

PASTURE IS A STRATEGIC ASSET

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‘Pasture and its underlying soil, when properly considered, should be a vital strategic asset in a world that is becoming more and more resource constrained, elevated alongside forest and peat bog for its upcoming role in both nature recovery and food production.’

Imagine a future in which resources are increasingly scarce due to the pervasive effects of environmental degradation. Food, currently traded internationally as if geography and seasonality are no barrier, might reasonably be a much more local affair; in the UK, this could mean 80%, perhaps even 90%, produced here. In this context, imagine that there was a habitat from which it was possible to produce one of the most nutrient dense foods with little to no fossil fuel inputs, instead just the renewable resources of sunlight, water, perennial plants and herbivores. Imagine that this habitat, if managed sensitively, could at the same time deliver multiple other public goods, such as dense above- and below-ground biodiversity, flood mitigation through water storage, carbon capture and storage, and provide livelihoods for people in a world in which work was increasingly automated.

A habitat like this would surely be considered extremely valuable in such a scenario. Not just in economic terms but in social and cultural ones too. This habitat already exists and the geographical area in which we live – the British Isles – has a climate perfectly suited to its existence. It is grassland, what I will call pasture in its species-rich form, and we humans have been deriving some of our staple crops from it, in the form of meat, milk and fibre from ruminant animals, for thousands of years.

Somehow we have become so divorced from our means of food production that the above imaginative foreplay may take some people by

surprise. The dominant narratives positioning certain herbivorous animals – that in some form pre-date our existence on this planet – as the causes of climate and biodiversity breakdown, rather than us humans who have been responsible for the management of them, are persuasive and have led us away from a basic understanding of one of our primary habitats here in the British Isles. Industrialisation has led to a divorce of food production and nature, and a dwindling understanding of anything different in the first person has allowed these narratives to take hold in our public imagination. It is this same industrial paradigm that would have us eating synthetic plants and meat products in the race to net zero. If you pick up a newspaper you will likely read that pasture should be rewilded or reforested, is inefficient in its use of land, or perhaps should even be protected from the animals it evolved alongside.

A truly sustainable food system, however, particularly in temperate climates like Northern Europe, will need to rely on habitats like pasture; habitats that can deliver so much without fossil fuel inputs and, critically, without degrading the underlying asset, in this case the soil. This is impossibly hard to achieve in arable and horticultural systems at scale and when the dominant driver is yield, which advocates of further differentiation between ‘nature’ and ‘agriculture’ are pushing for. Pasture, when properly considered, should be a vital strategic asset in a world that is becoming more and more resource constrained,

elevated alongside and perhaps above forest and peat bog for its upcoming role in both nature recovery and food production. To be clear, we need all of these habitats but the support for pasture is critically lacking at governmental level.

The reason that pasture, and low input farming systems in general, are not getting the attention they deserve is, in part, explained by the stranglehold that techno-industrial systems and narratives have on us. I believe there are also other factors at play that are clouding policy-makers' ability to make informed long-term decisions: an absence of consensus around the problem; lack of policy co-ordination, and; underlying fear of statism. I will consider those here as I make the case for pasture as a strategic asset.

The vital role of pasture

Two thirds of the world's farmland is perennial pasture, in one form or another, and often found on areas unsuitable for annual cultivation. The grazing ruminants that live on them eat grasses, herbs, forbs and leguminous plants that humans cannot, not to mention trees and hedges, thus miraculously transforming vast unproductive tracts, as far as food production goes, into potential havens of biodiversity *and* food production. If soil is the world's largest terrestrial store of carbon, the world's grasslands are likely the largest terrestrial solar panel, efficiently transforming solar energy into food for all life with little input from humans needed. While it is true that efforts to increase yield have led to unsustainable outcomes in the livestock sector, including in the development of chemical-driven, monocultural grassland systems, a return to first principles suggests that an agroecological, low input approach should be synonymous with and a cornerstone of a sustainable food system.

Ecologically managed pastoral systems provide a number of critical outputs, all of which will be increasingly important as we seek to wean ourselves off fossil fuels. Environmental outputs include: the preservation and restoration of fungal

and biological communities in the soil and the below and above-ground insects, birds and mammals that feed off them; more efficient infiltration and storage of water, essential in managing the extreme seasonal surpluses or deficits we increasingly see and, finally; the contested area of carbon capture and storage. On this last point, and irrespective of what is or isn't being captured, the preservation of current carbon stocks under pasture must be paramount. In addition, in advocating for the role of pasture I am not suggesting that trees are excluded, the two could and should go hand in hand and the return of trees and hedgerows to our pastoral landscape in the UK is well underway and should be accelerated.

As we struggle to define what constitutes a sustainable fashion industry it is likely that natural fibres such as leather and wool see a renaissance, both key pastoral outputs; at the moment these are primarily unwanted by-products from our food system, often with a cost to destroy rather than a value. Finally, the meat and milk generated by these systems is nutritionally dense and bio-available, particularly in trace minerals and omega-3. Comparisons of carbon emissions from food production rarely factor this into their analyses, instead comparing kg with kg.

Rather than celebrate these systems, what we have seen is pasture and the myriad goods it produces, many of which are difficult to quantify by conventional metrics, reduced to mere expressions of food production efficiency. Instead, pastoral ecosystems ought to be managed for their own sake with the grazing animals judged for their ability to provide food and play a diverse ecological role, something industrially managed livestock cannot do. Conventional wisdom significantly undervalues pastures and grazing animals when compared to highly productive but input intensive farmland and is leading to perverse policy outcomes whereby systems dependent on fossil fuels are being championed in our search for net zero.

My colleague John Meadley likes to ask the question, 'What would happen if we took all the grazing

ruminants away?’ This is an outcome not explicitly but perhaps implicitly arrived at by many of the anti-meat narratives. The question, while abstract, seeks to get at first principles and ultimately a bigger question: what would happen to the habitats these animals have evolved alongside, the pasture?

It is likely that replacing lost animal protein and fibre would see pasture increasingly ploughed, with a loss of carbon to the atmosphere that is well documented. Not only contributing to climate change, this act would lead to a further loss of soil. Yale Environment 360 reported that the world's cultivated soil has lost as much as 70% of its soil organic carbon since pre-industrial times, primarily through cultivation, with the resulting loss of structure causing soil to be literally washed away and with it its ability to store water and provide life to plants. Not only that, taking away the ruminants that graze these ecosystems would remove one of nature's supreme digesters, the rumen, with its ability to turn plant material into digestate in 24 hours, surely even a match for nutrient cycling in the tropics. The invertebrates, bird and mammal life that thrives in this grassland ecosystem would, according to keystone species theory, also come under threat, further endangering biodiversity. This also doesn't take into account the socio-economic effects; public health would be even more challenged with a nutritional deficit from the loss of animal protein, particularly in the economically developing world, and a loss of rural jobs.

Thinking long-term, we would also lose something more important and perhaps more intangible: the ability to produce food without fossil fuels. While the recent IPCC report made clear that methane needs to be reduced if we are to stay within 1.5 degrees, we must assess ruminant warming impacts accurately, and would be making the same short-sighted mistakes of the past 70 years if we balanced the books by removing ruminants and de-prioritising pastures, not least given ruminant numbers have decreased by 22% since 1996*. It would not only bring about a major reduction in food security, as currently defined, in the UK but

make it harder for us to deliver on the wider environmental and social outcomes we are seeking. [**See article by ffinlo Costain.*]

In many respects, food security is at the heart of this conundrum. A full appreciation of food security would consider national availability – the proportion of our food produced domestically as currently defined – as well as nutrition, access and the ability to deliver food to the population without compromising other competing aims, such as biodiversity recovery and climate change mitigation. This is not currently happening; I would argue that food security as a term is academic and politically subverted to wider economic analyses that see food as commodity to be traded freely in a globalised economy. In the UK, Henry Dimbleby's National Food Strategy did attempt to draw these strands together but until food security is taken seriously as an issue, these broad analyses will not gain traction. Until it is, narrowly defined questions will continue to lead to perverse policy and ultimately short-sighted outcomes. The UK Climate Change Committee's land use framework is a case in point in its inability to consider these wider issues and resulting view of pasture as something to be rewilded or to produce bioenergy crops.

To the advocates of agroecological solutions this narrow focus can lead to head-scratching and even soul-searching. There are some lessons to be learnt, however, in why we are in this situation from the environmental crisis, which could point the way forward.

Environmental security and its implications for food security

15 years ago this month I completed my postgraduate dissertation on the subject of environmental security and why this term, and the study of it, was not included in mainstream security or strategic studies, traditionally the preserve of military and economic threat analyses. With a focus on China's emergence as a great power, I showed how international relations theories tended to

overlook the environmental threat posed by China to the world order, focusing instead on their militarist policies and likelihood of overtaking the US as the world's largest economy. At that time, climate change, while on policy-makers' radar, was simply not considered an existential security threat. By this I mean the issue was not securitized, the method by which state actors transform political issues into matters of national security and take extraordinary measures to respond. Thankfully, over the course of 15 years this has changed and climate change is now seen as a national security threat, such that the US intelligence community currently assess that the 'effects of a changing climate and environmental degradation will create a mix of direct and indirect threats, including risks to the economy, heightened political volatility, human displacement, and new venues for geopolitical competition that will play out during the next decade and beyond.'

At the time, there were some key reasons environmental security appeared to be stumbling as a concept. Firstly, there was a lack of accepted causality between environmental issues and violent conflict or existential threat. While there are some who still deny the existence of existential climate change, the threat is now elevated to such an extent that it is getting universal attention from policy-makers. One could even make an argument that the once primary question of whether or not climate change is anthropogenic is now lost in the noise of the debate around how we respond to the urgent need to reduce emissions. In the same vein, a lack of a shared understanding of what constitutes food security may be hampering efforts to find long-term solutions. Food security as a percentage of national production is clearly inadequate, not least in hyper-connected regional markets such as the European Union, but the difficulty of coming up with something better sees progress kicked into the long grass.

Secondly, securitisation can often appear an over-reaction, meaning policy-makers approach it with caution. While I would have celebrated the

securitisation of climate change 15 years ago, the last 20 years since 9/11 have seen the terror threat as the primary security issue, not because it presents a bigger threat, per se, but because it is a more acceptable issue to securitise in the eyes of a public concerned about being caught up in terrorist incidents. Climate change, likely to impact many more people, has historically struggled for immediacy and it has taken the extremes of weather and other physical symptoms, like the melting of the ice sheets, in recent years to change this. While it remains to be seen if the current petrol, HGV and CO₂ crises change the view on food security, there is an inherent aversion to stateism in western democracies that can lead to warning signs being ignored until it is very late in the day. This also appeared to be as true of Covid as the climate crisis, with government awareness of the inadequacy of the pandemic response systems apparently no justification for preventative action.

Finally, with climate change thought of as a transnational issue and therefore difficult to deal with unilaterally at nation-state level, it has been approached multilaterally through global institutions like the UN. The horse-trading that goes on in these forums might work for classical issues of diplomacy – territorial disputes, for example – but with environmental issues, particularly climate change, it has had the effect of reducing the issue to a lowest common denominator, fuelled by the inability to agree on cause and effect. As a result, we have little to show for decades of UN environmental summits. This has relevance to food security; the issue has no clear owner, instead involving multiple departments, from DEFRA, to DHSC and Trade & Industry and resulting intra-governmental tug of war leads to the perversity of a trade deal with Australia serving to undermine the concurrent Agriculture and Environment Bills. The rapid set up of a Brexit department to manage our exit from the EU shows what is possible if an issue is taken seriously and perhaps this is needed to ensure coherent policy-making.

It is not hard to imagine the future outlined in the opening paragraph of this piece: one that is resource constrained, shaped by bread basket failure and mass migrations, and increasingly food insecure. If we paint a slightly rosier picture it is still likely to be one in which food insecurity is rife but perhaps of a socio-economic rather than geopolitical nature. The cautionary tale of environmental security suggests that focusing government attention in the face of impending security threats is challenging and often comes only when the threat is upon us. Now with food security as then with environmental security the issue remains marginalised and not thought of as a conventional security threat.

What would it take for pasture for be considered as a strategic asset?

This all needs to change if we are to take the problem of food security seriously and, perhaps more importantly, coalesce behind the right solutions, of which sensitively-managed pasture is one. I see the two as inextricably linked; the practical whole-farm solutions offered by agroecology require equally broad-based policy thinking to support them. Narrow, siloed thinking inevitably prefers simplistic single metric solutions and that is the current state of policy-making in the UK on the issue of food security. The hurdles we need to overcome to get there are high and include, as with climate, long time horizons that are not easily contained within standard political cycles. The farming cycle, in particular, is shaped not only by the seasons but also political and policy pressures and widespread change realistically requires a decade to germinate.

Public perception needs to change too; it has taken the impacts of climate change to become real to ordinary citizens to advance that issue up the political agenda and it remains to be seen whether the current food shortages due to the lack of lorry

drivers is the start of a similar process for food security. The evidence of the pandemic, in which supermarket, just-in-time supply chains recovered from their initial problems and were ultimately lauded for keeping the nation fed, suggests we may have some way to go before food shortages reach a level that drives change. It could well be deteriorating public health that is the trigger for food security to be taken more seriously by the public and policy-makers. This issue was clearly identified in the UK National Food Strategy and I meet more and more GPs who are making the link between ill health and food and seeking to understand farming systems in the search for answers.

For many of us who advocate for agroecological solutions to our parallel environmental and health crises, the key asks typically revolve around subsidy support, infrastructure, land access, transparent data capture and labelling and perhaps true cost accounting. The inherent and perhaps hidden risk here is that these are solutions to a problem – food security – that in many ways doesn't exist right now. In providing a holistic analysis and solutions to multiple problems we are perhaps not focused enough on any of the single issues that are carrying the day and our arguments fall on deaf ears.

In this context it is essential that food security – access to food that nourishes the planet and ourselves – is properly securitised so it sits alongside climate change as a threat.

This might be the only way in which we will be able to tackle the issues in our food system in the round and with a long enough time horizon. You simply cannot approach the food system through a single lens, whether it is climate change, nutrition or access, the trade-offs are unsustainable. If this happens, we might be able to look at species-rich pastures and see them for what they are: a rich, biodiverse ecosystem that supports a range of public goods, including food production. In simple terms, a strategic national asset.