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Climate smart forestry

Andrew Weatherall | 24th May 2019

The National School of Forestry is participating in Timber Festival to foster greater public awareness of how sustainable forest management defends our living planet.

The majority of ecologists either do not know, or quickly forget, that the first published record of sustainability

originated from a book about forest management.

In 1713, Hans Carl von Carlovitz wrote *Sylvicultura Oeconomica* to describe “the sustainable management of forest resources”. His intention was admittedly to manage the supply of timber, primarily for the silver mining industry. Nonetheless the concept of long-term management of resources to protect future yield as well as supplying present need can be attributed to him.

The majority of foresters either do not know, or quickly forget, that part of the work of their professional body, the Institute of Chartered Foresters, is to “foster a greater public awareness and understanding of forestry in order to serve a variety of commercial, recreational, environmental and scientific interests.”

Biodiversity loss

To further this aim, the National School of Forestry, University of Cumbria, is participating in Timber Festival this summer.

We hope to give people the opportunity to learn some forestry skills, but also to engage in public discussion of how sustainable forest management can be part of the solution to climate breakdown and biodiversity loss, while providing space for recreation, improving health and well-being, reducing flooding impacts and supplying the timber and other wood products we need.

This article sets out how UK forestry currently contributes to combatting climate breakdown and biodiversity loss - the twin challenges of our time - and explains how managing commercial forest plantations protects rather than threatens our ancient semi-natural woodland.

According to the Office for National Statistics, just under 50 percent of the food consumed in the UK was supplied from within the UK in 2017, and according to Forest Research Forestry Statistics just over 19 percent of wood and wood products used in the UK were supplied from within the UK in the same year.

We can increase our self-sufficiency in food, for example through behavioural change towards vegan, vegetarian, pescatarian or flexitarian diets. However, it is not clear that a similar approach to reducing demand for wood by changing consumption patterns is achievable.

Self-sufficiency

It could be argued that we should increase the amount of wood that we use, or perhaps that while we reduce overall consumption patterns, the proportion of wood products in the mix of materials that we continue to use ought to increase.

This is because the carbon footprint of wood (especially when new trees are grown to replace those being harvested) is much lower than alternatives such as concrete and steel, and less polluting to the environment than plastic.

It is well known that trees take carbon dioxide out of the atmosphere through net photosynthesis, storing carbon in their biomass and in forest ecosystems, especially soils. But even climate science experts often overlook the fact that forestry also contributes in products from the forest through this carbon substitution effect.

As long as we continue to use timber we need to harvest trees, meaning that sustainable forest management includes both the protection of woodland and the use of plantations to supply the wood we need.

It is important to remember that we also need to improve self-sufficiency in food and wood to ensure that we aren't exporting our resource needs to other parts of the world where farming and forestry may be less regulated. These concerns are arising during a time when we may be weakening our links with the EU. Brexit would make us more dependent on our own supply chains rather than part of a larger political unit which is collectively self-sufficient in wood.

Land availability

This need to improve self-sufficiency from land use is not just a food and forestry issue; it has implications for other competing land uses, such as growing dedicated energy crops and the increasing desire for landscape scale rewilding.

It is hard to justify planting dedicated energy crops on land that is needed for agriculture or plantation forestry.

Using wood products instead of higher carbon footprint materials has a higher substitution effect than burning wood instead of fossil fuels. This means that woody biomass should only be a source of bioenergy when it is a by-product of good silviculture (thinning out young trees to give others more space to grow), not a final harvest product.

Competition for land and the desire for increased levels of self-sufficiency do not mean that there is no potential in the UK for rewilding. There are no completely natural habitats in the UK, but our most precious semi-natural habitats, such as ancient woodland, should be protected and expanded.

The line between habitat restoration and rewilding is a blurry one, but sustainable forest management can contribute by producing wood products intensively from some areas of land to reduce the pressure to obtain resources from others.

The foresters' mantra of 'the right tree in the right place for the right reason' applies to the expansion of ancient semi-natural woodland habitats and the use of commercial plantations to supply timber.

Public understanding

These are challenging but exciting times for professionals working in forest industry and woodland conservation.

The benefits that trees, woods and forests provide are better recognised than ever before. In order to maintain the climate mitigation effects of carbon sequestration by trees, carbon storage in forest ecosystems (especially soils) and carbon substitution from wood, it is essential that forests also adapt to climate change.

Trees are static, long-lived organisms with slow generation times; other flora and fauna can adapt more quickly but may depend on the woodland habitat. Climate change related pest and disease outbreaks and abiotic threats such as frost, flooding, drought and wildfire threaten both semi-natural woodlands and plantation forests.

Climate smart forestry is an approach that recognises that if trees are to continue to be life support systems, they must help us combat climate breakdown. However, there can be no ongoing climate mitigation by forests if they do not adapt in time.

In ancient semi-natural woodlands, increasing their ability to regenerate naturally may involve management to control grazing deer or reduce grey squirrel damage. Management in commercial forest plantations may lead to an initial loss in productivity and mitigation potential. This is because the move away from even-aged monocultures, using clearfell and restock systems, to a more diverse range of trees species and canopy structures, using low impact silvicultural systems, will produce forests that are more resistant and resilient to pests, diseases and abiotic impacts.

Positive action

These changes will also store carbon better as soil is less disturbed in timber extraction. None of these management interventions can be successful without stakeholder engagement, nor will it continue without the development of the next generation of future foresters and woodland conservationists with the skills and the will to implement sustainable forest management.

The school climate strikes inspired by Greta Thunberg, and non-violent resistance by Extinction Rebellion, demand that the world's decision makers take responsibility, with the suggestion that young people will otherwise "make change happen by themselves".

Future foresters, ecologists and conservationists will make change happen. Some as practitioners at a relatively modest site and landscape scale (think global act local), but others as scientists and policy makers at national and international levels.

Current students are aware of their potential to make a positive difference. I discussed the protests with one undergraduate student (Ella Barker, studying Conservation Biology)

- she did not want to join the school climate strikes. She felt that she was already on a pathway towards positive action to combat climate breakdown, studying a degree to gain the knowledge to pursue a career with the expertise to be able to make a positive difference.

Courses that provide the skills and expertise to implement sustainable forest management are potential pathways to a career combatting climate change and biodiversity loss. Climate smart forestry also provides other benefits to human society such as recreational access, flood mitigation, health and well-being and even supplying timber and other wood products.

I suspect that most participants in school strikes and protests do not immediately consider a career in forestry, or even woodland conservation, a way of making a lifelong difference to the way our food and wood are produced and our landscapes are managed.

This is why the opportunity for public engagement through participation in Timber Festival is one that staff from the National School of Forestry and the Centre for National Parks and Protected Areas are keen to undertake. Come and talk to us.

This Author

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Image: Adrian Naik, Naik Media Productions