What Nature Does for Britain

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Contents

Preface
What Nature Does For Britain

'Money is no object in this relief effort. Whatever money is needed, we will spend it.'

Those were the Prime Minister's words: a promise of open-ended spending, at the height of economic austerity, in response to the widespread flood damage of 2014. It was not surprising, of course, given the terrible circumstances facing thousands of people across the country, whose homes and businesses had been inundated with stinking muddy water. But research suggests that reacting to flooding in this way – throwing money at cleaning up the mess after the event – is the least rational and most expensive way to go. It would be better by far to see the bigger picture – how the changing climate is likely to cause more such events in future – and prepare for that in far more intelligent ways, including rebuilding what might be called 'green infrastructure'. That is, restoring the natural systems that provide so many valuable services, including some level of protection from flooding.

Yet despite a mounting body of evidence to show how we can save money, protect property, promote wellbeing and create more value through looking after nature, there is a widespread

view that doing so is somehow hostile to Britain's interests. You hear it from politicians, economists and columnists, and most notoriously from David Cameron himself, who is said to have told his aides to 'get rid of all the green crap' – only four years after promising to lead 'the greenest government ever'.

The fact that so many people seem to accept this line of thinking – that the protection of nature is harmful to people and the economy – is the reason for this book. On the eve of a general election in the UK, I will set out to show that rather than being a barrier to progress, Britain's nature is an economic and security asset with enormous social value. At the end of each chapter I will offer proposals that I believe would help the recovery of nature in Britain and in so doing help the economy and people. I have put these in the form of 'manifesto' points and I offer them freely to all of our politicians to adopt. My hope is that these ideas will inspire some of our elected representatives to see what can be done in making sure Britain's nature retains its value in the decades ahead.

In the pages that follow I'll take you on a journey around Britain. But not through the familiar political landscapes. We are going instead to the real Britain, the one where we are supported by nature, wildlife and natural systems at almost every turn. We'll look at the country's flood defences, for example. Not the costly man-made ones but the ones that nature endowed us with, and which can be protected or revived for modest sums: soils and wetlands, renaturalised rivers and coastal marshes among them. These and other natural assets, properly maintained, can hold more water in the environment and reduce the risk of floods.

We'll visit places where the protection of natural habitats can also provide a cleaner, cheaper water supply. Bogs, woods and marshes strip out sediments and pollution, meaning that less high-tech equipment is needed to clean it up before being

piped to the public. From the wild blanket bogs of Northern Ireland to the arable farmlands of southern England we'll see how looking after nature can support our water security, and in highly cost-effective ways.

We'll take a look beneath our feet, too, at one of the least appreciated aspects of our natural heritage, namely healthy soils. These help to purify water and reduce flooding and are a massive store of carbon, which if kept intact and enhanced can make a big contribution to Britain's efforts to combat climate change. Woodlands, wetlands and dune habitats are similarly locking up carbon and keeping it out of the air, at the same time as providing a range of other important services.

Those same soils that hold carbon and water are also, of course, the source of most of our food, supporting jobs and presenting a wide range of economic opportunities. We'll see why it's rational to keep those soils in good health, and how that in turn improves the quality of our rivers and seas, enhancing recreation and tourism. We will observe how our food security is also enhanced by wildlife, including the hundreds of species of native bees that live in Britain and the host of spiders, beetles, bats, birds and other predators that help to control pests.

The oceans that surround our country are also a source of food, jobs and economic opportunity, not least through the billions of pounds-worth of seafood we take each year. They are under threat from poor political management, but not without hope, if among other things we scale up the positive examples of fishermen boosting their incomes by using better and more sustainable fishing methods.

We'll see how despite becoming ever more used to seeing our nutritional security through long-distance global food-supply chains, for most of our food we remain fundamentally dependent on nature here in the UK – whether it's the plankton-fuelled food chains that supply seafood, the intricate

ecological relationships that enable soils to recycle nutrients, or the 140-million-year-long partnership between insects and flowering plants and nature's predator and prey struggles. Wildlife remains essential, even for the majority of us who live in Britain's cities, in providing much of what we eat. And the foods we get from the sea and with the help of pollinators – fruit, vegetables and fish – include the healthiest dietary choices we can make.

Our seas also present vast opportunities for increasing our energy security. The wave, tidal and wind energy resources available in our marine environment present job-creation prospects while at the same time helping reduce the risks to our economy that come from dependence on energy resources from unstable regions. On land we can use our woodlands, the wind, sun and waste to secure supplies of sustainable energy, driving technological innovation and creating employment in the process.

By supplying a higher proportion of our energy from clean and renewable sources we'll reduce our carbon emissions – as we are bound to do by the UK's own Climate Change Act – and in so doing add to the fundamental wellbeing of the entire world. But this need not be a burden. In addition to reducing emissions and creating jobs, clean energy will also result in less health-threatening pollution, easing demands on the National Health Service. This is not the only way working with nature can promote wellbeing. We'll also see how increased access to good-quality natural areas near where people live helps reduce mental illness and can even be a factor that cuts crime.

In the Britain we're about to visit, businesses and citizens not only rely on nature but have huge potential to flourish through a more thoughtful partnership with it. Our water companies, the NHS, the small and medium-sized companies based on farming and fishing, supermarkets, the businesses that supply an increasing proportion of power from renewable sources,

insurance companies, drinks manufacturers and even those making cars are among those who depend in different ways on healthy nature to make profits and sustain employment. In short, we'll see how a thriving UK plc depends fundamentally on the health of Nature Ltd (UK).

There is no doubt that nature's practical value is huge, though assigning precise economic values is complex. The Office for National Statistics made a first attempt to put a monetary values on 'natural capital' for the UK in 2011 and estimated these at £1,573 billion (that is over £1.5 trillion). That number is based on experimental methods and is open to critical review, but it surely reveals the scale of falsehood at the heart of the political debate, where we continue to be presented with an apparent choice between looking after nature on the one hand or growing our economy on the other.

And to return to David Cameron's pledge, the good news is that money really is no object: we just need to harness the resources we already have – in taxes, bills, subsidies and investments – more intelligently towards longer-term, sustainable aims.

Tony Juniper, January 2015

SOURCES

This book draws on my own 30 years of experience in making a case for nature, as well as a large body of recent science and the views of many different experts. In order to create a readable narrative, I have not included footnotes or references in the book but have instead compiled a compendium of source material at my website. If you want to find out more, you can go there and, for the most part, click directly through to original sources. **www.tonyjuniper.com**

This satellite image, taken in February 2014, shows where our soil goes once it's washed off our fields.

Chapter 1
Nutrient Nation

BETWEEN £900 MILLION AND £1.4 BILLION – THE ANNUAL COST TO THE UK ARISING FROM SOIL DEGRADATION

THREE QUARTERS – THE PROPORTION OF TEMPERATE FOODS WE CONSUME THAT ARE PRODUCED ON BRITISH SOILS

12 MILLION TONNES – THE QUANTITY OF ORGANIC MATERIAL DISPOSED OF IN LANDFILL EACH YEAR IN BRITAIN

March 2014. British TV viewers are treated to amazing pictures of southern Britain taken from the International Space Station. Orbiting more than 330 kilometres above the point where the Atlantic meets the foaming rocky coast and green fields of Cornwall, the film sequence begins over Land's End. Travelling at around 27,000 kilometres per hour the spaceship takes less than two minutes to traverse the whole south of England before heading out over the North Sea. As its orbit takes the camera over London and the Thames Estuary a very noticeable broad brown fringe of sea can be seen hugging the east coast. 'Run-off', remarks astronaut Mike Massimino as he looks out through a window. His observation is almost an aside. It is for him evidently a familiar sight.

Some miles out from the shore and the water is blue, but where sea meets land, and particularly where the rivers discharge, the muddy colour is pervasive. The rivers running into the ocean along the east coast, including the Thames,

mostly drain farmland. Much of it is subject to intensive cultivation for arable crops. The repeated ploughing disturbs the soil, and that is what that 'run-off' is – soil that has left the fields and is now in the sea.

Soil erosion is one of those phenomena that rarely make headlines, though it is profound in its implications. Stories linked with it often do, however, even if most of us don't notice the connection. One is flooding, another is the price of water. And a third is the cost of food. It is easy to forget that one of the most important functions provided by nature to our economy is the recycling of nutrients. In fact, so vital is the flow and replenishment of nutrients that most of our country looks the way it does today because of our attempts over millennia to maximise the benefits of how nature does this. Key to the whole thing is perhaps our least appreciated natural asset – soil.

Forests, farming and fertility

The little town of Dyffren Ardudwy lies behind a strip of sand dunes on the Irish Sea coast of Gwynedd in northwest Wales. Climbing out of town on the Fford y Briwg the land rises steeply to reveal spectacular views of the sea, the Lleyn Peninsula and mountains of Snowdonia.

About three kilometres from the sea, and at about 150 metres above the long sandy beach below, the land levels out. On this undulating but flatter part of the hillside there is a patchwork of fields separated by thick stonewalls. While landscapes superficially similar to this are not unusual across the British Isles, especially in some of the uplands, this place is special.

Constructed from stones cleared from the land during preparations for agriculture, some of the walls are six feet thick

and founded on huge boulders. Their origin is thought to be in the late Stone Age – the Neolithic – and they are therefore some of the oldest relicts of settled agriculture in these islands. Piles of fire-cracked rocks believed to have been used in communal cooking or bathing, probably in the Bronze Age (around 4,600 years old), remain in the fields.

It's windswept up on the hillside and feels exposed. Stunted oaks have been sculpted by steady westerly winds and periodic gales to lean landward. A trio of Welsh black cattle graze in a damp hawthorn-clad hollow while groups of sheep totter ahead of me around the Bronze Age mounds. The temperate aspect and sheets of grey mist that hang off the slopes above reveal two of the conditions necessary for agriculture – namely mild conditions and water. A third is seen in the weak midwinter sun. Close to the horizon and casting sharp long shadows along the walls and behind the mounds of stones, our home star has just passed its nadir and is now returning earlier each morning and setting later each evening. In the months ahead it will increasingly power plant growth and once more warm that other vital prerequisite for farming: the soil.

Before fields emerged between the lines of stones laid out by Neolithic and Bronze Age farmers, this part of Wales, in common with nearly all of the rest of the British Isles, was covered with trees. A little to the south around Barmouth some of the hillsides are still clothed with extensive patches of sessile oak woods, providing some suggestion of what this entire landscape would have looked like before the native rainforests were cleared to make way for farming.

The fundamental change from hunting and gathering and toward farming happened at different times in different places. Originating in Syria and Iraq between about 13,000 and 11,000 years ago, agriculture spread out across Europe to reach Britain between about 7,000 and 6,500 years ago.

It took about 2,000 years more for farming to spread right across the British Isles, but once it got going there was no turning back.

The trees were killed through cutting away a ring of bark around their trunks, felling with axes and by burning. Traces of the forest fires set by these first British farmers are evident today in faint layers of charcoal that can be detected in some soils. Other evidence pointing to great change is seen in pollen archives. When flowers shed their microscopic genetic capsules some fall on lakes and bogs where they become preserved in sediments. Each plant species' pollen is distinctive and today we can read the tiny grains like an ecological diary that sets out in chronological order the changes that occurred in the vegetation that covered our islands over thousands of summers past. The pollen record tells the story of how there was a dramatic reduction in tree cover and the rise of more open environments – ones created by people for producing food.

The availability of land was initially not a major limiting factor for farming. It was the ability to clear it that presented more problems. During the late Stone Age agriculture more akin to 'slash and burn' than to modern cultivation prevailed. Ploughing and planting between burnt and ring-barked trees, farmers moved on once the soil became exhausted, returning to plant again when it had naturally recovered fertility. Over time, however, population pressures meant that farming the same land again and again over long periods became necessary. No longer could people rely on moving from one plot to another, mining the fertility as they went; they had to invest effort in replenishing the soils that had been claimed from beneath the forests.

Soil is a little word that describes a complex thing. Its character in any one place arises from the interaction between many factors, including the fundamentals of the geology upon