Cynulliad Cenedlaethol Cymru | National Assembly for Wales
Y Pwyllgor Newid Hinsawdd, Amgylchedd a Materion Gwledig | Climate Change, Environment and Rural Affairs Committee
Ymchwiliad Bioamrywiaeth | Biodiversity Inquiry
BIO 08
Ymateb gan : Laurence Brooks – Ymgynhorydd Ecoleg
Evidence from : Laurence Brooks – Ecology Consultant

1. Restoring Biodiversity

Holistic Approach

1. When talking about general land management, is not practical to distinguish between actions that will benefit biodiversity from actions that will reduce carbon emissions, restore soils, reduce flood risk and other public goods. All of these issues are intrinsically linked and in order to successfully and efficiently deliver on each of those issues, the new Publics Goods Scheme will have to address them together in a holistic way.
2. It is equally important to recognize that this is because public goods are universal to all land and all land types - all have the ability to hold water, reduce run-off, be biodiverse, store carbon and build soils. There are differences in the type and extent of these services each land type does or can deliver but more general land management changes over larger areas are considered far more likely to be effective at delivering the scope of public goods we need than more specific or substantial changes over smaller areas.
3. Whilst WG/the committee may understand the link between all of the public goods, there were some points of the Land Use and Brexit consultation that suggested the need for a holistic approach is not understood. For instance, the wording of Question 13 of the consultation indicated an either/or approach to delivery of public goods - in that instance biodiversity or carbon - which suggests that tree planting would not deliver biodiversity and wetlands would not deliver carbon sequestration. The WG acknowledged that the consultation is at an early stage and we appreciate this second round of input via committee.
4. The practical outcome is likely to affect all aspects of the scheme delivery:
    - Cost - it is highly likely that delivery of public goods in combination will be more cost effective than delivery of each 'public good' in isolation;
    - Delivery - The benefit of certain specific proposals e.g. tree planting over others will not be properly understood if the full range of benefits of tree planting (etc) in general have not been initially assessed. This would skew the types of projects and methods of delivery that may be accepted under the scheme.
    - Coverage - it will affect the ability to meet primary environmental aims (e.g. reduction flood risk) if, for instance, the ability of better grassland management to reduce run-off is not considered in the initial public goods assessment. This will skew the overall targets and the geographic delivery of each public good.

5. Whilst it is not explicitly known to me what shape the new scheme will take, it appears likely from the current information that it will follow similar lines to current/past environmental

schemes in that it will pay for actions through agreed contacts for new works/methods. It is my hope that the committee will be able to see the value of a holistic approach and the ability of this approach to enable a simpler more flexible scheme that will be better able to encourage the various basic moves towards sustainable land management in the cost-effective manner that will enable sufficient area coverage to achieve our aims for biodiversity conservation, flood alleviation, soils etc. Whilst the above three bullet-point aims could be addressed by a holistic approach to public goods, within a prescriptive contract-based scheme (similar to Glastir etc), it is my firm belief that this type of scheme infrastructure can not deliver sufficient change to meet our current significant environmental problems due to the heavy administrative burden, the lack of effectiveness of prescriptive measures and the dislike of the contract/prescriptions due to inflexibility and business/other risks involved in being tied into a management contract. It may be expected that there will be an increased uptake over Glastir resulting from removal of other payments. However, 'forced' update should not be a reason to disregard negative aspects of the scheme for claimants. This would be considered very unfair but also impractical as dislike of the system will inevitably mean that payments need to be higher to attract uptake, will harbor resentment and will hinder engagement with the aims of the scheme - and it is primarily this engagement that will result in the best practice that will deliver the real-world environmental services gains we need.

6. The Publics Goods Scheme should not aim to provide specific publics goods and thereby hope to increase the general sustainability of land use; it should aim to increase the general sustainability of land use, understanding that this is what delivers the public goods we need.

Biodiversity Delivery

Geographic Scale and Coverage

7. Specifically considering biodiversity as a public good, the key issue is the current ubiquitous nature of biodiversity decline. Current biodiversity loss is happening in all geographic areas and across more or less all types of species. In order to have a substantial impact on this issue the Public Goods Scheme needs to have a significant geographic coverage. Assuming that significant funds will be moved from the removal of 'Pillar 1' to 'Pillar 2' environmental schemes, this may be achievable, though this assumption is not entirely supported by the WG consultation information.
8. As stated above, it is considered that simpler changes in land management over larger areas will better improve biodiversity than larger changes on disparate holdings and I would advise habitat management be the core method of delivery (see below).
9. In terms of the widescale nature of biodiversity loss, it is important to consider Principle 5 of the WG scheme - universal access to the scheme - should not be harmed by the framework of the scheme itself. There is a large but limited amount of money available and as well as needing to be efficiently used, the allocation of set payments by contract would inherently place an upper limit on the number of applicants. As a separate issue, the prioritization of Glastir Advanced, both in terms of qualifying criteria (all geographically restricted) and the prioritization of larger holdings, currently excludes many potential contributors. Whilst there are reasons for both, the first issue is arbitrary and the second, more inherently unfair, and both could be removed. As the administration costs of any scheme requiring detailed works prescriptions, detailed contracts and detailed compliance checks is likely to be similar to the existing rather high costs of Glastir, a fundamentally different simpler system should be considered, if only to increase coverage (though there are other benefits). A market-based

approach of flexible and results-based payments, whereby additional public goods delivery proportionally reduces payment rates would create a balanced, flexible and non-arbitrary upper ceiling on payment costs - with land managers effectively competing for public goods delivery (in line with an idea of env.economist Dieter Helm). A flexible but stable uptake/coverage level for the scheme would develop around general payment rates but importantly no land manager would be excluded from entry at any level.

Methods of Biodiversity Delivery

10. We would recommend that delivery of habitat be the basis for all payments. Habitat is the single, true and reliable reflection of the delivery of the whole suite of public goods we want to support. It is also easily assessed both on the ground and off - the bulk could feasibly be done automatically and remotely with computer algorithms assessing satellite images - methods currently widely used.
11. There are some effective species-specific measures that could be considered for inclusion - such as skylark plots on arable land - however, there must be consideration of the trade-off against overally scheme simplicity. Also, the place for detailed measures is on nature reserves, what this scheme should deliver is basic biodiversity that means we no longer need to micro-manage in this way. What arable species including skylarks really need is insects i.e. organic management and some arable weeds. What grassland species need is for the majority of grassland to not be ploughed and reseeded. It should be part of the cost-benefit analysis to assess whether to support skylarks through a specific measure or to support them, along with wider arable biodiversity, soils, public health etc through arable habitat measures. Whilst I would generally favour the latter, I believe this is a much less important decision than the fundamental structure of the scheme. It should be based on current conservation aims and cost-benefit analysis.
12. It is considered essential that cost/benefit analysis be applied to all potential environmental measures and that this includes consideration of the intrinsic knock-on benefits to higher organisms, of those measures addressing declines in the fundamental levels of biodiversity: plants and invertebrates.
13. In addition, should more specific measures be offered within the scheme, these need to be sufficiently targeted to species of conservation concern, which are directly affected by land management activities. E.g. there is only a minor conservation benefit to providing bird boxes on most farms, as it is not addressing a particular agricultural impact and as they are used almost exclusively by common species. This reduces the cost effectiveness of the overall scheme and would be better avoided in favour of measures with wider benefits more directly countering land use impacts.
14. There are pragmatic reasons for prioritising fundamental levels of biodiversity: 1. the loss of another bird species from Wales would be very lamentable but would not affect our ability to produce food like the continued loss of pollinating insects; 2. In order to be effective, we cannot continue to treat the symptoms only - the problem of biodiversity is the loss of habitat diversity and structure through intensive land management and that is what the public goods payments need to be aimed at. 3. Payments to encourage/enable sustainable land management will intrinsically benefit biodiversity - but will also meet other public goods aims and the scheme as a whole will be more cost effective and can therefore have a greater area coverage.

2. Policy and Legislation

15. The Environment Act is clearly the most recent and primary piece of legislation around which to base the scheme. This sets out primarily to ensure the sustainable management of natural resources and the specific main objective to restore and enhance ecosystem resilience. It also sets out the duty of all Public bodies to consider sustainability.
16. My recommendation, in line with these aims, is to deliver public goods via payments that widely increase sustainable land management. This kind of payment essentially would offset the reduction in short-term income/vs long-term sustainability that is seen as an unpaid cost in many businesses and limits the sustainable use of primary resources. These are deemed 'externalities' and include e.g. pollution (proper disposal being a direct cost) and over-harvesting (short-term profits being preferred over risk of possible resource exhaustion). The public goods we want to pay for are these wider or long-term benefits of sustainable management that are being ignored in the current economic climate as they are not a sufficient benefit to the land-owner / business. What I recommend is that the public goods scheme truly reflects this situation. In effect the scheme would take the public purse into the marketplace, by offering a payment for these externalities and therefore enabling the widespread uptake of sustainable management that will deliver the public goods as a natural consequence, in same way that past sustainable management had always done until recently. It is more likely that flexible kind of system will see the engagement and innovation that will deliver long-term efficient delivery of both public goods and industry including food and other primary production in a variety of ways, meeting changing societal demand.

3. Monitoring

17. The monitoring of the prescribed/contracted works under Glastir is very admin-based and appears to mainly be done by local government staff rather than specifically knowledgeable personnel. Not to suggest they are not competent for this role but the underlying problem is that this set-up does not assess the real outcomes of the work undertaken - we know that the contract has been complied with but not any actual benefit in terms of biodiversity etc.
18. For instance currently a farmer could enter an improved pasture into no input management, and prove he has met the management prescriptions but actually have no substantive ecological benefit, as it is insufficient time for excess nitrogen to be removed from the soil and more diverse flora to colonise. It would also have resulted in very little change in management practice as the pasture would not need to be fertilized much more regularly than the 5 yr contract span anyway. The compliance monitoring of Glastir cannot record this.
19. I would advise a system where payments are based on actual habitat value that exists for the payment period. That is true payment by results, there is no way of falsifying habitats and there no need for complex record keeping (the land is the record). There is no need for lengthy contracts - landowners would get a cumulative gain in payments the longer they maintain sustainable management but are not tied into it by contract. There is simply a fair gain over time for any beneficial management changes they decide to make and maintain. The monitoring of results under this scheme design is integral.
20. Any successful scheme would have outcomes of works/changes in management that were discernable at the level of populations of species at local and national levels. This is what we need to aim for if we want to see a healthy environment. We are fortunate in the UK that there is already incredibly close monitoring of a wide range of species/groups including birds, butterflies, moths, plants, amphibians, bats and a number of specific legally protected

species. This excellent monitoring base, partly supported by public funds, should be made use of and should be an integral part of the kind of system, with annual information feeding into the calculation of payment rates for different habitat/land use and geographic areas. As an integral part of the scheme, biodiversity information would be used both for planning and for monitoring results.

21. In addition to real-world monitoring of outcomes (be it biodiversity/species or flood risk) a non-prescriptive, habitat-based system would enable the majority of compliance monitoring for the public goods scheme to be done remotely and automatically via satellite imagery and algorithm analysis to determine habitat type of each applicants holding/s. These technologies are in fairly widespread usage elsewhere, would be highly efficient and leave more funds for on-site habitat assessment by suitably qualified assessors - both as random control checks and for any cases where there are discrepancies or doubt in the automated system.
22. The reliability of habitat as a measure of management allows compliance monitoring to be less intensive and more robust and gives more surety of cost-effectiveness through results-based payments. The simple nature of the scheme allows flexibility in the delivery of publics goods, less fear/risk of minor infringements causing contractual problems and no need for interventions such as derogations to be administered. All of this allows a more equal relationship between government and applicant and encourages engagement by all sides.
23. There would be some need for 'ground-truthing' of remote assessment systems early on - to make sure it is accurate. There would need to be an increased use of suitably qualified assessors for a certain level of random/ specific compliance audits, though this cost is likely to be offset by reduced scheme administration generally. The necessary expertise already exists both in similar current roles (e.g. advisors for Glastir advanced / Glastir woodland creation) but also within the private sector: compliance surveys could be contracted out - with costs of the necessary role-specific training almost certainly able to be borne by the trainees.

Environmental Service Payment (ESP) System

This is a summary of a new system to replace agricultural subsidy. The ESP system is holistic and its primary features and benefits are set out below: simplicity, robustness, flexibility, fairness, inclusion, efficiency and longevity.

In line with current majority thinking and indeed free market principles, is anticipated that production and land based 'subsidy' payment would cease and payment would only be for environmental services. This is not to say that agriculturally intensive system would necessarily receive no support, as all land use could deliver certain environmental services without significant cost/time input and often with minimal change towards best practise.

It is habitats that ultimately deliver opportunities for all wildlife and sustainable management practices can be seen in the habitats and habitat quality that they generate. Habitat type and quality is a true reflection of the day-to-day and year-to year management practises and this applies equally to all land-use, from farming to forestry, to road verges and community open spaces.

Simple

The ESP system is based entirely on habitat present for the payment period. This is possible because habitat is a complex but easily identifiable outcome of its land management. Payment rates would be set for broad categories of all types of habitat and broad quality categories of that habitat. This can be applied to everything from grasslands - improved agricultural leys to species rich meadows - to woodland - from forestry plantation to ancient woodland.

The rates would be set based on how that habitat in that locality delivers both onsite and wider scale environmental goods and services including: nature conservation, flood alleviation, carbon capture/storage. The payment rates would be relative and priorities (and therefore payment rate) for habitat delivery in any one location would be determined by factors such as current vs historic extent of habitat, rain infiltration/flood alleviation, carbon capture/storage.

The same simple broad criteria would apply to all land use in all areas and the annual rate of payment is the only factor of the system that would regularly alter to keep step with the gradual change of markets and the environment. These underlying factors would be assessed annually as they slowly change local, national and global priorities. Examples would be global food markets increasing the value of certain crops (changing payment rates required to offset subsequent env. effects) or diminished flood risk in the Severn Valley, reducing the need for payment of woodland, hedgerows etc across that catchment. These changes will be gradual and as measures will be spread across vast areas, rates will naturally alter very slowly, though changes should be capped to guard against large fluctuations of landowner income.

Online farm data already simplifies annual form filling. It is envisaged that landowners would annotate online maps of their holdings as the simplest method of returning management information to government.

Robust

Habitat itself is very complex and importantly is the true and inevitable reflection of all it's environmental and management factors over time. It cannot be falsified and cannot be created overnight. Significant changes in management will have significant effects on the habitat and this will

be evident for long enough to be recorded by intermittent compliance checks. It is therefore very difficult for any applicant to 'cheat' the system and there is no requirement for more difficult proofs of compliance - record keeping, accounting etc or for complex contracts and strict management prescriptions.

The reverse view is also favourable - landowners can be left free to make minor adjustments to management, with no contractual constraint or requirement for prior permission, because minor short-term changes are unlikely to significantly affect habitat quality. Clearly if these changes become adopted longer term then impacts will be observable and this will affect their ESP, however, this remains a fair reflection of management efforts.

Flexible

The main premise of the system acknowledges that there is, and is required to be, a variation of habitat on local, regional, national scales and across different altitudes, seasons etc and that this variety can be encouraged to develop in ways that meet our requirements as a society.

The system does not therefore require landowners to be tied into prescribed management over a set period. Landowners can alter their management at any time, which may sometimes be necessary for their business, for best habitat delivery or reflecting seasonal climatic or other conditions. As set out above, this is enabled by the accuracy of habitat as a reflection of management. Landowners will be able to update their online EPS maps/records so that changes significantly altering any habitats (and therefore lower or raise payments) can be dated and payments adjusted accurately. Any unrecorded changes - particularly detrimental changes, would likely cause a larger reduction than necessary as they would be backdated to a proven point in time.

There is a clear benefit to enforcement of strict prescriptions within current agricultural subsidy schemes - to safeguard or ensure habitat suitability for certain species at certain times. The flexibility of the ESP system may be criticised, for instance, for not being in direct control of habitat delivery/seasonal works etc. However, this criticism would not reflect the negative aspects of strict prescriptions including difficulty, cost and removal of natural variation. The loss of direct control under ESP is possible because the removal of non-environment-linked subsidy money will give ESP the geographic coverage to even out small scale/short-term impacts of landowner decision-making, and it is beneficial in returning natural variation among other things.

Fair and Equal

The simple and robust nature of the system allows and partly results from an even-handed approach from government. The system allows land-owners freedom to take day-to-day/seasonal/annual management decisions. This is not particularly a matter of trust, but simply an outcome of the system being able to reliably record changes in habitat delivery. Given that any subsequent reduction or increase of ESP is fair to both sides, there should be little cause for resentment or dispute arising on either side e.g. from failure to meet contracted targets (by design / error / unforeseen difficulty) or perceived unreasonable strictness from the authority.

This approach would therefore foster collaboration and mutual respect between landowners and government and hopefully help to resolve public concerns about agricultural practises and misdirection of subsidies/public funds.

Cost effective

The simplicity of the system inherently reduces bureaucracy and administration. Whilst compliance under this system does require competent and qualified on site survey during compliance audits, this cost could be borne by private sector and is expected to a) be inherently minimal (due to difficulty of error/fraud) and b) minimised by remote survey (satellite image analysis).

The payment by results approach inherently means that all payment is well directed. There should be negligible scope for unfair or over-payment as the system has a free-market basis. As amount or quality of different habitats is delivered, the relevant local priorities of environmental services / habitat provision, and thus the calculated payment rates, will change accordingly. Those habitats/features that are relatively easy or profitable to develop/maintain will evolve a relatively low payment rate and those landowners best able to manage higher quality habitats will be rewarded with higher ESP rates. As rates are set on local levels this will acknowledge the natural variation in profitability/difficulty or inherent rarity of certain land use/habitat in certain areas.

The flexibility and low administration requirements on the landowner would make ESP more attractive and worthwhile for landowners, reducing resentment and avoidance of uptake and therefore reducing the minimum payment threshold for which landowners would enter the scheme (and therefore overall cost).

Inclusive

The ESP system is designed to cover all land-use and land-owners, with no limits on uptake (small minimum holding area threshold notwithstanding). All land and land-use has the potential to provide environmental goods and services and this can be encouraged without prejudice to any one sector. It is inevitable that larger land-owners have the opportunity for greater cumulative gain from any system, however, under ESP a large holding would only get a large sum if it delivers large areas of habitat. Conversely small landowners would not be restricted to any arbitrary maximum level of habitat provision. There would be no opaque application procedures such as exist for higher level subsidy schemes and any landowner would be free to deliver novel management production practises that deliver both habitat and sustainable productivity. This would hopefully encourage innovation and increase UK productivity whilst benefitting the environment.

The inclusion of all land uses rather than only agriculture would among other things: promote diversity in agricultural production (e.g. ago-forestry); promote forestry and timber/related products from native trees; provide a potential income for rural local authorities who struggle on cost to suitably manage larger land holdings comparative to population/council tax revenue; encourage best practise of land management for highways and similar significant non-agricultural land holdings.

Long-term

The ESP system will not require any intermittent whole-system overhaul, which affects current agricultural subsidy schemes. This provides valuable continuity for both the individuals / companies for which environmental service payments is a necessary income stream and for the wider sectors of employment and production they are part of.

This system is wide in scope and designed to be adjusted annually to keep pace with inevitable changes over time, which would include climatic change, development of new land uses, agricultural technology and crops, commodity prices and biodiversity aims. Some of these factors will change on local or regional scales and this too would be accommodated by the proposed system, as payment rates would be set on a local not a national basis.

Post-Brexit Land-Use Payment Scheme

Laurence Brooks

Summary

This document is intended to set out a basis for an 'public goods' based land-use payment scheme that is designed purely to bring long term sustainability and wider ecological/landscape issues into landowners' shorter term financial strategies and management priorities. Habitat type and quality classes are used as a corollary of all environmental services and the system would pay for habitat on the ground at the time:

- **Reducing administration for landowners and government;**
- **Removing the possibility of falsified records and other compliance issues;**
- **Emphasising government and landowners as equal stakeholders;**
- **Allowing the flexibility required for a permanent system.**

No detailed, intensive rule books and management prescriptions - the system expects landowners to be informed of good, ecologically sustainable practise and deliver it, as applicable to their circumstances and as part of their overall management strategy. Payments will be made for habitat delivered, not for any work done to that end. This differs from the current system that can work at cross purposes and where measures fail to have real impact for simple, avoidable reasons.

Payment rates will differ for different habitats based on up-to-date local environmental priorities, and will change gradually with those priorities (though rate of change may be capped to avoid unmanageable income changes to farmers - gradual change is beneficial for everyone).

No inherent basis in payments - it is considered that subsidies that do not relate to environmental services should be discontinued. It is considered that grants/loans for innovation are a useful enabling factor in developing more efficient and sustainable production and should be maintained assuming that this is meeting these ends and not subsiding machinery etc for unsustainable practise - large scale monoculture etc.

A simple structure of broad results categories, enabling an unrestricted number of habitat/management types that are offered payment support. Current prescriptive payments are negating efforts at best practise and eroding the variety of habitats and management practises that historically made different areas unique. These rules are too detailed to be flexible e.g. to weather and location, often need problematic caveats; are difficult to understand and be followed. The contractual commitment to a 5-year scheme with a weighty rule book is too often a reason for farmers avoiding environmental schemes.

A simple, robust, results-based system has the potential to remove the adversarial nature of current contract/prescription based subsidy schemes. It is hoped the structure of the scheme would allow government and landowners to work as equals, in a system that is simply designed to acknowledge environmental services undertaken without blame or overburdening of responsibility. There will clearly be the need for recompense for erroneous claims, deliberate or not, however, it is far easier for both parties to recognise errors in a simple system; and with regular survey which means regular contact on the ground with the landowner.

Good habitat is too complex to be faked but instantly recognisable to anyone with ecological training, it puts government in a secure position to be magnanimous rather than authoritarian, since results can be easily verified and any errors reliably corrected.

Introduction

As a basic underlying principle, it is considered that land use payments are only justified as a payment for provision of the wider ecosystem services that the society expects of landowners: essentially as a tool for equalising the short-term economic shortfall involved in sustainable land-use practises - as opposed to unsustainable, intensive systems that give short-term economic advantage but cause losses in non-monetary factors (externalities) such as animal health or biodiversity; longer term factors, such as soil degradation; or wider geographic impacts such as flooding and biodiversity loss.

The proposed environmental service payment (ESP) system will address the fundamental cause of decline biodiversity and ecosystem services –unsustainable management practises- rather than isolated symptoms such as species decline, soil degradation etc.

Payment by Results

The scheme would use current habitat as the basis for payments, rather than payments being a method of delivering environmental change, they are directly for services delivered by habitat is already present. There are several significant benefits of this approach:

1. More efficient delivery
2. No restriction in variety of habitat delivered
3. No need for detailed rules and criteria
4. Far greater autonomy/flexibility for landowners - no contractual obligation
5. Simpler compliance testing - though this does require qualified personnel

Payments for existing good habitat is a true measure that inherently favours all the species that utilise those habitats. Habitats achieve good condition through appropriate management and poor habitat condition indicates unsustainable practise - overstocking etc. Some common practises, such as use of chemical fertilizers, reseeding pastures etc may not be seen as poor farm management but in effect they are unsustainable and have undesirable impacts on flood risk, soil condition, biodiversity etc that we are aiming to reduce. The general principle of the scheme is that landowners have the choice: the intensive management can be continued, over all or part of the holding, if preferred - it would simply reduce land-use payments, as those areas would achieve only very low or no payment. The landowner has complete discretion over their own cost-benefit analysis and management strategy.

Under current subsidy systems, works themselves do not necessarily give any ecological benefit and often works can be undertaken at great expense to speed up a process that would be cheaper and better done with no effort. For instance, any sowing or planting is only a way of speeding up a transition from one habitat to another (e.g. 'woodland creation'). The methods that will eventually maintain the desired habitat (stock exclusion/hay cutting etc) will create the same end habitat over time anyway – with no need for any sowing or planting - and may also create valuable intermediary habitat in the process. The benefit is less cost; guaranteed local genetics and species suitability; and a more natural process and end result.

Biodiversity/ecological complexity takes time to develop and as a result, there are no quick fixes in ecological terms: a field is not instantly more ecologically valuable when it has saplings planted in it, but only as it develops gradually into a woodland over the subsequent 20 to 50 to 100 years. However, during the time the intermittent stage of rank grassland and scrub is very valuable to many species. Similarly hedges are planted currently that are of very little value because a) they are not old enough and b) there is no incentive to go beyond the basic prescription requirement.

Enhancements could be undertaken on a farm scale where each part, in the right place, can add up to more than the sum of those parts. However, at the moment each part is chosen from a set list, implemented in a rudimentary way with no inherent consideration of context or end benefit. The result is that the current measures implemented deliver less than they could for the same effort, area and money.

At the other end of the scale, there are payments for avoidance of farming practises that have been shown to increase productivity, whilst having no impact on biodiversity and other environmental services e.g. manure application on hay meadows. In this way the one-size-fits-all management prescriptions can negate some good land husbandry by good land managers and, as a 5 yr agreement is insufficient time to substantially alter the damage of past intensive management, has little practical benefit when attempting to counter intensive farming.

Under this system, the methods used to manage habitat are chosen by the landowner and if a non-intervention method of for instance woodland creation (natural regeneration) is chosen, payments would include the value of intermediary habitats. This avoids the discrepancy between contract periods being, simultaneously, too long in business terms (to be an attractive commitment to land-owners) *and* insufficient in ecologically terms

I consider the need to commit to large changes for multiple years with the signing of a contract as one likely reason for lack of uptake to past schemes. The lack of commitment to a wholesale change in management would make the scheme more open and accessible to landowners - as they can change management plans gradually over time and include more and more elements of sustainable management as they see what works and how much they can achieve.

Payments based on actual habitat/species currently present will instantly and inherently reward those land managers who have been delivering ecological benefits and services for many years, despite economic pressures, subsidy incentives and social pressures to manage land less sensitively. There may be some dispute from farmers who have altered land use for financial or even past subsidy reasons, however, this is the vagaries of the market to which they have already subscribed; cannot be avoided; and in part-compensation, the new scheme is designed to eliminate any need for any major changes in the future.

It is expected that all farmers and other landowners will be encouraged by a scheme that increases their autonomy and reduces yearly/five yearly administration and doesn't have any need for arbitrary deadlines on applications and delivery. It is recognised that the time taken for some land to achieve a state to which payments are granted may result in a period of little or no payments for some farmers, however there is no practical way around this and it is expected that all farmers can make very quick changes to current management that would not infringe on farm output/running cost but make significant benefits to habitat quality e.g. best practise of hedgerow maintenance or fencing off ponds/watercourses.

At the administration level, results i.e. habitat delivery will be known but also results from ongoing monitoring of flood risk, species populations etc (by Environment Agency/conservation charities etc) will feed into the ongoing assessment of environmental priorities and therefore the payment rates for different habitats in different localities. This has several benefits: focussing spending on current and localised issues; ensuring payments fit the true cost of delivery accurate through supply/demand forces; and limiting the total budget spend for payments; and finally, ensuring the underlying structure of the scheme can remain relevant indefinitely - only payment rates will fluctuate.

Management Strategy

The central ethos of the scheme is to allow landowners completely free rein over their management decisions. Land use payment is merely the mechanism by which to bring currently disregarded long-term and wider geographic benefits into their decision-making process.

Whilst suitable information is and needs to be available to landowners, it is considered that the onus should be on the landowner to obtain any specific information that will help them maximise the benefit of their efforts/holding and their end land-use payments. There is abundance of freely available information on sustainable management. Some landowners may prefer to pay for input to a farm management plan - consultancy services could include:

- Farm management advice: sustainable grazing; drainage; crop management; veterinary input (all these needs will change – usually reduce – as a result of lower intensity management/stocking).
- Ecology survey and an ecological analysis of current management that is beneficial/contrary to conservation aims and opportunities for enhancement based on the land type and surroundings.
- Forestry / other diversification

For larger farms/holdings, very specialist advice may be worthwhile for various subsets of farming practise (many large farms already get such advice) however, for smaller farms and over time is likely that the above broad factors would merge. Farming has been a factor in shaping ecology for thousands of years and it is only recently that farming and ecology have become disparate entities.

This system inherently favours landowners who work with their land because of the feedback between delivery and payment rates. The system reinstates the link to the land and local area for every landowner. It is harder work trying to farm an area in a way that is inherently unsuited to the soil type, climate etc. It is doubly so with conservation – there is no point trying to create a dry calcareous grassland habitat in an acidic bog. Landowners will need to be informed as to what their land would naturally look like, what the traditional land use may be and what might be achievable with different levels of effort. They can then judge whether this can work for them under existing or revised land use/production. This is not as complicated as it sounds - the habitat categories are deliberately broad and most good management practise does not require detailed knowledge of soils, ecology etc - these elements will work through naturally under sustainable management. The knowledge of the landowner will come in maintaining productivity in line with their lands natural conditions and minimising impacts to habitats/environmental services.

Stability is beneficial to farmers and other landowners but it is also a cornerstone of ecological diversity. The aims of implementation are that the scheme be simple, flexible and long-term. The aim for a long-term solution is there to avoid unnecessary bureaucracy, as well as to fit the scheme to the real world – ecology shifts all the time, but ecological principles are unchanging. The scheme needs to operate similarly. It will be a model that is simple enough to become fundamental and ingrained in land practise, but flexible enough to meet any future shifts in land-use, climate, technology and conservation priority. A scheme that does not require major structural changes and new application procedures every 5-10 years takes away the burden of uncertainty, first and foremost, of farmers/landowners having to worry about what will happen after the expiry of their current 5-year contract.

The seeming contradiction in recommending no 5-year, or longer, contracts as the basis of long-term management provision is enabled by the use of habitat as a record; the expected large geographic coverage of the scheme and the realisation that we need a scheme that is continually worthwhile for landowners. We need to accept that it will always be necessary to pay as a society for these public

goods, and for this to work in the long term we need to aim for a scheme that landowners *can* leave at any time, but *choose* to remain in. This will provide the engagement necessary on the landowners part and also, on the part of government to keep the scheme applicable and attractive. This last part may concern members of parliament, however, there should be no concern about escalating costs of land-use payments – under this system, all landowners are essentially competing for efficient delivery to maximise profit. This means that as delivery of certain public goods increases, the payments will decrease, in line with the reduction in that public good as a priority for payment. On the other hand, landowners choosing to decrease their provision of environmental services (e.g. hedgerow maintenance) will be a fair business decision, but one that, on average, is likely to be countered by other local landowners increasing provision due to the subsequent increase in payment rates.

Measuring Conservation Value of Holdings

Semi-natural habitats are used as the basis for payments. For each landowner, the annual payment will be based on the area and quality of all habitats delivered by their holding. Habitat of a certain type and quality will have ecological/biodiversity value but also the value of ecosystem services (e.g. rainwater retention, carbon sequestration) that the habitat delivers. For instance, agriculturally improved grassland is predominantly perennial ryegrass: it has very low biodiversity but also the species has poor root systems and having been ploughed has reduced soil structure, both of which mean it is worse in terms of carbon sequestration, rainwater infiltration and water storage, so increasing flood risks and climate change. Whilst these are complex factors, the use of habitat as a corollary would be reliable and simple and the system of simple broad categories outlined does not give significant scope for error. Each habitat is categorised by quality into one of five categories of increasing payment rate applicable to any habitat type:

- No/negligible value: e.g. heavily fertilised 'improved' land, recently reseeded fields, defunct hedges, dense conifer plantation, non-native species
- Low value: areas with some plant diversity but not a lot. May support/be able to support some declining species (curlew etc) but not be very florally species rich etc
- Moderate value;
- High Value: semi-natural/natural habitat in a good state - essentially as diverse and healthy as the habitat can get though perhaps not including some rare species of that habitat type. (species assemblage will naturally differ based on soils, climate etc and this variety is to be aimed for not discouraged)
- Exceptional Value: areas of very high value that would meet SSSI criteria - age and local character would split this from top end of the 'high value' category.

The complexities would all be dealt with behind the scenes and would not interfere with the simplicity or running of the system for applicants. We have abundant information on all of the necessary factors required to calculate an end payment rate for any one habitat within the above quality bands. For instance, broad-leaved woodland will be comparatively more biodiverse than conifer plantation, however, it may reduce flood risk in a similar way, though impacts of clearfell practises may need to be included; and it may have slightly better carbon storage rates, though the fate of end products may need ot be factored in (toilet paper will degrade back into $C0_2$ far quicker than furniture).

The total area of each habitat present, weighted accordingly for quality of each habitat type, will form the basis of payments for each applicant. It may be possible to include specific minor additions for certain features, such as important veteran trees, significant bat roosts, species of local/national conservation priority. Again, this would be a matter for debate on practicality and cost of

implementation of the overall system. I consider that these additional factors will not be necessary and the additional complexity would not be worthwhile, but that is matter to be discussed by statutory agencies, government and notably, IT consultants who can advise on the deliverability of increasingly complicated systems both for background administration and the end-user interface.

Similarly, it may be possible to identify management issues and reliably define a status of 'improving' or 'declining' and marginally increase/reduce weighting of payments. There can usually be no quick improvement in habitat quality but there can be quick losses, which could be penalised - this veers slightly from the simple 'payment by results' and 'landowner autonomy' principle slightly and is up for discussion.

Importantly it should be kept in mind that this system includes all environmental public goods and that we are not only talking about biodiversity. It is simply that all environmental public goods are provided by habitats – and all habitats provide public goods, and actually it is only the current reduction in their capacity to do so, caused by intensive management, that we are trying to address. Whilst it is true that certain habitats/features deliver more of certain services, for example, woodland with rainfall infiltration or carbon storage, it also provides biodiversity – just as semi-natural permanent grassland has measurable capacity in rainfall storage and carbon storage.

Payment Rates

It is envisaged that payment rates for each habitat type and quality band will be set by an overall assessment of

a) Stable factors - capacity to deliver all the various environmental services (public goods): rainwater infiltration, rainwater storage, carbon sequestration, air quality and biodiversity;
b) Variable factors - dependant on locality and changing over time: conservation priority, such as the Biodiversity Action Plan system; flood risk; and climate change/carbon commitments.

In determining payment rates by area, the 'local area' with similar rates might be county, vice county or more likely a more accurate level determined by IT deliverability, which will avoid artificial county or other boundaries (which would lead to disproportionate differences in pay rates for some border farmers compared to their close neighbours in another county etc). For instance the system may base rates on the 10km around the holding in question.

The payment rate would change over time but there should never be a need to change the habitat categories or any other significant elements. It is expected that the payment rates would change annually but not by more than a small maximum amount (e.g. 5%) to allow the stability for landowners relying on the system for their decision making.

Benefits to Farmers/Landowners

- Greater autonomy
- More stability (no more 5 year contracts)
- Less administration

It is very clear to me that farmers are inherently self-reliant and can and do make things work. Most farmers I know don't want to touch any environmental subsidy scheme because of the complicated rules, but also due to a general anxiety about oversight. The latter cannot be helped but this scheme would deliver all land-management decisions to the landowner with absolute flexibility. The benefit

of monitoring habitat is that keeping strict tabs on short term changes are less important[1] and this means landowners can change management as they see fit, but too intense/regular changes will show clearly in the habitat and therefore the payments. They have all options open at all times, as there is no arbitrary deadlines / management rules that they are tied to. The choice to risk lower payment, for instance by cutting hay early / changing stock levels is one they can make themselves, based on year-to-year circumstances.

The exception to that is that baseline regulations will continue to be necessary to prevent extreme bad practises that would constitute animal cruelty, environmental pollution etc. I would argue the current lowest baseline / cross compliance levels are too low in animal health and pollution terms - often higher standards apply e.g. red tractor etc but these are not mandatory and I would hope that as well as subsidies changes, updated guidance and regulation could ensure that suitable standards are set for all typical farm and other land practise.

It is expected that payment rates will never have to reach the level of fully off-setting the short-term financial loss of reducing stocking rates etc for several reasons. One is that the payments will diversify farm income, creating a more secure income. Another is that less intensive farming will remove many costs at a farm level such as medicines/veterinary bills, seed costs, ploughing and other operations and subsequent wear and tear on machinery, intermittent costs such as drainage – and also would free up much time for farmers. Much time is spent on operations that do not serve an agricultural purpose and that are damaging to biodiversity - such as annual hedge cutting, weed spraying around farms tracks etc. These are currently done out of pride and the costs to the local ecology are not borne by the farmer, who may well be completely unaware of any ecological issue. Rather than regulate for this, farmers can be informed and make a decision to 'tidy' the hedges or take a payment for the wider service the uncut hedge provides.

Application Methods

The land-use payment scheme should be open to any landowner. Farmers are not the only people managing valuable habitat and maintaining eco-system services. There should be no need to pass any test of land being 'in production' or generating income. The income generation/productivity of land is the concern of the landowner and is factored into their own decision making. If they can make a product and profit whilst delivering habitat and ecosystem services, then this is what we are aiming for, but is already favoured on economic grounds and it should not need to enforced. This, said, it would be possible to reduce payments for unmanaged habitats. It would also be possible to increase rates by altitude if it was decided to continue preferential support for upland areas.

In terms of holding size: whilst there would have to be a suitable minimum application/holding area - to avoid the administration cost outwaying payments - this should be as low as possible, as small landowners are often those delivering best in terms environmental services. There are already inevitable economies of scale favouring larger holdings/businesses and the payment scheme should not exacerbate this.

As stated previously, within this system, there is no 5-year contract period after which there may be no new scheme or a new scheme that suddenly changes the management prescriptions - both of which is confusing and demoralising for applicants and counter-productive for all. The current subsidy systems are already moving online and the improved online interface should improve efficiency in the new scheme but in addition, there seems no reason to include annual application deadlines. Applicant's annual payments, processing etc could be run from the date of application.

[1] I.e. a famer might cut a species rich meadow early one year- if it is one year in five or ten, it would not have any significant ecological impact. We cannot and should not aim to control everything.

This should help the administration, given that the current annual deadline creates a huge bottleneck in workload for the administrating body and may factor in problems of delayed payments. This does not seem necessary for an ongoing and mainly electronic system.

There should be no need for crop codes etc - an online map based system could allocate habitat coverage from drop down menus, with relevant summary guidance available as required by the user. Hedgerows, watercourses etc can be drawn on, saved and allocated quality category - all saved changes can be logged automatically in case needed at later date for compliance disputes etc. Should a landowner plough up and reseed a hay meadow at any date, they can make this change on the system and they can be paid for the period up to the ploughing at the better rate. If they do not log the change this may lose them this money as a later compliance check will note the discrepancy and allocate the rate for reseeded land. There can be no discrepancy the other way, as good habitat cannot be created so quickly.

General Principle of Compliance

A diverse habitat cannot be falsified – poor management in one year can be overturned by a couple of years good management but several years bad management will cause a level of decline that is increasingly difficult to claw back. Under this system there is therefore very little need for intensive compliance checks and either way, the landowner has the choice - if their management does not deliver the habitat they are aiming at, then the available payment is reduced.

There is a need for expertise in the person undertaking the land compliance surveys. Habitat will be judged accurately into the four categories very quickly by a qualified ecologist and compliance checks would be very quick without any of the complicated criteria applicable to current compliance audits (e.g. checking farm records, counting bird boxes, measuring sward heights etc). Although the checks would have to be done by a suitably qualified person, as it requires a qualified judgement - this is the necessary cost of having a more open system with fewer rules and complications. There will obviously have to be standard training/guidance for all persons doing the compliance checks so that assessments are consistent, but they would have to be suitably competent ecologists to start with.

It is expected that the vast bulk of basic habitat assessment can be done with satellite imagery. This may not be able to be used to assess habitat quality, but can certainly identify improved grassland, crop types on arable land, scrub cover, woodland types etc and should be able to make preliminary assessment to focus field assessment and identify areas that do not tally with application statements.

Outstanding Issues

Fauna / Rare Species

It would not be possible to incorporate routine/widespread monitoring of birds and other wildlife as part of the scheme and there may be concerns raised that the broad habitat types and quality brackets do not allow for conservation measures for certain species. It is simply the case that this system proposed does not include for specific management for rare species, which will require ongoing direct conservation action (by charities/statutory bodies) in the areas they occur. This system aims, and can only aim, to improve the broader baseline biodiversity and sustainability issues. This has been carefully considered and is not considered to be a major flaw. Sustainable land management practises clearly can maintain biodiversity and the vast majority of native wildlife, with various standard best practises delivering for whole suites of fauna. The only way to roll out this

management cost-effectively, along with removal of payments not tied to ecosystem service delivery, is by paring back administration to vastly increase uptake. The payment rates being based on conservation aims and tied to results rather than actions will ensure real delivery on a practical level and the wider uptake and natural variably of management delivered by the more flexible/less rule-heavy approach will ensure the necessary breadth of species are managed for. Payment rates for each habitat type are designed to be easily and quickly adjusted based on real time monitoring to allow a natural feedback so the system always remains in step with the state of the countryside.

The concern from conservationists could potentially include widespread species like lapwing, curlew and skylark for which direct conservation action (within the scheme) is also probably not pragmatically possible, however, the scheme would favour permanent grassland (rather than reseeded pastures) and discourage drainage, and will work across the board, rather than some fields on a farm only, and therefore it is expected to sufficiently favour these formerly common species even without specific measures. The UK has a greater level of ongoing wildlife monitoring than probably any other country and as a result it would be known very quickly on a wider scale whether the system has good/bad impacts, on birds, mammals, invertebrates etc etc due to ongoing widescale monitoring. Beta diversity of habitat (heterogeneity - e.g. grass tussocks/variable sward length within the grassland habitat) would certainly be a factor in assessing all habitat types, which will also assist many such species. There is the potential to add complexity to the proposed habitat/payment system to include for, for instance skylark squares in arable, but as this would increase complexity at all levels (e.g. landowner/gov admin for applications, mapping, payment rates, species priority for inclusion, survey time) it is deemed this should be avoided if at all possible. This is another factor of the system that requires specialist analysis of capabilities and requirements.

Organics

Use of pesticides clearly has a wider impact and avoidance should be included as a public good. Although herbicide use is more instantly obvious, it is not possible to determine whether insecticides have been used by looking at habitat and therefore organic management needs ot be incoroporated or run alongside this system. Those farms with organic status are already audited separately, and this could simply continue as a parallel system feeding into each applicants annual payments. It could also be partially amalgamated - e.g. it may be possible to bring existing organics certificate bodies directly into the scheme as subcontracted services, as essentially setting up an alternative gov system for land-use payments would be costly and less efficient overall. Or possibly in the long term a national organics system may be an option, though this would be a big undertaking and require merger/acquisition of regulatory arms of existing organic bodies (though not the charity/educational arms which could gain significantly from developing roles within the extended sector of private advisors to farms/landowners). The positives of the latter might include increased efficiency and impartiality (competition between different private regulatory bodies is inefficient and inherently reduces authority and impartiality).

Environmental Protection and Wildlife Law

A significant issue is the management of excellent habitat whilst clearly acting illegally towards some wildlife. For instance, it would be unacceptable that potentially large sums are awarded to sporting estates that are, perhaps clearly but unverifiably, culling rare birds of prey. Whilst there would be clear criteria on the habitat quality of these areas, and whilst many estates would not rate highly even based solely on habitat, it is possible, even likely, that such wildlife crime issues could not be easily identifiable. Specific input would be needed to resolve this conflict of interests within the

system. For instance a widespread GPS tracking scheme of hen harrier may help. Ideally wider changes in policing/prosecution would be made to enable greater prosecution of wildlife crime. Alongside changes to subsidies, an overhaul and improvement of basic requirements on landowners regarding environmental protection and animal welfare should be made to cover all landowners and take over from any obsolete regulatory measures - cross compliance etc.

Expertise/systems

As stated above some expertise/systems in organics is required. This currently exists though may be more efficiently delivered if centralised within the overall land-use payment scheme structure.

The scheme would also require regular compliance checks by skilled ecologists, either working directly for government or as private sub-consultants certified by government. Currently the Government nature conservation agencies employ many office based staff undertaking mainly/entirely administrative roles and it would probably require additional trained field ecologists, as many of these currently employed are experts in specialist fields, whose specific roles would still be required. In Wales ecology sections appear to be reduced following merger into NRW.

There is a wealth of private ecology consultants currently employed with a focus on protected species, created by the strict nature of current planning policy/protected species licensing and it is not considered efficient in terms of cost to conservation benefit (see below). Though the cost is mainly on private individuals, there is also significant gov./local government administration. Leaving EU could reduce duplication of local government (planning) and government (licencing) roles and costs, without reducing species protection and conservation, which may enable costs/staff to be redirected, however, it is likely that use of private sector ecologists would eb required. The existing ecologist workforce may require some retraining to ensure standardisation, however, reliable standard tests already exist for Phase I competence (the main requirement) so recruitment of subconsultants could be very straightforward. Costs for specific training provided by government would certainly be paid by ecology professionals/companies given the level of future work available, so there is unlikely to be an initial cost to government for this.

Remote sensing is expected to significantly reduce costs for auditing checks. This would not negate the need for field ecology in auditing the scheme, but is expected to be able to focus field auditing.

Compliance

There are various options for compliance auditing, which would probably be the primary ongoing cost of the scheme. It is possible though not necessary that audits could be mainly outsourced, and with use of remote sensing, focussed towards sites that are either difficult to remotely assess, or where discrepancies lie between remote data and the application data. A level of randomised on-site compliance checks would be necessary certainly at the outset, though may be able to be reduced in the long term.

It is expected that even full governmental auditing (rather than use of subconsultants) would be efficient, given level of available IT (hand held, touch screen electronic mapping, GPS/GIS linked, with note-making functions) which can reduce reporting time and survey time on site. The end decision will be cost analysis for government and I do not think will alter the efficacy of the system.

Private Sector Involvement

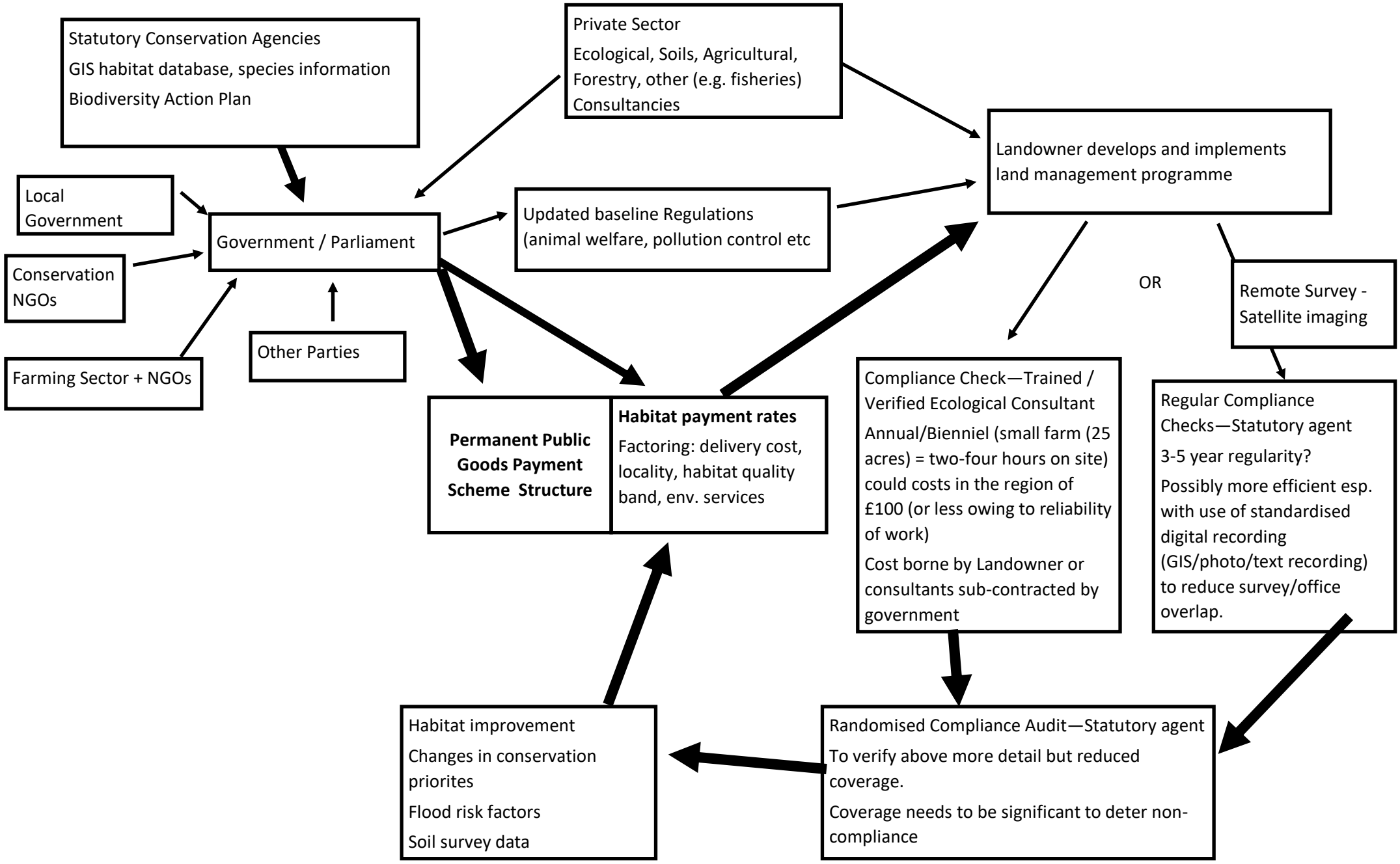
There is currently a resource of private ecological consultancies whose role is overwhelming dominated by in-depth survey for protected species for planning purposes. Whilst this role is valuable, there is currently too much focus on this work, resulting from overly stringent implementation of EU licensing rules. The consequences of this, in practical terms, is that we as a

country spend a disproportionate amount of money on safeguarding the welfare of very small numbers of some fairly common or at least non-declining species, in particular bats - and in a lot of instances this is over-precautionary.

In contrast there is virtually no oversight of farming practises (as far as ecology impacts and except for optional schemes), which have a far greater impact in terms of loss of habitat and species, flood risk, climate change etc. This is due to the inherent difficulty of observing illegal/bad practise actions in rural areas; the unwillingness of rural communities to report instances of crime/bad practise; and poor recording/action by police/CPS with regards wildlife crimes.

It would be far more efficient in terms of expenditure (public and private), and in terms of wildlife/habitat conservation aims, if this inequity was addressed at a strategic level. This could feasibly also link to some reduction in the overlap (without affecting actual protections) of planning and licensing systems of local and national government respectively (though this has recently been started to be addressed and may be more possible after exiting EU).

It is envisaged that the onus would be on landowners to develop their own long-term sustainable management strategy for their land and it would be in their interests to get detailed advice on the natural habitats that their land should/could support that were a) of the highest conservation priority and/or b) could be most efficiently achieved as part of the landowners preferred (production/market led) cropping regime or other land requirements. A wealth of information is available and accessible for free including e.g. many NGOs, SSSI management plans, old BAPs, www.farmwildlife.info. In addition, private consultants from ecological, agricultural, forestry and other specialisms would be able to provide this and could likely do so at efficient rates, given the likely high volume of work available. It is possible that private contractors, certified by government, could also provide annual compliance checks within their local areas, which may enable more detailed statutory compliance audits to be undertaken at a reduced level, reducing costs to gov, though it may be preferable for compliance visits by the statutory agency to be the single method of compliance audit. The benefit of the former would be that every farm could have an annual/biennial check with that cost potentially borne by the landowner; though the latter is likely to be more efficient in terms of overall cost it is unlikely to be able to achieve the same coverage.


Statutory Conservation Agencies
GIS habitat database, species information
Biodiversity Action Plan
Private Sector
Ecological, Soils, Agricultural, Forestry, other (e.g. fisheries) Consultancies
Landowner develops and implements land management programme
Local Government
Government / Parliament
Updated baseline Regulations (animal welfare, pollution control etc
Conservation NGOs
Farming Sector + NGOs
Other Parties
OR
Remote Survey - Satellite imaging
Permanent Public Goods Payment Scheme Structure
Habitat payment rates
Factoring: delivery cost, locality, habitat quality band, env. services
Compliance Check—Trained / Verified Ecological Consultant
Annual/Bienniel (small farm (25 acres) = two-four hours on site) could costs in the region of £100 (or less owing to reliability of work)
Cost borne by Landowner or consultants sub-contracted by government
Regular Compliance Checks—Statutory agent
3-5 year regularity?
Possibly more efficient esp. with use of standardised digital recording (GIS/photo/text recording) to reduce survey/office overlap.
Habitat improvement
Changes in conservation priorites
Flood risk factors
Soil survey data
Randomised Compliance Audit—Statutory agent
To verify above more detail but reduced coverage.
Coverage needs to be significant to deter non-compliance

Likely Broad Habitat Types

Categories could be more precise and extended to include additional categories as needed. 'Quality' bands from negligible, low, moderate high and exceptional value would be applied to each habitat type in the same way (broad quality assessment factors outlined overleaf).

Woodland /Plantation

- Wet/dry
- Native/non-native/mixed

Scrub

Tall Ruderal Vegetation

Grassland

- Calcareous/Neutral/Acid
- Dry/Wet
- Meadow / pasture
- Rough/rank
- Intensive grasslands included but would lose most of above characteristics and would intersect the above categories as a general negligible/low value grassland category

Parkland (grassland with sparse tree cover)

Arable

- Grain
- Horticulture

Wetland

- Ponds
- Fen
- Bog

Heath - Lowland / upland

Hedgerows

Ditches (open only)

Hedgebanks / stonewalls

Broad Criteria for Assessing Habitat Quality

Alpha diversity (species diversity in any given area)

Beta diversity (broader habitat diversity / habitat mosaic)

Habitat structure (e.g. grassland tussocks, deadwood in woodland, hedgerow structure)

Signs of good/poor management (e.g. hedgerow ‘knuckles’ from repeat trimming, grassland poaching) (only required if determine improvement/decline)

Presence of non-native species and conversely, native indicator plants