares of land that the Trust owns across Britain? Should someone be paying by results for the X million cubic metres of water cleaned in rivers which run from and through its land? Should home owners near a well-managed estate pay for the view (after all, it would probably add considerably to the house value)? Should polluters and carbon-demanding industries pay for the carbon locked up by woodland owners? Identifying who should pay (it's worth noting that often many complimentary interests may be in play) is less of a challenge than identifying how much they should pay.

Treating a mature oak in a London park infected with oak processionary moth caterpillars

The time may not be too distant when all companies are required to complete natural capital reports. Many of these major landowning organisations, such as the Woodland Trust, are likely to realise the extraordinary value that they hold on behalf of the British public - and may yet benefit directly from it in unforeseen ways. Over the last three years, Forestry England (formerly Forest Enterprise) has begun calculating and reporting natural capital accounts for the public forest estate (PFE)[2]. The most recent accounts (2017/18) value the total net capital assets at £2.2 billion, effectively adding 10% on top of the last known valuation of the PFE. Perhaps the Government is relieved that it did not dispose of the PFE after all, especially as these are still early days in such accounting techniques. Indeed, as recently as 2014 (soon after the aborted PFE disposals), the social and environmental benefits of the PFE were estimated to be only £600 million[3].

There are a number of interesting and innovative approaches to answering the question as to who should pay, and how much, for ecosystem services. An emerging approach is to use market forces to decide who and how much. Intelligent web platforms can be used to broker deals between landowners and purchasers, and increasingly reverse or Dutch online auctions are being piloted as a means to ensure best value for the purchasers.

Environmentalism disconnected from the demands of society, whether economic or cultural, is surely doomed to failure in the 21st century. Many of the environmental problems of the past may justifiably be linked with such a disconnect. Instead, as society dives ever deeper into its ecological understanding, we may begin to view human life as an equal component alongside all others in the global ecosystem. As we do this, the realisation that we are not only reliant upon nature for our survival, but are part of nature itself, may help us survive long enough to look forward to a 22nd century. We need to care for nature, meanwhile the value of nature needs to be recognised and realised across society. When such thinking is mainstream among business, government and society at large, this will be the dawn of real-world environmentalism.

How much is an oak tree worth?

This is no longer an easy question to answer, at least until definitions, economic science and market forces have caught up with each other. Even then, should we be 'de-bundling' a single species to compare it with others? One way to apply an estimate to the value of oak might be to simply apportion it by its frequency in our forests: oak is our second most common broadleaved tree, covering 16% of forested land in Great Britain[4]. Given its great utility as a naturally durable timber, value in the landscape, its huge associated biodiversity and other ecosystem benefits, it is likely to contribute much more than simply 16% of the total.

A recent research paper has valued the cost from the loss of ash in the British countryside at £15 billion, as a result, not only of the costs of clear up, but from the loss of ecosystem services[5]. Compared to such a devastating outcome, oak is currently faring relatively well in the face of a rising tide of emerging pests and pathogens. Oak processionary moth is a significant hazard for human health, but usually without a major devastating effect on the trees. Meanwhile, we strive to better understand the causes of acute oak decline. Perhaps the same methodology could be applied to oak as it has to ash, and it may help focus the minds of economists. Sometimes we don't value something until we've lost it.

If we view ecosystem services as the colours of the rainbow, we would realise how carbon, air, habitat, water, soil, health, fibre and other benefits are derived side-by-side. Each colour (service) is valuable and beautiful in its own right, as is a whole rainbow (the tree). A rainbow is a beautiful thing to behold, and at its foot we know we should look for a crock of gold. Maybe, one day soon, we can finally move the green economy from the red into the black after all.

1. https://www.forestresearch.gov.uk/tools-and-resources/statistics/statistics-by-topic/timber-statistics/timber-price-indices/

2. https://www.forestry.gov.uk/pdf/152-FCE-Natural-Capital-Account-FINAL-WEB.pdf

3. http://researchbriefings.files.parliament.uk/documents/SN05734/SN05734.pdf

4. https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2018/woodland-areas-and-planting/national-forest-inventory/woodland-area-by-species-broadleaves

5. Hill, L., Jones G., Atkinson N., Hector A., Hemery G. & Brown, N (2019) The £15 billion cost of ash dieback in Britain. Current Biology 29, R1-R3, May 6 2019. https://doi.org/10.1016/j.cub.2019.03.033


WTML/Gabriel Hemery


WTML/Gabriel Hemery