Introduction

1. Wildlife Trusts Wales (WTW) represents the six Wildlife Trusts in Wales – Brecknock, Gwent, Montgomeryshire, North Wales, Radnorshire and South and West Wales (hereafter referred to as the 'Wildlife Trusts') working together in partnership to achieve common aims. The Wildlife Trusts collectively speak on behalf of more than 24,000 members and manage over 200 nature reserves, covering more than 4,000 hectares of prime wildlife habitat, from rugged coastline to urban wildlife havens. We appreciate the opportunity to provide evidence to this inquiry.

2. Our charitable objective, securing the recovery of native biodiversity, depends on sustainable land and water management. We see fostering greater public understanding of the value of the natural environment and role of consumer choice as integral to the recovery of native biodiversity.

3. Our relationship with food has become unhealthy and unsustainable. Half of food purchased is wasted and our over consumption results in 58% of us being overweight (22% obese)[1] (this is related to processed food), which costs NHS Wales £73 million a year[2]. However, there has been growing recognition of the relevance of food policy, for example, the increasing concern about food poverty and poor diet[3], environmental degradation, climate change and biodiversity loss.

4. Sustainable food is now forming a major part of the new UN Sustainable Development Goals and Sustainable Cities and Regions agenda. It is no longer seen as a narrow sectoral issue, but a major vehicle for delivering low-carbon sustainable transitions more generally[4].

Vision for the future of food in Wales

5. The Wildlife Trusts in Wales have a clear vision for the future of food production in Wales:
   - Food production should be based on integrated food and resource management policies and strategies,
   - Food prices should reflect the true cost of their production, and
   - Support should be available to encourage community food production.

Integrate food and natural resource management policies

6. We believe that the future of food in Wales should be looked at in an holistic manner through the creation of a **Sustainable Land Management Policy** (see Annex 1 - Wildlife Trusts Wales Sustainable Land Management in a Post EU Wales). Farming can and should do better for society and the natural environment. Unsustainable management practices, including food production, have driven declines in marine and terrestrial biodiversity, degraded our soils and continue to pollute our rivers. For Wales to achieve sustainable management of natural

[1] Welsh Health Survey: 58% of adults overweight or obese http://www.bbc.co.uk/news/uk-wales-32994381
[2] Welsh NHS http://www.wales.nhs.uk/news/33731
[3] Faculty of Public Health: Food Poverty and Health http://www.fph.org.uk/uploads/bs_food_poverty.pdf
[4] United Nations Sustainable Development Goals: Goal 2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture http://www.un.org/sustainabledevelopment/hunger/

resources (as set out in the Environment (Wales) Act 2016), policies impacting management of the food producing environment (both terrestrial and marine) need to be integrated. It would be counterintuitive to produce a food strategy which does not consider the management of the resource producing that food.

7. It is important that the development of a sustainable fisheries policy is developed alongside sustainable land management policy. The long-term social and economic sustainability of the fishing industry is dependent on a productive and biologically diverse marine environment that supports healthy fish stocks. We feel sustainable management of fisheries can be achieve through[5]:
   - Effective legislation and fisheries agreements
   - Setting sustainable levels for fishing
   - Creating and effectively managing an ecologically coherent network of marine protected areas
   - Basing fishing limits on sound science (from ICES and other scientific organisations)
   - Delivering an effective discard ban which includes full documentation and control of total catches
   - Sharing management with neighbouring countries
   - Undertaking effective monitoring and enforcement
   - Improving spatial management measures, gear selectivity, and other technical measures
   - Investing to ensure there are sufficient resources for data collection, monitoring and enforcement
   - Developing and implementing new fisheries laws using clear processes for engagement with all stakeholders

8. **Food, health and the environment should be the three cornerstones of future policy, with none being advanced at the expense of another**. We should be creating the right conditions to produce more high quality, healthier food, produced to high welfare and environmental standards.

9. The Square Meal report[6] states that we need to support people to reconnect with the countryside, understand where their food comes from, how it has been produced and why this is so important.

[5] Greener UK (2017): Delivering sustainable fisheries management – a sustainable future for UK seas
[6] Square Meal - Food Farming Health Nature http://foodresearch.org.uk/wp-content/uploads/2014/07/squaremealfinalpdf-1.pdf

10. We need to confront the increasingly apparent issues associated with **climate change**[7], resource depletion and **biodiversity and ecological loss**[8] as well as public health issues. Food and farming need to play a central role in Wales' legal obligations to reduce carbon emissions by 80% by 2050 and reverse the loss of biodiversity[9,10,11].

Food prices reflect the true cost of production

11. There are a number of areas of concern under the **Rethinking Food in Wales** heading that need to be addressed by a future Sustainable Land Management Policy, namely:
    - Food is currently under-valued by society, and may be sold for less than the cost of production[12].
    - There is disconnect between consumers and producers, leading to consumer choices in the absence of understanding of the impacts of those choices[13].

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[7] Harvard University state that climate change alone is expected to threaten with extinction approximately one quarter or more of all species on land by the year 2050, surpassing even habitat loss as the biggest threat to life on land . Species in the oceans and in fresh water are also at great risk from climate change. The IPCC has predicted that by 2100, assuming that current trends in burning fossil fuels continue, the surface of the Earth will warm on average by as much as 6 degrees Celsius or more . It is not possible to predict how most species, including our own, and how most ecosystems, will respond to such extreme warming, but the effects are likely to be catastrophic .To put an average surface warming of 6 degrees Celsius into context, all the changes we have seen to date —the melting of glaciers, sea ice, and permafrost; the bleaching and dying of coral reefs; extreme storms and flooding, droughts, and heat waves; and major shifts in the ranges of organisms and in the timing of their biological cycles- that have been ascribed to global warming have occurred with an average warming of the Earth's surface since the late 19th Century, when this warming (and the Industrial Revolution) began, of less than 1 degree C .

[8] A recent study highlights that the Earth's sixth mass extinction event is under way. The study, published in the peer-reviewed journal Proceedings of the National Academy of Sciences, states it "eschews the normally sober tone of scientific papers and calls the massive loss of wildlife a "biological annihilation" that represents a "frightening assault on the foundations of human civilisation". This aligns with;

- The State of Nature 2016 which shows that nature is in serious decline across the UK. Over the last 50 years, 56% of species have declined, while 15% are at risk of disappearing from our shores altogether.
- WWF Living Planet Index which reveals that global populations of fish, birds, mammals, amphibians and reptiles declined by 58% between 1970 and 2012. It states that we could witness a two-thirds decline in the half-century from 1970 to 2020 – unless we act now to reform our food and energy systems and meet global commitments on addressing climate change, protecting biodiversity and supporting sustainable development.

[9] **Marsden, T** ***http://blogs.cardiff.ac.uk/sustainableplaces/2016/09/22/brexit-towards-building-a-new-consensus-for-an-integrated-food-and-rural-development-policy/***

[10] **Welsh National Assembly Environment and Sustainability Committee**.(2014).Report of Enquiry into Sustainable Land management

[11] **European Commission**. (2016). A strategic approach to EU agricultural research and innovation. Draft paper. Brussels 26-28th January Conference: Designing the path: a strategic approach to agricultural research and innovation

[12] "*The average milk price farmers received in December 2015 was 23.71ppl. Two years ago this price was 34.25ppl. Some farmers are now receiving milk prices of production is nearer 30ppl. So most UK farmers are losing money on every litre of milk they produce".* NFU (2016), Backing British dairy: Our Q&A. http://www.nfuonline.com/back-british-farming/news-channel/backing-british-dairy-our-qa/ accessed 26-08-16*around 15ppl, while the average cost of*

[13] "Consumer knowledge regarding farming practices in the poultry sector is limited and leads to various misconceptions about the poultry industry. Consumer perceptions of animal welfare in the poultry sector and producer perceptions are not always the same. The final two points appear to suggest a disconnect between the consumer and the poultry industry that may be an issue of increasing concern in the future." **Burton, E., Gatcliffe, J. et al (2016) Sustainable Poultry Production in Europe / Poultry Science Symposium Series Vol 31**

- Environmental costs (externalities) are not represented in the retail price[14] for example[15]
  - Fertilisers, pesticides and herbicides flowing into, and polluting, our reservoirs and water courses require water companies to clean up and to charge their customers accordingly.
  - Poorly stored and inappropriately handled slurry resulting in effluent leaching into the water systems[16].
  - Agricultural intensification methods (e.g. draining peat soils, ploughing steep slopes) which increase flooding risks downstream, emit greenhouse gases and diminish our soil resources.
  - Inappropriate use of antibiotics putting the health of the wider society at risk.
  - Significant adverse impacts upon biodiversity with the State of Nature Report (2016)[17] stating that the intensification of agriculture has had the biggest impact on wildlife nationally, and this has been overwhelmingly negative. It also states that:
    - 53% of freshwater and wetland species declined over the long term,
    - 13% of freshwater and wetland species are threatened with extinction from Great Britain, and
    - excessive nutrient input and other forms of pollution are an important element in the decline in biodiversity in Wales.
- These externalities have been estimated to cost the UK over £3 billion per as a result of air and water pollution, soil erosion, and loss/degradation of wildlife and wildlife habitats[18].
- Cheap imports put pressure on British products that are currently produced to a higher environmental and welfare standard. We are also seeing increasing cases of 'upselling' poor environmental and welfare conditions.

12. Public policy should look to support small, diversified farms whose holdings contribute significantly to farmland biodiversity and sustainable production.

13. The **Square Meal Report[19]**, states "*the countryside, farming and food deserve a far higher priority in public policy and must be treated as issues central to people's lives and their wellbeing*… {we need to adopt an approach of} *a culture of fairly priced, sustainable, seasonal British produce and diets based on more fresh fruit and vegetables, less (and more sustainably produced) dairy and meat, and less junk food*". This will be best delivered by two approaches –
    - By increasing public awareness of the true current cost of industrial production, as outlined above,
    - By increasing understanding by engaging more people in local food production.

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[14] "The real cost of the per capita UK food basket (£24.79) is calculated to be £2.91 more per person wk−1 (11.8%) if externalities and subsidies are included, with farm externalities (81 p), domestic road transport (76 p), government subsidies (93 p) and shopping transport (41 p) contributing the most." Prett, J.N., Ball, A.S. et al (2005) Food Policy 30 (1) pp. 1-19

[15] **Dieter Helm (September 2016) British Agricultural Policy after BREXIT - Natural Capital Network** – http://www.dieterhelm.co.uk/natural-capital/environment/agricultural-policy-after-brexit/

[16] https://consultations.gov.wales/sites/default/files/consultation_doc_files/160929-nitrate-vulnerable-zones-consultation-en.pdf

[17] **State of Nature Report** (2016) http://www.wtwales.org/wildlife/state-nature-2016

[18] Figure from Eaton MA, et al, 2012. The state of the UK's birds 2012. Sandy, Beds: RSPB,BTO, WWT, CCW, NE, NIEA, SNH and JNCC

[19] Square Meal - Food Farming Health Nature http://foodresearch.org.uk/wp-content/uploads/2014/07/squaremealfinalpdf-1.pdf

Community food production support

14. Community food production has been growing in recent years[20] with 300 community food co-ops running across Wales from places such as schools, allotments, community centres, church halls, workplaces and many other venues. They help people eat more healthily, save money and can be beneficial for wildlife[21]. **There should be support for community food production;** this would not be very demanding on national budgets, in relative terms, and would tie in to the need to increase:
    - value of food,
    - understanding of how it is produced,
    - the wider health and wellbeing benefits.

15. Community food production also needs to be linked with the same ecological principles as more commercial farming but with a focus on understanding of the public. To help achieve this aim, we should encourage wider stakeholder participation by increasing or widening the agri-food community.

16. Creating even temporary space for food production through allotments, community gardens and orchards increases access to healthy, locally sourced and distinctive food, and provides education and training opportunities. It also contributes to food security and reconnects communities with their local environment. This contributes to healthy diets for local communities.

17. One example is 'Vetch Veg[22]' located at Swansea City's old football ground. This green oasis in the middle of the city has enhanced the community spirit, sharing the growing, swapping recipes and tasting and sampling new dishes. This reflects the diverse cultures in Swansea. Allotments have been shown to be better for biodiversity than parks, gardens, roadside verges and the countryside due to the wider variety of plants found here than in more rural locations[23].

18. Whilst The Wildlife Trusts supports the idea of more local or community food growing, it is important to remember that "local" does not necessary equal "more sustainable". Supporting local producers can be a positive step, but the method of food production in terms of energy use, pollution impacts, waste and impacts on wildlife are all important factors in the overall sustainability of food production.

Creating an internationally renowned destination for food lovers

19. Below are two examples of how Wales could become internationally renowned for its food:

    a) The suggestions above will create a unique brand for Welsh food which in-turn will help to turn Wales into an internationally renowned destination for food lovers

    b) To ensure this applies in the marine environment, good practice towards sustainable fisheries should be favoured, for example, The Wildlife Trust of South and West Wales project, Future Fisheries, aims to champion a low impact, profitable fishing industry in Wales whilst securing Living Seas where marine wildlife thrives. The project builds on information readily available and by working with local fishing communities the aim is to

[20] Community Food Coop http://www.foodcoopswales.org.uk/
[21] University of Bristol - http://www.theguardian.com/environment/2014/oct/28/first-great-british-bee-count-reveals-allotments-make-best-bee-habitats
[22] http://www.vetchveg.co.uk/
[23] Speak A., Mizgajski A. & Borysiak J. (2015): Allotment gardens and parks: Provision of ecosystem services with an emphasis on biodiversity. *Urban Forestry and Urban Greening*. 14. 772-781.

provide sound consumer advice on the ‘right’ fish to eat whilst helping to promote local sources and outlets; encouraging the local industry and consumers to be committed to local and low impact. The seas around Wales are important to many coastal communities as well as the wildlife that resides there. Truly sustainable fishing will not only support Living Seas but protect the culturally important industry that is valuable to local communities for future generations.

Annex 1

THE WILDLIFE TRUSTS IN WALES' VISION FOR SUSTAINABLE LAND MANAGEMENT IN A POST EU WALES

June 2017

Introduction

Leaving the European Union (EU) gives us an opportunity to reshape the future of the Welsh countryside to achieve the vision and goals of both the **Well-being of Future Generations (Wales) Act 2015** and **Environment (Wales) Act 2016**. The aim should be to create a thriving, healthy countryside that delivers multiple benefits for society.

As well as products such as food and timber, we need the natural environment, rich in wildlife, to provide services like clean water, healthy soils, flood alleviation, carbon sequestration, and the benefits to our wellbeing that contact with nature brings. In turn, these services play a key role in supporting a prosperous rural economy.

The EU's record on environmental issues is arguably one of its greatest achievements. It has developed world-leading legislation on a range of issues, which have helped tackle water and air pollution, protected endangered species, protected our pollinators through bans on dangerous pesticides and cleaned up our beaches.

However, while the Common Agricultural Policy (CAP) has enhanced some on-farm biodiversity through agri-environment measures, it has also created significant perverse outcomes for biodiversity, for example, the payment of subsidy linked to grazeable land area has led to the loss of woodland, scrub and trees and associated wildlife.

Professor Dieter Helm, Chair of the Natural Capital Committee, highlights some of the significant issues with current short-term focussed unsustainable land management practices[24] which include

- Fertilisers, pesticides and herbicides flowing into, and polluting, our reservoirs and water courses requiring water companies to clean up and to charge their customers accordingly
- Poorly stored and inappropriately handled slurry resulting in effluent leaching into the water systems
- Agricultural intensification methods (e.g. draining peat soils, ploughing steep slopes) which increase flooding risks downstream, emit greenhouse gases and diminish our soil resources
- Inappropriate use of antibiotics putting the health of the wider society at risk.
- Significant adverse impacts upon biodiversity

[24] Dieter Helm (September 2016) British Agricultural Policy after BREXIT - Natural Capital Network – http://www.dieterhelm.co.uk/natural-capital/environment/agricultural-policy-after-brexit/

This view is further supported by the evidence both nationally (e.g. Water Framework Directive investigations[25] and the recent *State of Nature* report (2016)[26]) and internationally[27] .

Farming is not of course the only reason why wildlife is declining, and there are many examples of good farming practice[28]. Other contributors include infrastructure, climate change and invasive species. However, as the farmed environment covers over 80% of Wales, these unsustainable practices have a significant impact on the ecology of the Welsh landscape and this impact is not currently reflected in economic considerations.

We need to confront the headwinds associated with climate change, resource depletion and biodiversity loss as well as public health issues. Food and farming needs to play a central role in Wales' legal obligations to reduce carbon emissions by 80% by 2050 and reverse the loss of biodiversity[29,30,31].

Due to the scale of the degradation of biodiversity and ecosystem services, it makes sense that we must develop not just sustainable but **ecologically restorative policies** as called for by Professor Terry Marsden[32].

In order for farmers and farming practices to shift towards a longer-term, ecologically and economically sustainable system (capable of delivering for wider societal need) the economics of the system will also have to shift. Therefore, there is a need to create new market systems that can support this new approach. Government, industry and corporate backing for these emerging market systems will help to prevent them from becoming "*marginalised and trivialised (as support for 'butterflies and birds'*)"[33].

The UK's exit from Europe will require us to develop our own common principles upon which future combined agricultural, environmental and public health policies should be based. Wales is ideally placed to do this by developing and implementing an innovative **Sustainable Land Management Policy**. This should enable those working within a resilient natural environment to deliver economic, social, environmental and cultural value to Wales. These new policies and systems should look to help Welsh Government fulfil its obligations under the both the **Well-being of Future Generations (Wales) Act 2015** and **Environment (Wales) Act 2016**.

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[25] NRW Water for Livelihoods https://naturalresources.wales/media/678795/western-wales-river-basin-facts-and-statistics.pdf
[26] State of Nature 2016 http://www.wildlifetrusts.org/stateofnature16
[27] WWF Environmental impacts of farming http://wwf.panda.org/what_we_do/footprint/agriculture/impacts/
[28] FWAG Silver Lapwing Award http://www.fwag.org.uk/silver-lapwing-2016/4593040354
[29] Marsden, T per comm. http://blogs.cardiff.ac.uk/sustainableplaces/2016/09/22/brexit-towards-building-a-new-consensus-for-an-integrated-food-and-rural-development-policy/
[30] Welsh National Assembly Environment and Sustainability Committee.(2014).Report of Enquiry into Sustainable Land management
[31] European Commission. (2016). A strategic approach to EU agricultural research and innovation. Draft paper. Brussels 26-28th January Conference: Designing the path: a strategic approach to agricultural research and innovation
[32] Marsden, T per comm. *http://blogs.cardiff.ac.uk/sustainableplaces/2016/09/22/brexit-towards-building-a-new-consensus-for-an-integrated-food-and-rural-development-policy/*
[33] iBid

It is worth highlighting that this should be an innovative, integrated framework for the ecologically and economically sustainable management of resources and should include **forestry** and **marine natural resources** as well as farmed land.

Sustainable Land Management Policy

To create a **sustainable and high quality natural environment** Wales needs an economically viable landowning community working with the natural environment to ensure that it is capable of providing both for the needs of wildlife and of society. The two cannot and should not be separated.

This framework should be a **Sustainable Land Management Policy** which should seek to invest and support our natural environment and be based upon the following key principles:

a) **Creating multiple outcomes** for example supporting sustainably produced food, reversing habitat and wildlife declines, conserving soil and carbon and managing the movement of water,
b) **Investment and not subsidy** investing public money in public need,
c) Fostering greater **public understanding** of the value of the natural environment and the role of consumer choice,
d) Promoting **high quality, high welfare, ecologically sustainable** food production,
e) **Upskilling** for those who work in the environment including land owners and managers and supporting innovation.

If these principles were adopted appropriately, they would deliver against multiple Welsh Government policy and legislative areas. Critically, it would secure the recovery of biodiversity whilst supporting a sustainable economic, cultural, ecological and wider environmental future.

The following headings comprise the evidence behind the development of the core principles of the Sustainable Land Management Policy.

Creating multiple outcomes

The last seventy years has broadly seen an industrialisation of our countryside with a reductionist approach to land management, increasing geographical specialisation and single-outcome land parcels. For example,

- large swathes of agricultural land have been given over to intensive single-use livestock or crop production to the exclusion of all other outcomes,
- large areas of upland Wales have been planted with conifer crops without consideration to potential benefits from that land other than timber production.

Land management still generally operates under a system where efficiency in the primary outcome is considered more important than delivering multiple outcomes. If the ‘value’ of a field is measured in crop yield alone, then the collateral damage to the wider environment becomes an irrelevance.

It is the decoupling of ecosystem processes from agricultural practice that has caused problems for our wildlife[34] and degraded the delivery of ecosystem services (e.g. water quality and quantity). Sayer *et al*[35] states that "*agricultural expansion and intensification threatens environmental goods and services, which could in turn undermine efforts to meet future food demands, while also affecting livelihoods and health*".

It is damaging to silo production from wildlife or the environment. The 'value' of a field should instead incorporate:

- the **multiple societal benefits** accrued from sustainable management (e.g. clean water, reduced flood risk, reduced greenhouse gas emissions, wildlife),
- the **true 'costs' associated with production** (externalities such as cleaning up pollution[36]). As a consequence unsustainable practises which negatively impact upon the delivery of the associated benefits would reduce the overall value of what is being produced, shrinking the profit margin and resulting in economic instability. Some evidence already exists to document how multiple outcomes can be integrated into land management[37].
- **restore biodiversity on all farmland systems** and avoid geographically restricting biodiversity action.

To help deliver the above we need to avoid being reductionist in our approach. We also need to exercise caution in the use of proxies for simple indices of quality or change. Effort needs to be expended in understanding local environments and tailoring solutions and monitoring programmes[38]

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[34] *"By using and contaminating land and water, agriculture is a greater threat to biodiversity than any other human activity".* Garnett, T, Appleby, M.C. et al (2014). Sustainable Intensification in Agriculture: Premises and Policies. Science 341 pp. 33-34

[35] "*Global demand for agricultural land is on a collision course with environmental protection goals. We face a "perfect storm" as we struggle to feed a burgeoning population on a diminishing supply of land, water, nutrients, and biodiversity.. Despite global efforts, ambitious targets and massive expenditure, there are as yet no general and effective solutions for meeting both nature conservation goals and human needs*". Sayer, J., Sunderland, T., et al (2012) Ten principles for a landscape approach to reconciling agriculture, conservation, and other competing land uses. PNAS 110 (21) 10.1073/pnas.1210595110

[36] Professor Deiter Helm states this has not been the case for farming with the private costs of farming not reflecting the full social or environmental costs. Farmers can avoid costs, by passing on their wastes to others to clean up e.g. diffuse pollution cleaned up by water companies {and Natural Resources Wales}. As the polluter, they should pay, just as other parts for the economy are confronted with the external costs they impose on the rest of us. Yet the current CAP works the other way around: farmers are paid to do less environmental damage. Dieter Helm (September 2016) British Agricultural Policy after BREXIT - Natural Capital Network – http://www.dieterhelm.co.uk/natural-capital/environment/agricultural-policy-after-brexit/

[37] *"It [the UK National Ecosystems Assessment (NEA)] has also highlighted some of the ways in which wetland ecosystem services can be beneficially exploited, for example as buffer zones, as a means to protect freshwater resources or in flood risk management, as well as the trade-offs inherent in different land uses*" Maltby, E., Acreman, M. et al (2013) The challenges and implications of linking wetland science to policy in agricultural landscapes – experience from the UK National Ecosystem Assessment. Ecological Engineering 56 pp. 121-133

[38] *Overall, the validity of different proxies for ecosystem function and service provision has been the focus of much research but few proxies have been shown to work well across a wide range of scenarios. Proxies should be used cautiously in situations in which they have been shown to work, or subjected to further validation beyond those circumstances*" Stephens, P.A., Pettorelli, N. et al (2015) Management by proxy? The use of indices in applied ecology. Journal of Applied Ecology 52 (1) pp. 1-6

to local circumstances. We need to address the reasons that have contributed to poor outcomes in the past, such as:

- the slow reduction of expert input,
- poor monitoring,
- use of simple proxy indices such as species richness[39],
- delivery of one-size-fits-all solutions,
- single outcome approaches
- 'computer's word is final'

The production of food, the recovery of nature, climate mitigation and adaptation are compatible. The food and farming sector need to have a central role in Wales' obligations under the new legislation to reduce carbon emissions and reverse the loss of biodiversity. Multiple outcomes are possible even when taking into account concerns from the agricultural industry about the scale of domestic food production. In some cases the local solutions may reduce agricultural productivity, but in other cases sustainable intensification could be achieved, based on established options[40]. It is worth noting that the relationship between farm size and ecosystem services is complex[41].

The principles for a landscape approach to reconcile agriculture, conservation, and other competing land uses have already been identified by Sayer *et al* (2012)[12]. One of their ten principles is **multi-functionality**, advocating addressing trade-offs in land use in a "*spatially explicit and ecosystem-driven manner that reconciles stakeholders' multiple needs, preferences, and aspirations*". It is essential that any new investments (rather than subsidies) require multi-functionality and **bespoke solutions to local circumstances that are cumulatively able to deliver national priorities**.

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[39] ibid

[40] *"Successful SI [Sustainable Intensification] will require (a) establishing how land-sharing can deliver sufficiently high yields and multiple ecosystem services, (b) quantifying trade-offs between yields and different environmental benefits and assessing how best to resolve them across different circumstances and spatial scales, and (c) exploring policy and market mechanisms that enhance implementation of sharing or sparing initiatives."* Garnett, T., Appleby, M.C. et al (2014). Sustainable Intensification in Agriculture: Premises and Policies. Science 341 pp. 33-34

[41] "*Small farmers are more likely than their larger counterparts to see farming as essential to the local community and contributions to the call for evidence provided many examples of their support to local social capital. The available empirical evidence suggests however, that the contribution of small farms to the environment is more complex. Contributors made the case for their farming in an environmentally friendly manner and while small farms only manage a small proportion of the land,*
they do play a fundamental role in the collective provision of rural environmental services, although small farms appear to be less equipped than larger ones to meet the challenges of soil and water quality management. For the most part, the evidence suggests that the relationship between farm size and environmental value, community connections and so on is highly complex rather than clear cut. There is a complex interplay of size, farm type, attitudes and behaviour and in favourable conditions this interplay can result in a very positive role for small farms." and "*Further declines in the number of small farms could mean fewer local suppliers of food and other services. The environmental implications would depend very much on what replaces small farms and it would be just as dangerous to assume that all large farms are environmentally damaging as it would to assume that all small farms are environmentally beneficial. Ultimately, rather than privileging one set of farm structures over another it a question of maintaining a diversity of farm size structures. And it is this diversity that is now under threat."* Winter, M., Lobley, M. et al (2016) Is there a future for the small family farm in the UK? A report to The Prince's Countryside Fund.

Investment not subsidy

> "*The Common Agricultural Policy spends €1 billion a week of taxpayers' money across the EU31 – a vast amount that could be doing so much more to support and incentivise those farmers doing the right thing for society and the environment and push up standards across the board. But only a tiny proportion of this expenditure represents good value for money by being targeted at sustainable farming. Much of the rest ends up in the coffers of big business or capitalised in agricultural land prices, delivering little more than private profit or too often is supporting unsustainable farming systems, stifling innovation and hampering competitiveness*" A Square Meal Report[42]

One of the key issues for agriculture, post UK leaving the EU, is the level of future financial provision from the government for the farming industry. Public money has traditionally been used to pay for things that are for the greater public good but which may not be in any one person's short term interests at any one time (NHS, roads etc.).

There can be little doubt that short term decision making is a problem for current land management which leads to cumulative negative impacts affecting everybody. For this reason there is merit in arguing for **public investment in goods and services** that have both inherent value and societal benefit beyond the landholding (including targeted interventions for wildlife and provision of ecosystem services). This would be more defendable to the electorate than a subsidy for individual businesses. The public investment in goods and services would, if designed using principles in this paper, adhere to the **Well-being of Future Generations (Wales) Act 2015** and **Environment (Wales) Act 2016** requirements.

Therefore, future taxpayer support should pay explicitly for outcomes which are of public good and should be framed as **investment and not subsidy**. This would decouple the money entirely from food production and prevent it being regarded as compensation for income forgone. This would involve removing both

- Basic Payment Scheme system which is based on the old entitlements (historically linked to head of livestock)
- Good Agricultural Environmental Condition

This subsidy should be replaced with a more positive, targeted **Payments for Ecosystem Services (PES)** investment model (unlike agri-environment schemes, genuine PES are not constrained by World Trade Organisation rules). This model should also incorporate **targeted interventions for biodiversity** which complement the delivery of ecosystem services, reflecting the intrinsic and cultural values associated with wildlife. Such funding to the industry might even prove logistically easier to design and deliver than adapting current systems bound up in EU rules.

Foster greater public understanding of value of natural environment and role of consumer choice
There are a number of areas of concern under this heading that need to be addressed by a future Sustainable Land Management Policy, namely:

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[42] Square Meal: Why we need a new recipe for the future – RSPB, the Wildlife Trusts, Friends of the Earth, Sustain, the National Trust, Better Eating, Compassion in World Farming, Food Research Collaboration, Food Ethics Proposal, Soil Association - July 2014 http://foodresearch.org.uk/wp-content/uploads/2014/07/squaremealfinalpdf-1.pdf

- Food is currently under-valued by society, and may be sold for less than the cost of production[43],
- There is disconnect between consumers and producers, leading to consumer choices in the absence of understanding of the impacts of those choices[44],
- Environmental costs (externalities) are not represented in the retail price[45],
- Cheap imports put pressure on British products that are currently produced to a higher environmental and welfare standard. We are also seeing increasing cases of 'upselling' poor environmental and welfare conditions, capitalising on more general environmental awareness (un-matched by scrutiny) such as Tesco 'branding' their fresh fruit and vegetables with British sounding farm names, even when the products are from overseas.

This could be addressed by a move towards retail prices reflecting more closely the 'true cost' of food (e.g. incorporating the cost of externalities) and costs associated with producing high welfare, ecologically sustainable food. In this scenario, the industry would be less dependent on subsidy or environmental investment. For those on lower incomes, subsidy could occur at the point of purchase, rather than production. In that way the farmers receive the full value of what they produce, and those who are unable to afford it are supported by the government. This allows the true cost of food to be recognised, and the true value of these high quality food stuffs can be received by all. Under this mechanism all food would be produced to a high welfare and ecologically sustainable standard and all people would be able to benefit.

Public policy should look to support small, diversified farms whose holdings contribute significantly to farmland biodiversity and sustainable production.

The Square Meal Report[19], states "*the countryside, farming and food deserve a far higher priority in public policy and must be treated as issues central to people's lives and their wellbeing*… {we need to adopt an approach of} *a culture of fairly priced, sustainable, seasonal British produce and diets based on more fresh fruit and vegetables, less (and more sustainably produced) dairy and meat, and less junk food*". This will be best delivered by two approaches –

1) by increasing public awareness of the true current cost of industrial production, as outlined above,
2) by increasing understanding by engaging more people in local food production.

In addition, community food production has been growing in recent years[46] with 300 community food co-ops running across Wales from places such as schools, allotments, community centres,

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[43] "*The average milk price farmers received in December 2015 was 23.71ppl. Two years ago this price was 34.25ppl. Some farmers are now receiving milk prices of production is nearer 30ppl. So most UK farmers are losing money on every litre of milk they produce".* NFU (2016), Backing British dairy: Our Q&A. http://www.nfuonline.com/back-british-farming/news-channel/backing-british-dairy-our-qa/ accessed 26-08-16*around 15ppl, while the average cost of*

[44] "Consumer knowledge regarding farming practices in the poultry sector is limited and leads to various misconceptions about the poultry industry. Consumer perceptions of animal welfare in the poultry sector and producer perceptions are not always the same. The final two points appear to suggest a disconnect between the consumer and the poultry industry that may be an issue of increasing concern in the future." Burton, E., Gatcliffe, J. et al (2016) Sustainable Poultry Production in Europe / Poultry Science Symposium Series Vol 31

[45] "The real cost of the per capita UK food basket (£24.79) is calculated to be £2.91 more per person wk−1 (11.8%) if externalities and subsidies are included, with farm externalities (81 p), domestic road transport (76 p), government subsidies (93 p) and shopping transport (41 p) contributing the most." Prett, J.N., Ball, A.S. et al (2005) Food Policy 30 (1) pp. 1-19

[46] Community Food Coop http://www.foodcoopswales.org.uk/

church halls, workplaces and many other different venues. They help people eat more healthily and save money and can be good for wildlife[47]. Therefore, there should be support for community food production; this would not be very demanding on national budgets, in relative terms, and would tie in to the need to increase

- the value placed on food,
- wider understanding of how it is produced,
- delivery of wider health and wellbeing benefits.

Community food production also needs to be tied into the same ecological principles as more commercial farming, but with a greater focus on public understanding.

Promote high quality, high welfare, ecologically sustainable food production

Our relationship with food has become unhealthy and unsustainable. Half of food purchased is wasted and our over consumption results in 58% of us being overweight (22% obese)[48], which costs NHS Wales £73 million a year[49].

Sustainable food is now forming a major part of the new UN Sustainable Development Goals and Sustainable Cities and Regions agenda. It is no longer seen as a narrow sectoral issue, but a major vehicle for delivering low-carbon sustainable transitions more generally[9]

Over 80% of the land area in Wales is under agricultural production[50]. It has been estimated that **the external costs (impact upon the natural environment) of agriculture in the UK are over £3 billion per year**, as a result of air and water pollution, soil erosion, and loss/degradation of wildlife and wildlife habitats[51]. However, the UK currently spends more than £3.26 billion a year of public funds on subsidising the existing unsustainable agricultural system[52].

Consequently, the manner in which food is produced has a significant impact upon UK wildlife. As stated in the Square Meal report[19], we need to support people to:

- reconnect with the countryside,
- understand where their food comes from,
- understand how it has been produced,
- understand why this is so important.

Farming can and should do better for society and the natural environment. **Food, health and the environment should be the three cornerstones of future policy, with none being advanced at the**

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[47] University of Bristol - http://www.theguardian.com/environment/2014/oct/28/first-great-british-bee-count-reveals-allotments-make-best-bee-habitats

[48] Welsh Health Survey: 58% of adults overweight or obese http://www.bbc.co.uk/news/uk-wales-32994381

[49] Welsh NHS http://www.wales.nhs.uk/news/33731

[50] Assembly Research Briefing The Farming Sector in Wales (sept 2016) http://www.assembly.wales/research%20documents/16-053-farming-sector-in-wales/16-053-web-english2.pdf

[51] Figure from Eaton MA, et al, 2012. The state of the UK's birds 2012. Sandy, Beds: RSPB,BTO, WWT, CCW, NE, NIEA, SNH and JNCC

[52] Rotherham L (2010) Food for Thought: How the Common Agricultural Policy costs families nearly £400 a year. London: The Taxpayers Alliance.http://www.taxpayersalliance.com/cap.pdf Accessed 25 June 2014

expense of another. We should be creating the right conditions to produce more high quality, healthier food, produced to high welfare and environment standards.

Advocate upskilling, professionalisation of those who work with the natural environment and support innovation

> "*In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught*."[53]
>
> Baba Dioun - Director of the Agricultural Policy Unit, Ministry of Agriculture, Senegal

Despite their responsibility for the management of over 80% of the Welsh land area, the agricultural workforce (plus forestry and fishing) in Wales comprises less than 3% of the Welsh population[54]. Only 20% of this workforce has a qualification which equates to a Level 4 (equivalent to a Foundation Degree or Higher National Diploma) or above, compared to 40% in other sectors of the economy[55]. This workforce is not required to achieve any educational training beyond secondary education

As a consequence of this and the now multi-generational dependence on industrialised methods, the agricultural sector in Wales relies heavily on anecdotal approaches and suffers from the loss of ecological awareness. For example, it has been shown that for farmers to move from a conventional to an organic food supply chain, they must "*forget many of the practices so characteristic of the conventional chain in order to (re)learn how to farm in an ecologically benign fashion*"[56]. This paucity of ecological understanding within the agricultural sector combined with the growing demand for a multifunctional countryside highlights the profound need for upskilling and professionalisation of the agriculture sector.

In addition, support will be required if landowners are to become innovative and benefit financially from a shift towards new markets which promote wider societal benefit (ecologically and economically sustainable systems). This will help different sectors adhere to the principles and goals of the **Well-being of Future Generations (Wales) Act 2015** and **Environment (Wales) Act 2016**.

Conclusion

Leaving the European Union (EU) gives us an opportunity to reshape the future of the Welsh countryside and how it is managed, but this period of change also comes with great uncertainty and risks. Opportunities to make rapid and substantive change on this scale are rare and it is imperative that we act rapidly to secure the interests of wildlife in the new and emerging order.

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[53] Communicating Forest Values (IUCN) https://www.iucn.org/content/communicating-forest-values-arborvitae-editorial

[54]The Welsh Workforce Employment in Wales August 2014 http://www.assembly.wales/research%20documents/rn14-020%20the%20welsh%20workforce%20%E2%80%93%20employment%20in%20wales/rn14-020.pdf

[55] Jones, W. 2015. Independent Review of Learning delivered by FE colleges and the Relevance of that delivery supporting Farm businesses in Wales

[56] Morgan, K & Murdoch, J (2000) Organic vs. conventional agriculture: knowledge, power and innovation in the food chain. Geoforum 31 (2) pp. 159-173

We must not fall victim to the fallacy of short term thinking and begin to roll back on the improvements in direction and environmental legislation achieved by being part of the EU but instead should take this opportunity to build on the emerging UK and worldwide evidence to develop principles upon which the future of combined agricultural, environmental and public health policies should be based.

Through the development of this paper we have sought to lay out the key principles on which we believe future policy should be founded. We, the Wildlife Trust, believe that if the spirit of these principles is truly adopted into developing policy we can transform the prospects for the Welsh countryside into a wildlife-rich environment capable of supporting an economically and ecologically viable agricultural economy which delivers more for Welsh society as a whole.