people's trust for endangered species

Bringing the wild back to life

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People's Trust for Endangered Species are a non-governmental organisation charity body. As an environment focused organisation we work closely with land managers, the public, and other NGOs to research, protect, enhance and advocate for endangered wild animals and habitats in the UK. We have eighteen permanent staff and tens of thousands of supporters.

We consider the approaching replacement of CAP funding and full integration with a reformulated environmental land management scheme as a unique opportunity to review past shortcomings and develop a scheme that really works for the environment and the food and farming sector.

The key thrust of the consultation is the provision of Public Money for Public Goods. The definition of this term is broad and includes potentially conflicting sentiments. Whilst most of the language surrounds environmental benefits, the elements of productivity and competitive food prices need very careful interpretation if they are not to undermine the core values of Public Goods.

The transition timeline and budget are not clear, without which there is a continuing lack of certainty for land managers.

We only provide answers where we feel the questions are relevant to us.

Section 2. Reform within the CAP

> How can we improve the delivery of the current Countryside Stewardship scheme and increase uptake by farmers and land managers to help achieve valuable environmental outcomes?

The biggest opportunity for improved stewardship funding is the recruitment of the largest landowners into stewardship options that are beneficial to the environment. The current Direct Payments model is recognised to not achieve this as an outcome; indeed, under CAP the incentives are often perversely structured to encourage inappropriate land management. It is the largest holdings that are most likely to lose direct CAP payments under the Command Paper proposals. People's Trust for Endangered Species would support measures that make it possible for these farms to receive similar levels of payment by the introduction or transposition of a few basic options that can easily be implemented on a large scale:

- Reduction of reliance on chemical inputs is essential for the long-term health of our soils, atmosphere and waterways. Technical solutions are being found to dramatically reduce the quantity of chemical use such as Integrated Pest Management.
- Trenching cross-slope rather than downslope

- Hedgerow cutting regimes (i.e. BE3). Although wide application of this option is beneficial, it is unsatisfactory to pay farmers simply to leave hedges uncut every year. Although this option should continue, it should only be funded in coordination with other activities such as gapping up, hedgelaying, capital activities and basic habitat creation such as beetle banks, skylark plots, rotational set-aside and uncropped field margins.

Other one-off payments can yield wide-reaching benefits on relatively small parcels of land:

- Traditional orchard options are not included in Annex B. Creating or restoring 500,000 hectares of wildlife-rich habitat (Habitats of Principal Importance listed in §41 of the Natural Environmental and Rural Communities Act), is a governmental target of the 25 Year Environment Plan
- Reinstating historical meanders in waterways that have been channelled. This will reduce downstream flash flooding and soil erosion, and reintroduce areas of slow and stillwater habitat, ox-bow lakes, marshland and all the associated habitats.
- Strategic planting of woodlands on higher ground to reduce flash flooding and soil erosion
- Reinstating historical hedgerows and hedgerow banks
- Blocking drainage dykes on upland moors and allowing scrub to develop where managers have previously had to present 'agricultural land' in order to receive CAP payments.

Smallholdings and single-interest sites such as those containing small parcels of priority habitat are at a disadvantage where points-based selection is used for the higher-tier stewardship. This is preferentially awarded to farms that accumulate a high number of biodiversity and heritage points. This leaves a lot of valuable land outside of the stewardship system. Concentration of funds into areas where clusters of biodiverse and heritage landscape features already exist creates a large 'whitespace' of countryside where these features are limited. Lack of funding will compound this and inevitably result in further degradation of these areas.

- A simplified application for single-interest properties that is not weighed competitively against larger multi-interest sites is essential for the fair distribution of stewardship funds.
- Local farm networks should be allowed to apply as one unit and payments split equally among them to encourage option-taking even by small farms with no existing stewardship features.

In addition to stewardship funding, farmers receive tax exemptions or reductions on building agricultural properties, red diesel, capital gains on land and properties and inherited farmland. Significant tax is forfeit from the public purse without conditions on how the land, crops or livestock are treated and distorts the market: ultimately tax-paying consumers pay a lot more for their food than the price tag. This drives conspicuous consumption of food as the store price does not reflect the true cost. And conscientious and home-grown consumers are inequitably penalised, and food is wasted as it is undervalued.

Large-scale monocultures are the most profitable method of farming but also the most mechanised and intensive. These are damaging to the environment causing pollution, climate change, breakdown of ecosystem services, biodiversity loss, soil degradation, antibiotic resistance and health problems for both livestock and the public. The substantial financial penalties associated with each of these falls largely to consumers and government. Whilst pollutants are an inevitable by-product of production, including agriculture, it is reduced substantially where less intensive methods are used.

- Pollution and environmental damage must be factored into a new farm payments system.
- Megafarms lead to the commodification of produce which cause a race to the bottom.

- A broader implementation of the polluter pays system, as required by the Environmental Damage (Prevention and Remediation) Regulations 2009, would have the greatest impact on large-scale intensive production, providing a more level playing field for small and medium farms.
- Soils are treated as a growing medium rather than the living organism that they are. Making broad but basic changes to soil management will make a very large positive impact.

Section 4. A successful future for farming

Farming excellence and profitability

How can we improve the take-up of knowledge and advice by farmers and land managers? Please rank your top three options by order of preference:

a) Encouraging benchmarking and farmer-to-farmer learning
c) Better access to skills providers and resources (from charities and NGOs)
f) Other (please specify) – Making Continuing Professional Development (CPD) with consultations between NGO sectors and farmers a condition of any future grants or loans

What are the most effective ways to support new entrants and encourage more young people into a career in farming and land management?

To encourage new entrants to farming and land management, the industry must be a secure, stable, attractive career and new entrants need the assurance that they will receive support to help them get established. NGOs are well placed to work with agricultural colleges to advise on environmentally sensitive management and facilitate knowledge transfer.

Technology

What are the priority research topics that industry and government should focus on to drive improvements in productivity and resource efficiency? Please rank your top three options by order of importance (from 1 as your most important to 3 as your least important):

1. e. Improving environmental performance, including soil health
2. d. Managing resources sustainably, including agro-chemicals
3. b. Crop and livestock health and animal welfare

How can industry and government put farmers in the driving seat to ensure that agricultural R&D delivers what they need? Please rank your top three options by order of importance:

1. b. Groups of farms
2. e. Other (please specify)

Increase testing of novel approaches to agriculture before implementation, giving both the farming industry and NGOs a greater say in joint forums.

3. d. Giving the farming industry a greater say in setting the strategic direction for research funding

This should not imply that the industry can make unilateral decisions, but that it is very well-placed to call attention to areas where consultation and research is required.

Thorough testing of novel agricultural practices is needed before these are implemented more widely in the countryside. This process needs to recognise external expertise to give both the farming industry and NGOs a greater say in the development of agriculture, and understanding potential impacts on our wildlife and environment.

We recognise the need for agricultural R&D, but not focussed simply on the high-tech and novel, but also revisiting and re-revaluating some traditional, low tech and low cost approaches to farming and land management. These approaches have the potential to balance farming productivity with the other areas that this bill has highlighted as priorities.

What are the main barriers to adopting new technology and ideas on-farm, and how can we overcome them?

Lack of advice and research. NGOs and universities have resources and expertise that is under-unexploited by the industry.

Section 5. Public money for public goods

Which of the environmental outcomes listed below do you consider to be the most important public goods that government should support? Please rank your top three options by order of importance:

1. d. Increased biodiversity
2. a. Soil quality
3. b. Water quality

Biodiversity is at the heart of a healthy environment. Without a healthy ecosystem farming and agriculture will, in the long-term, be unsustainable. There is much supporting evidence for this as recognised by governments across the globe on signing the Convention on Biological Diversity 25 years ago. However, despite some limited progress, biodiversity continues to be lost at an unsustainable rate.

Good soil and water quality is vital to insure the survival of keystone species on which all other species depend. If these most basic substrata of life are in poor condition, ecosystem collapse is a real possibility. Technical and mechanical solutions are only ever useful for short periods of time because they work against natural and therefore sustainable processes.

The proliferation of chemical pesticides and herbicides, habitat fragmentation and other factors have stripped the wider countryside and arable land of insect life, notably wild pollinators (manifested in the loss of maintained honey bee colonies), thereby impacting those species that rely on them in the food chain.

Heritage conservation and engagement with the natural environment go hand-in-hand with sensitive farming practices

Of the other options listed below, which do you consider to be the most important public goods that government should support? Please rank your top three options by order of importance:

1. c. Protection of crops, tree, plant and bee health
2. f. Public access to the countryside (for surveys)
3. e. Preserving rural resilience and traditional farming and landscapes in the uplands

Protection of crops is undefined. This could mean several things, including increased use of chemical pesticides and fertilisers, but considering the other elements of this question this appears to not be what is intended, but that has not been made clear. Beyond soil degradation and environmental pollution, a major threat to crop, tree and plant health is imported pests and diseases. Tighter controls and monitoring of imported goods is crucial to reduce alien species introduction.

Case studies:

At the last count there were seven invasive flatworms in the UK. All have been imported in soil attached to plants, most likely by the plant nursery industry. The vast majority of imported mass of plant and soil, and by extension alien species, is by the nursery industry which should the focus for attention.

Despite suggestions that ash dieback could have arrived as an airborne fungal spore, the evidence supports it having been imported on sapling ash trees from the continent where the disease had already been documented and known to be spreading.

The case studies box gives just two examples of many. We are fortunate that the UK climate is inhospitable to most non-native species, but with a warming climate this is likely to change.

Option 'C' does not go far enough: there is no need to stop at bee health. The well-documented loss of honey bees is widely parallelled in less-studied wild pollinators, invertebrate populations, and creatures at the base of the food chain, in both terrestrial and aquatic environments. Wild plants and insects provide an ecosystem that also helps honey bees to survive. There are direct links from one to the other. When a crop has finished flowering, the bees and wild pollinators need something to sustain them, which is not met by monoculture farming.

Public access to the countryside allows the public to enjoy what they are essentially investing in through tax and stewardship subsidies. It also allows non-governmental organisations to survey and monitor wildlife in ways that are rarely done by landowners. The farming industry has neither the resources nor inclination to conduct wide-scale wildlife monitoring.

Resilient landscapes in the uplands provide benefits not only to the vast landscapes concerned but many of the benefits flow downstream. These areas are difficult to farm due to the unproductive nature of the land but provide iconic and valuable UK products such as lamb, and the most iconic visual scenery much loved by tourists. They frequently have protected designations, such as being National Parks, which further limit productive activities. Providing support for remote rural

communities is essential for the preservation of the ways of life that have moulded these much loved landscapes.

Are there any other public goods which you think the government should support?

Habitat connectivity. A fragmented habitat is not one that can sustain wildlife in the long term. Isolated populations of any species, no matter how common or widespread, are vulnerable to local extinctions so a landscape scale view of environmental needs is required. Habitats need to be restored, protected and created, and they also need to be connected, creating of corridors for our wildlife to navigate the increasingly inhospitable agricultural land and improving the agricultural land itself. Habitat connectivity can and should include a range of permanent habitat features from good quality hedgerows, in-field trees and woodland, to ponds and other water features.

Section 6. Enhancing our environment

From the list below, please select which outcomes would be best achieved by incentivising action across a number of farms or other land parcels in a future environmental land management system:

a. Recreation
b. Water quality
c. Flood mitigation
d. Habitat restoration
e. Species recovery
f. Soil quality
g. Cultural heritage
h. Carbon sequestration and greenhouse gas reduction
i. Air quality
j. Woodlands and forestry
k. Other (please specify)

Please give a short explanation as to your preferences:

Recreation:

People's Trust for Endangered Species has a vested interest in ensuring good public access to the countryside for recreation. Monitoring schemes and habitat surveys done by volunteer members of the public form a critical part of our work and often require access to farmed land. They gather quantities of data about the state of our wildlife and our habitats that we could not hope to achieve by other means. Data collected by NGOs is fed into national records such as Priority Habitat maps and the National Biodiversity Network database. Incentivising access to land for recreation purposes will also help reconnect the public to our natural heritage which has a wide range of benefits.

Water quality:
Water quality is critical to the survival of various insect and plant life that numerous endangered mammals and birds rely on to survive. High surface run-off of fertilisers and pesticides pollute water courses and water tables and damage ecosystems. Water quality is best assured by working at a landscape level (for example, the Wildlife Trusts' Living Landscapes schemes) which require actions

to be carried out across a number of farms. By incentivising land managers to work collaboratively they can deliver coordinated crop and soil management and run-off prevention to benefit biodiversity across the landscape.

Flood mitigation:
Since large-scale mechanisation was developed, it has been possible to alter landscapes in ways that were previously unattainable, contributing to an increase of flash flooding downstream. Measures to alleviate floods downstream are addressing the symptom rather than the cause. Flood mitigation can only be effective if managed at source by reversal of modern landscape alterations:

- Large areas of uplands have been drained and channelled leading to peatlands drying out and soil structures collapsing.
- Meanders in streams and rivers have been channelled to increase land availability and remove water downstream as quickly as possible, causing tons of sediments to wash into the lower reaches of rivers and deltas, choking native flora and fauna.
- Woodland and scrub is known to massively resist the downward movement of precipitation, but its removal has left large areas with none at all.

These large-scale landscape alterations have had unforeseen consequences. A new payments system is an opportunity for past mistakes to be rectified.

Habitat restoration:

We champion healthy habitats to enable wildlife dispersal, colonisation and recolonisation in the landscape. However, nature conservation in the UK has traditionally focused on the preservation of specific sites rather than ensuring that large areas are managed sympathetically. Habitat restoration is best achieved by working at a landscape level (as shown by The Wildlife Trusts' Living Landscapes schemes) which require actions to be carried out across a number of farms. By incentivising land owners to work in collaboration, they can deliver coordinated habitat restoration which will benefit biodiversity across the landscape.

Species recovery:

Coordinated management across large areas is required to support species recovery. Individual land managers are limited in what can be achieved in isolation. For many species to flourish, larger areas of land are needed than is provided by an individual farm. Encouraging farmers and landowners to work in a coordinated manner to implement environmentally sympathetic land management practices will encourage the recovery of species across the landscape (for example, the Farmer Clusters project run by The Game and Wildlife Conservation Trust).

Soil quality:

Soil quality is critical to the survival of diverse insect and plant life on which endangered wildlife relies. High tilling and pesticide use cause vital sources of food for wildlife to be depleted, and threaten the survival of entire ecosystems. Soil quality is best assured by working at a landscape level (for example, the Wildlife Trusts' Living Landscapes schemes) which require actions to be carried out across a number of farms. By incentivising land owners to work collaboratively they can deliver coordinated crop and soil management, which will benefit biodiversity across the landscape.

Cultural heritage:

Traditional cultural practices are generally considered environmentally benign. Hay from meadows, willow osiers, corn-dolly-making, thatching, local food, drink and fruit production and so on, are all dependent on low-input farming practices using traditional varieties.

Carbon sequestration and greenhouse gas reduction:

There is ample evidence for climate change being caused by greenhouse gases. Carbon sequestration can most easily be achieved by the planting of trees and reflooding peatlands, which complements flood alleviation measures.

Air quality:

Many lichens are highly sensitive to atmospheric pollution and cannot survive in elevated levels. Ammonia air pollution (NH_3 – rich in nitrogen) is primarily caused by livestock manure and slurry management, and farmland fertilisers. Evidence of this can be seen in the huge abundance of nitrophile lichens on and around farmland (e.g. *Xanthoria* spp. and *Physcia* spp.). Dramatic changes in lichen flora following the industrial revolution were well documented and, although the causes are different, the changes continue to occur across woodlands, orchards, churchyards and towns. Whilst economically unimportant, lichens provide a strong indication of atmospheric health and many other species depend on a wide variety of lichen flora for survival.

Woodlands and forestry:

Woodland management and forestry is rich in heritage. Local markets are re-emerging with the potential for long-neglected woodlands and coppices to be brought back into rotation. Restoration, connectivity and recovery of lost and fragmented woodland habitat should be a high priority and connected to considerations of capital works such as hedgerow restoration and creation.

Woodlands and forestry should include ancient wood pasture and traditional orchards. Wood pasture is a distinct form of ancient woodland in terms of landscape history and value, and has equal protection in the planning system. The biodiversity value of traditional orchards lies in the fact that they contain aging, ancient and other veteran fruit trees, often in unploughed flower rich pastures or priority grasslands. The addition of orchards and wood pasture to Annex B is required for these priority habitats to flourish.

> What role should outcome based payments have in a new environmental land management system?

Outcome-based payments should have a primary role in regulating a new environmental land management system. There should be monitoring and ecological assessments to determine the success of outcomes. We recommend 2, 5 and 10 year checks of c.5% of recipients to assess compliance, and payments should be recoverable where outcomes lacking. Compliance guidance is needed to avoid incorrect management. Payment for compliance monitoring should be a ring-fenced percentage of government scheme funding.

> How can farmers and land managers work together or with third parties to deliver environmental outcomes?

A distinct clash of culture between the agricultural and environmental sectors can hinders information flow in both directions. The environmental conservation, ecology and animal welfare sectors sometimes have a poor understanding of the realities of agricultural management and animal husbandry. The agricultural industry is therefore reluctant to engage with groups it perceives as uninformed, thus limiting the return flow of information.

Working more closely with NGOs, and a wider engagement with the Third Sector, could potentially provide mutual benefits for all. Environmental, wildlife and landscape conservation NGOs need income streams, but are also able to freely apply their expertise where charitable aims are identified or objectives sought. The Third Sector has independent expertise that is under-exploited where it is most needed. Engagement with NGOs regarding sites where stewardship for Public Goods has been applied would test the efficacy and impact of the scheme.

Section 9. Changing regulatory culture

How can we improve inspections for environmental, animal health and welfare standards? Please indicate any of your preferred options below.

e) Better data sharing amongst government agencies

Government environmental agencies like Natural England, Defra and the Environment Agency need the funding to prioritise inspections and ensure that land improvement is effective. Protected land such as SSSIs also needs to be monitored and regularly assessed for environmental value to ensure that adequate and appropriate management is in place to retain the designated environmental features.

f) Other (please specify)

We champion data collection and analysis to justify environmental mitigation and protection. Follow-up ecological surveys are essential if any value assessment of funded options is to be made.

d) Increased options for self-reporting

Farmers should be able to self-report the ecological status of the farm by monitoring basic indicator species to assess changes in biodiversity. We do, however, recognise time and skill restraints will be a factor, therefore wildlife and habitat NGOs may be better placed to consult and conduct surveys. Reports should be made to the scheme administration or an external NGO for collation. Where adequate training is provided and positive biodiversity benefits of the scheme are determined, surveying will no longer be required.

Which parts of the regulatory baseline could be improved, and how?
How can we deliver a more targeted and proportionate enforcement system?

We consider the current 5% inspection rate to be adequate, but current staffing and funding restraints on Natural England has meant that this has not been met. Scheme members choosing not to implement their selected options are expected to inform NE and return any funds already received, but due diligence regarding compliance must be in place by the scheme administration. A portion of scheme funding should be ring-fenced for ecological surveys and compliance assessments, or to deliver ecological survey training for self-assessment.

Section 11. Protecting crop, tree, plant and bee health

Where there are insufficient commercial drivers, how far do you agree or disagree that government should play a role in supporting:

a) Supporting industry, woodland owners and others to respond collaboratively and swiftly to outbreaks of priority pests and diseases in trees?

A robust reporting network provided centrally by government is key to reporting. Partial funding for development and maintenance of the reporting network should be sought from the high-risk industries where there is a clear and obvious risk associated with their activities.

b) Promoting landscape recovery following pest and disease outbreaks, and the development of more resilient trees?

Not answered

c) What support, if any, can the government offer to promote the development of a bio-secure supply chain across the forestry, horticulture and beekeeping sectors?

A major threat to national biosecurity comes from the accidental but avoidable introduction of non-native alien species and diseases. These can adversely affect horticulture and managed bee colonies but can have equally damaging though less visible impacts on our native wildlife. Once within the UK, containment is expensive, challenging or impossible. Whilst trade with other nations is often necessary and desirable, favourably utilising our own natural resources in a sustainable way can benefit both UK industries financially and UK wildlife by, for example, bringing neglected woodlands back into production. Biomass from woodland is carbon neutral and unsustainable practices can be curtailed only where controls are in place within our own borders: importation of biological goods carries the risk that the UK is supporting damaging and unsustainable practices abroad, so exporting pollution and the cost to biodiversity to other countries.

Domestically, disease and invasive plant transfer can be curtailed by site biosecurity measures, such as cleaning boots between site visits and thorough drying and cleaning of angling equipment, but the impracticability of these means that they are rarely done by either professionals or the public. Provision of guidelines and practical methods of cleaning, perhaps by the development of a portable equipment sterilising kit, may increase uptake of biosecurity measures. Within industry, UK Plant Health inspections and guidelines are an effective agent in reducing the spread of disease, but public information about movement of biological material is scarce – provided almost entirely by NGOs – and few are aware of the risks involved or are able to identify invasive non-native species.

Prevention is key. Better regulation and control of imports of biological material will help prevent the spread of invasive species and diseases into the UK. High risk products need to be identified and trade with regions where potential threats are recognised needs to be controlled and monitored. The increased cost of this will make domestic trade more attractive.

Case studies

The Asian harlequin ladybird was intentionally imported to Europe and the United States as aphid control on monocrop fields and in greenhouses. Consequently, it became established in the wild and is now widespread throughout America, Africa, and Europe including the UK and poses a threat to many native ladybirds and other prey fauna in these areas. Those responsible were acting fully within the law so have no case to answer for what is quite obviously a high-risk method of pest-control. Rigorous lab testing may have prevented this and other similar alien species introductions.

Several flat-worms, predators of common earth-worms, are now established in the UK due to importation of soils. This practice has obvious and known risks, and yet we continue to do it at ever-increasing levels. Other nation states, such as Australia, impose tight legal restrictions on imports that are likely to introduce novel pests and diseases.

The box-tree moth from Asia, probably imported with plants from China into Europe, is spreading rapidly in the southeast and London and is expected to spread farther afield in the next few years. Infected box trees and hedges are killed by the moth's larvae due to its lack of natural predators.

The invasive water plant Crassula helmsii has, only after determined campaigning by NGOs, been removed from public sale by the plant industry and measures to eradicate it in the wild are ongoing. However, it survives in domestic ponds across the country with owners unaware of the problems it can cause to waterways, ponds and in drainage dykes. The species achieves long-distance dispersal by epizoochorous transfer on the feet of birds and other animals, so will continue to be a threat for the foreseeable future unless more public information is made available in a manner similar to that seen for Japanese knotweed. As with Japanese knotweed, its presence on a property should be notifiable.

Section 15. Legislation: the Agriculture Bill

How far do you agree with the proposed powers of the Agriculture Bill?

The Command Paper makes suggestions for legislation regarding implementation, enforcement and the subsequent agricultural subsidy framework. Most of the suggestions accord with the spirit of Public Goods, but some are cause for concern:

ii. measures to strip out unnecessary bureaucracy and strengthen the delivery landscape

The suggestion that bureaucracy is unnecessary and something to be stripped out should be approached with caution. There are elements of previous schemes that were overly burdensome, but bureaucracy should be reformed and simplified, not stripped.

iii. to create new schemes for one or more of the following purposes:

• promoting and increasing agricultural productivity and resilience

Productivity is not a Public Good per se; it is a Business Good. We recognise the need for efficiency in UK domestic food and farming, but as a stated aim of the Command Paper, it risks business-as-usual and the opportunity to place farming sustainability at the forefront of agricultural policy will be missed.

• preserving, protecting and enhancing the environment

This should be of the highest importance considering the rationale set out in the Command Paper.

iv. to establish a new basic compliance or inspection regime

Compliance and inspection has faltered considerably under the currently depleted resources of Natural England. This should be funded by a ring-fenced portion of the fund.

If no legally binding targets are set, experience indicates that there is little hope that they will be met.

What other measures might we need in the Agriculture Bill to achieve our objectives?

The main failing of CAP is the lack of regulation, measurement of success through ecological surveying and the focus of incentivising production rather than public goods. If we fail to prove that these methods are in fact resulting in increased biodiversity, then our environment and the wildlife within it will only continue to decline and we are facing mass extinction across the world.

Under the section 'Public money for public goods', Q2, "d. Improved productivity and competitiveness", predominantly provides a private good for business, not a Public Good. This is the model that we currently follow which provides cheaper food at market but is being paid for increasingly by government (directly), and NGOs and charities (indirectly) in addressing the negative impacts of intensive farming methods, damaging landscape manipulation, climate change, social inequality and environmental degradation. A model based on productivity and competitiveness encourages producers to continue and expand intensive farming practices to produce more at cheaper prices. Whilst the economic arguments for this are persuasive, they can only be justified in the short-term, will benefit the few 'megafarms' able to compete on economies of scale, and will inevitably lead to continued biodiversity loss, soil degradation, poor animal welfare and further commodification of produce.