

Henrietta Appleton, Policy Officer, Game & Wildlife Conservation Trust – Written Evidence (LUE0020)

Summary points

- I. Multi-functional land use is possible given trade-offs and the acceptance that outputs are optimised not maximised.
- II. Management is an important factor in multi-functional land use delivery. This need not be 'intensive'. The trend towards extensification in our opinion risks delivery of desired outcomes.
- III. A land-use framework, rather than a strategy, is envisaged as this provides the basis for collaborative approaches rather than an additional top-down influence.
- IV. The framework should encourage the development of 'how to' blueprints for sustainable land use and management.
- V. The farmed landscape is a key component of successful multi-functional delivery. Bottom-up initiatives and incentives are vital to encourage maximum engagement.

Points addressing the terms of reference

1. The questions posed by the Committee indicate the extent of the challenge presented by the land use demands, which we have summarised into four: food, biodiversity, recreation and development. Added to which is the need to consider 25YEP outcomes.
2. Rather than address them individually we have sought to consider them holistically and address how we envisage multi-functional policy outcomes might be delivered, within the limits of our expertise and experience. This is where we see a land use framework (rather than a strategy) as being important as inevitably there will need to be trade-offs between demands and the acceptance that the optimisation of outputs, rather than their maximisation, is often required.
3. The four principal land uses we identify above influence how we use and manage our land. In order to improve the sustainability of our economy and reduce its carbon footprint, policy initiatives promoting renewable energy (solar farms) and bioenergy (short-rotation coppice; maize) and carbon storage and capture are competing for land resources alongside food production. The focus on water management and quality is affecting how we manage that land; and the desire for greater levels of biodiversity (and to

support natural processes) has resulted in 'wilding' becoming a policy imperative as epitomised in the newly launched Landscape Recovery (LR) element of the Environmental Land Management scheme (for more comment see points 9 and 24).

4. Significantly, given that this receives less attention, there is also a real need to improve the sustainability of our construction industry. Concrete and steel are energy and carbon hungry and so alternatives that have a lower carbon footprint and are sustainable are needed. Again, given the likely focus on timber, this presents a further demand on our finite land resource. Whilst we go on to discuss these in more detail below, the key message is that all these policies need to be integrated.
5. However, given the focus on pressures and challenges, we begin with a request that it is too easy, and simplistic, to blame land managers/farmers for current environmental conditions - be that water quality, biodiversity, carbon losses or soil health. Past policies have been strongly driven by food security and affordability priorities.
6. Arguably until the second world war, land management was purely a private interest with associated individual motivation. Post the second world war, the need to increase food production (and food security), and then timber production, led to public policy influences on land managers' decisions. This was progressed further under the Common Agricultural Policy. It is these singular policy influences that have led to the environmental changes (many unforeseen and unintended) that we are seeking to address now.
7. Since Brexit the formulation of domestic agricultural and environmental policy has focussed on 'public money for public goods'. As food production is not considered a public good this presents an economic dilemma for the land manager. Optimising his income (and de-risking it) might involve turning away from food production towards environmental outcomes and there is already evidence that this is occurring.
8. This focus presents a much broader influence on land management, with more evaluation of land managers/farmers activities. Significantly, it also highlights a key requirement - that to be effective any policy that requires the private interest to deliver public outcomes needs to engage with the land manager/farmer. This should be the bottom line when it comes to land use policy. Our experience demonstrates this through, for example, the development of farmer clusters (<https://www.gwct.org.uk/media/658045/farmer-clusters-guide.pdf>

); the successes exhibited by our grey partridge count scheme members (<https://www.gwct.org.uk/research/long-term-monitoring/partridge-count-scheme/>); and, our working conservationists (<https://www.workingforwildlife.co.uk>). In each case the motivation comes from the land manager/farmer resulting in measurable outcomes.

9. The current configuration of ELMS has the potential to miss this opportunity. Although only indicative, splitting the funds available equally between the Sustainable Farming Incentive (SFI), Local Nature Recovery (LNR) and LR is a concern. This means that the SFI, that is focussed on 70% of farmers, would receive the same amount as the LR element which is focussed on large-scale, long-term projects, thereby potentially having limited applicability and involving as little as 3-5% of land, a figure so low that it is unlikely to have a national impact. In addition, our understanding of decisions over scheme eligibility are likely to exclude the farmer. For example, Local Nature Recovery Strategies will identify the locations and prioritise the activities receiving LNR and LR funding yet we note that these are largely being driven by NGOs (in a local example the coordinating group of 27 members does not include a farmer although a representative from the NFU and CLA are involved). In our opinion ELMS should be focussing on creating a sustainable system of food production through optimising inputs per unit of output and through 'sharing' the productive landscape with biodiversity and other environmental goals (see point 26 below).
10. We are concerned that the current approach to public policy might merely replicate the past by creating unintended consequences. For example, the focus on food production post the second world war led to the development of inorganic inputs to increase yields and the mechanisation of farming processes without an understanding or appreciation of the impact of this on biodiversity and carbon. What we don't want is for this focus to simply be replaced by another single objective - in today's terms that is probably climate change and net zero (see point 11 below) or rewilding. Such singular focus is as flawed as only focussing on food production. A land use framework is required to integrate the singular nature of Government policy approaches to date and consider their broader, holistic implications.
11. Concerns about the consequences of a single Net Zero policy motivation (however important) on biodiversity in particular were flagged early, resulting in the promotion of 'right tree, right place' and nature-based solutions. Much has been written about the impacts of large-scale plantation-style tree plantings, which are

encouraged by Net Zero policy given that they lock up CO2 quickly, on land use change and biodiversity. Where planting has been focussed on landscapes that are in gross output terms deemed agriculturally unproductive, their biodiversity impact has been greater as these areas have tended to be better in fostering biodiversity than high input/output agriculture.

12. In addition, the focus on bio-energy has resulted in concerns about impacts on global biodiversity; but unless there is suitable guidance on how to grow bio-energy crops in a way that supports other environmental objectives that concern could be repeated here. The area of maize has increased and if planted on inappropriate land can have impacts on soil erosion and water quality.
13. The increase in maize planting and the public money support payments that bio-energy generators receive means that rent for productive agricultural land has increased and in some cases pushed out those who normally rent this land for vegetable production. This has impacted on both the supply and price of vegetable crops.
14. Policies that promote a headline number and associated financial incentives such as carbon credits are going to result in the market seeking ways to maximise this opportunity. When it comes to nature, the market does not price it in (as natural capital approaches are trying to resolve); but until natural capital metrics are better, Government needs to be the market regulator and design policy that provides the right incentives. The target itself is arguably not as important as how you get there.
15. There is a need to encourage other private interests that support land management decisions. An example is the game shooting industry; this private recreational interest has historically been a significant incentive for woodland planting (and management) with appropriate woodland design that encourages broader biodiversity - graded edges, mixed native plantings, open rides and an understory - as well as supporting broader biodiversity actions such as wild bird seed mixes and hedgerow plantings (with their additional carbon value). The divisive nature of game shooting and management means this would be a difficult policy to promote but it provides support to the view that incentives should be bottom up thereby allowing the individual to focus on their own motivation for the desired outcomes.
16. Policy needs to embrace all approaches that are scientifically proven to deliver the desired outcomes. It seems perverse to us to

limit some management models or suppress management practices based on emotive arguments rather than justifiable scientific evidence.

17. Given the consequences of past policy initiatives, a key message is that there needs to be a fundamental re-think of how Government policy is developed and formulated. We propose a series of models that set out blueprints for 'bundling' the outcomes desired: for example,
 - a. 'how to' construct sustainable buildings and refurbish old ones;
 - b. 'how to' grow biomass crops that also deliver for environmental outcomes;
 - c. 'how to' grow sustainable commercial timber;
 - d. 'how to' grow food sustainably whilst integrating public good delivery; and,
 - e. 'how to' lock up carbon in soils and other ecological infrastructures.

These blueprints will need to balance domestic considerations with our global supply chain. Whilst we are concerned about the offshoring of our environmental footprint, we believe that in some cases off-setting to other countries can be acceptable if a product can be grown more sustainably there than in England. In the case of timber this might be 'right tree, right place, right country'. Where this occurs this 'net gain' needs to be reflected in the supply chain's footprint.

18. Sustainable building materials is an area where Government needs to invest in the formulation of smart refurbishment ideas. The visitors' centre at the Allerton project started out as a redundant cattle shed. Discussions with builders suggested that the most obvious route would be to demolish and start again using concrete blocks. However, the Trust was aware of the 'embedded' carbon footprint in the redundant farm building and so sought ways to make it fit for purpose. The outcome was a straw bale outer-skin which not only insulates the previously single thickness brick walls but also locks in the carbon in the straw generated during its growth (using solar energy), as opposed to being ploughed in and releasing CO₂ upon breakdown, and locks in the embedded carbon cost of the cattle shed, whilst conserving warmth within the building itself.

19. With regard to the creation of a land use framework, the land and how it is managed will dictate what is possible. This may seem an obvious statement to make but in the formulation of some aspects of public policy it appears the focus is more on delivering the outcomes through the minimisation of inputs. Re-wilding is perhaps the epitome of this approach and yet there is no clear evidence that all the multi-functional land use aspirations surrounding it - biodiversity, carbon storage, flood mitigation etc - will be delivered to the same or greater extent than current land uses and associated 'sustainable' management approaches.
20. Connected to this is our concern about increasing designated/protected areas, at least with regard to wildlife conservation. Whilst National Parks and AONBs have a role in increasing access to valued landscapes, it must not be forgotten that these have evolved largely as a consequence of the historic (and current) management associated with farming - and to a lesser extent game shooting, industry (lead mining in the Pennines for example) and forestry. Increasing the regulatory framework for land managers does not necessarily lead to improved biodiversity outcomes if it influences/changes this management. The failure to reverse wildlife declines in our designated landscapes has been acknowledged in the recent Review and associated Government response. Ironically increasing public access can have detrimental impacts on biodiversity through disturbance and habitat degradation. These concerns can be replicated for the additional requirements associated with SSSI (or similar) status. In addition, designations create a two-tiered approach to conservation; wildlife does not respect lines on a map! Our view is that the broadest approach to wildlife conservation is best - very much reflecting the Lawton review concept of "bigger, better, joined". ELMS monies should be focussed on bottom-up incentives rather than relying on designations to direct investment.
21. In a recent policy briefing¹ we emphasised that all the evidence the GWCT has from our species recovery projects is that management is needed not only in the creation and management of habitat itself but also through an interventionist approach, through predation management to reduce losses during the breeding season, and supplementary feeding. In fact, agri-environment scheme experience showed that in order to maximise the benefits of wild bird cover (in terms of seed production) a small application of nitrogen fertiliser was required (GWCT lobbied for this change

¹ GWCT Policy Perspective 9: Landscape recovery - will rewilding deliver? (for a copy please email happleton@gwct.org.uk)

which was accepted). This suggests that the extensification (and ultimately the rewilding) approach to nature conservation may not have the intended outcomes, and given the timescales involved we may learn this lesson too late if we put all our policy eggs in one basket.

22. With respect to the farmed landscape, the current direction of travel in agricultural policy towards extensification is of particular concern given recent global challenges to food supply and production.

23. Putting these shorter-term influences to one side briefly, we have expressed concern that the emphasis on the extensification of land management has implications not only for food production but also for the environment. We would argue that given the demands placed on land, there is a need for more management not less. Management is often considered synonymous with 'intensive' but it need not be. For example, the adoption of suitable crop rotations that maximise the nutrient cycling of sequestering crops such as clover-leys or cover crops followed by nutrient hungry crops such as first wheats and incorporating well placed and managed agri-environment scheme options to encourage pollinators and natural pest predators requires an intelligent and systematic approach to managing the land sustainably. It can also require some inorganic inputs (even for conservation measures see example in point 21 on wild bird seed mixes) but these are optimised, not maximised. Integrated pest management is another example of a 'hybrid' approach that balances inorganic and organic products to deliver more yield for less impact.

24. The recent focus on rewilding approaches in the competitive LR pilot scheme is an example of this (see also our point about species recovery above). We understand that the farmed landscape is unlikely to be included which we consider is a missed opportunity. If the preferred approach to rewilding is the formation of self-sustaining ecosystems through natural regeneration (of note is that there is no policy definition of rewilding which is an umbrella term for lots of different models) then this presents two concerns: firstly, the space required to deliver this (given that self-sustaining populations require space for territories and different habitat requirements for example) is unlikely to be available in England without massive land use change. Secondly, removing all human influence has been criticised from an ecological perspective as many of our iconic species that we are looking to protect and restore are adapted to man-made ecosystems - for example the Grey Partridge, Turtle Dove, Skylark and Lapwing within arable systems. These two

concerns suggest that finding space for pockets of wildness in the farmed landscape would be more beneficial and support biodiversity more broadly.

25. If farmers are required to reduce inorganic fertiliser use (be that for net zero or due to costs) then they will consider alternative ways to increase food yields given rising global prices - and that invariably means putting more land into production which could have implications for biodiversity and the environment if the land is marginal or has previously been the subject of agri-environment options.

26. Whilst temporary measures may be required to address the current crises facing farmers, we suggest that the long term view requires an approach to farming that encourages sustainable intensification - incidentally an approach pursued by Defra in a project that commenced in 2015 and reported in 2018 (<https://siplatform.org.uk>) but the outcomes of which they seem to be ignoring. The SIP platform project developed a "Dynamic Landscape Typology Tool" which "classifies landscapes based on environmental and social-economic characteristics such as soil type, water quality, crop yield, farm economics, cultural and recreational values, and landscape and historical character... [to] ..help policy makers and stakeholders understand opportunities and risks for food production and the environment." (https://siplatform.org.uk/sites/default/files/imce_uploads/Note%207%20%27Typology%27%281%29.pdf).

27. Our final point is to paint a picture of how multi-functional land use might be delivered. For this we refer to our demonstration farm - the Allerton project. The Allerton Project is a combination of commercial farming, research, demonstration and community engagement. It is difficult to distil the broad and extensive work of the project into a couple of paragraphs and so we commend the following project publications for reading
 - a. Fields for the future 25 years of the Allerton Project - A winning blueprint for farming, wildlife and the environment <https://www.allertontrust.org.uk/wp-content/uploads/2020/03/allerton-20thanniversary-report2017.pdf>

 - b. The Soil and Water Balance - the science behind soil friendly farming <https://www.gwct.org.uk/media/921350/The-Soil-and-Water-Balance.pdf>;

as well as a recent article in Farmers Weekly - https://www.fwi.co.uk/business/business-management/agricultural-transition/how-natural-capital-is-thriving-at-pioneering-farm?utm_source=All+Contacts&utm_campaign=4f53c340d7-Morning+Briefing+130422&utm_medium=email&utm_term=0_dd843c5cb6-4f53c340d7-27437787&mc_cid=4f53c340d7&mc_eid=01aa865098

28. The Allerton project is a commercially run farm that epitomises the idea that, within soil type and geographic constraints, each farm can consist of a mosaic of food, carbon, biodiversity, water and wildness areas. At Allerton, importantly, each of these objectives is managed to optimise outcomes. In the 25th Anniversary Report mentioned above, Professor Tim Benton in the Foreword stated *"Achieving a landscape-wide network of unfarmed but highly managed land which is wildlife-friendly, and treating this as integral with productive land at both the field and catchment level, has been the major achievement of this Project"*. In the next few points we address each mosaic element.
29. At the beginning of the project difficult to farm and unproductive areas were identified and re-purposed to deliver biodiversity. This represents about 10-15% of the land area with the remaining areas farmed commercially - yields compare favourably with regional averages and the farm consistently matches or exceeds a benchmark of similar operations. Like other farm businesses we have sought to minimise costs through a partnership arrangement whilst seeking to maximise yields and margins through good timeliness and agronomy, marketing our crops with Conservation Grade quality premiums and forward selling at times. More recently we have introduced short-term leys to the rotation of wheat, barley, oil seed rape and beans to improve soil structure and health and to reduce use of inorganic nitrogen and plant protection products.
30. We have commenced an agro-forestry experiment to look at optimal planting densities for carbon sequestration (soil and tree), soil biology, improved water infiltration (flooding benefits), grazing value and livestock welfare. The choice of species and use of shrubs also provides benefits to the game shoot.
31. We use the thinnings from our woodland (and hedge coppicing and laying) to fuel the heating system in the visitor's centre.

32. Over the years our approach to wildlife 'farming' has evolved in response to both biodiversity and economic drivers. For example, initially we dispersed crops across the farm to present a diversified habitat but this was an economic cost to the farm and so we sought other ways to support biodiversity in the non-cropped areas through creative management. As a result we have been instrumental in designing a number of agri-environment scheme options such as beetle banks which if appropriately positioned on a sloping field can also minimise run-off and in large fields provide over-winter nesting for crop pest predators. This adaptive, managed approach has resulted in, for example, a 193% increase in songbird numbers above base.
33. We have also shown that whilst buffer strips are useful for improving water quality and reducing soil erosion, they can be made more multi-functional if they are sown with a pollen & nectar mix, expanded to allow flood water to gather or even let to grow wetland tree species such as willow and alder which will naturally regenerate these areas locking up carbon.
34. Farm ponds are another option we have used at Allerton with multiple benefits. Agriculture plays an important part in influencing aquatic ecosystems in farming landscapes. Holding back water through digging 'interception' ponds can not only reduce the impact of agricultural pollution (nutrients, sediment, pesticides) but also support additional biodiversity on the farm.
35. We were involved in Defra's Sustainable Intensification Platform mentioned above and have also carried out research on soil management to deliver benefits to both cropping and the environment. For example, we have identified the benefits of reducing tillage intensity in reducing runoff (and therefore benefitting water quality and aquatic biodiversity), reducing crop establishment costs and increasing soil biomass and soil carbon. Increased microbial biomass was demonstrated to reduce soil loss in surface and sub surface runoff, resulting in healthier aquatic functioning in local water bodies. The results of some of our research demonstrate that the outcomes are soil type specific.
36. Our research results inform our decision making on the farm and enable us to identify some of the challenges from changing farming systems; such as increased herbicide costs, and compaction in the early stages of conversion to a no-till system. These challenges have guided both our continuing research, and our management of the farm.

***Dr Alastair Leake and Henrietta Appleton
Game & Wildlife Conservation Trust
April 2022***