SRUC

Economic Advice & Related Services to Support Development of a New Rural Support Scheme for Scotland

RESAS/005/21

BIODIVERSITY AND ENVIRONMENTAL CONDITIONALITY

Key considerations when including biodiversity measures within environmental conditionality

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Key Points

- Including biodiversity measures within the suite of environmental conditionality being considered for future direct support to agriculture (Tier 2) would help to raise the existing biodiversity bar across all of Scotland's agricultural landscapes**.** This would also increase the likely effectiveness when more targeted and localised agri-environment actions (Tier 3) are implemented.
- The geographical variation in biodiversity needs across Scotland's farmland means that a wide range of appropriate Tier 2 conditional measures will be needed to ensure relevance for principal land uses (cropping, grasslands, rough grazing and importantly woodlands), farming and crofting systems, and localities.
- There is a need to ensure that Tier 2 biodiversity conditional measures adopted put as much a focus on maintaining any existing biodiversity value on eligible farm and croft land, as they do on further enhancing that value.
- There is a need to fully consider the farmland biodiversity aspirations highlighted within the draft Scottish Biodiversity Strategy to ensure that adopted Tier 2 complement the Strategy's aspirations.
- Focussing any test of the implementation of biodiversity conditionality measures within Scotland's National Parks might help identify additional meaningful conditions that can complement the landscape-scale nature restoration aspirations in both Parks.
- The number and type of simple, yet effective, biodiversity measures that it would be proportionate to consider within Tier 2 conditionality declines as you move from lowland arable, through permanent grassland to upland landscapes.
- Relatively simple biodiversity conditions to implement on rough grazings, the dominant habitat type across Scotland's agricultural land, are more difficult to identify, as in most cases the most appropriate management required varies from site to site.
- Nevertheless, it is possible to identify conditionality measures which would be relevant to introduce in upland areas. However, some may not be considered proportionate to introduce as biodiversity conditions in comparison to what is being required on farms elsewhere.
- Consideration should be given to how the various measures that constitute RSPB Scotland's HNV indicator could be used as future Tier 2 conditions in grazing areas. The relative biodiversity importance of individual and collective measures that constitute RSPB's metric should be assessed and ground truthed. Embedding such HNV-type conditional measures in the future eligibility criteria associated with the Less Favoured Area Support Scheme replacement should be considered.
- It is not necessary nor essential to conduct detailed biodiversity audits before setting biodiversity conditions for farms or crofts to meet. Examples are provided of measures which would be beneficial to implement but which do not require detailed ecological knowledge on farmers' and crofters' part to know where to implement these.

Background Context

1. The Scottish Government intend to retain direct payments to land managers (Tiers 1 and 2) within its agricultural reform package[1], but will require a greater range of environmental conditions to be met to qualify for a proportion of that support (Tier 2).

2. The primary focus of such enhanced environmental conditionality on direct payment should help promote the land uses changes needed to achieve the outcomes of Scotland's Environment Strategy[2]:

   - Scotland's nature is protected and restored with flourishing biodiversity and clean and healthy air, water, seas and soils;
   - We play our full role in tackling the global climate emergency and limiting temperature rise to 1.5°C;
   - We use and re-use resources wisely and have ended the throw-away culture;
   - Our thriving, sustainable economy conserves and grows our natural assets;
   - Our healthy environment supports a fairer, healthier, more inclusive society;
   - We are responsible global citizens with a sustainable international footprint.

3. There are a wide variety of pressures on biodiversity in Scotland[3], but it is important to recognise that much of the biodiversity we value on farmland in Scotland was originally created - and hence needs to be maintained - by farming and farming practices. The increase in the intensity of many of those farming practices that occurred from the 1950s through until the early 2000s was responsible for the loss of farmland biodiversity across much of Scotland[4]. Although that intensity has subsequently reduced in many places, biodiversity cannot restore itself naturally given the landscape scale loss of many of the habitats which underpinned its occurrence.

4. Scotland has implemented agri-environment schemes since mid-1980s but these have been insufficient on their own to halt and restore farmland biodiversity. There remains a need to retain support for such targeted actions but these are likely to be more effective if there are additional improvements within the wider landscape in which they sit. Including measures aimed at improving biodiversity within the suite of Tier 2 environmental conditions would help to raise the bar across all of Scotland's agricultural landscapes.

5. Site-specific circumstances not only vary between geographical regions or farming systems but also within any specific geographic region or farming system. Nevertheless,

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[1] https://www.ruralpayments.org/topics/agricultural-reform-programme/
[2] https://www.gov.scot/publications/environment-strategy-scotland-vision-outcomes/
[3] https://www.gov.scot/publications/scottish-biodiversity-strategy-post-2020-statement-intent/pages/2/
[4] https://www.gov.scot/binaries/content/documents/govscot/publications/foi-eir-release/2021/06/foi-202100198676/documents/foi---202100198676---information-released---report/foi---202100198676---information-released---report/govscot%3Adocument/FOI%2B-%2B202100198676%2B-%2BInformation%2BReleased%2B-%2BReport.pdf

it is still feasible to make some general comments about how the desired biodiversity outcomes are likely to be similar or vary between different regions or farming systems.

6. In upland farming systems there is likely to be a need to retain some form of agricultural/grazing management to maintain appropriate management of high nature conservation habitats and species[5]. In lowland farming systems – and in inbye fields in the uplands - the biodiversity imperative is likely to revolve around redressing the habitat simplification that has occurred through loss of habitats and inappropriate management (including lack of management) of those fragments that remain[6].

7. The range of biodiversity measures included within Tier 2 environmental conditionality will need to reflect these differing circumstances to ensure that they are helping address the main farmland biodiversity needs on the farm or croft concerned.

Key Considerations

8. Not all farmland biodiversity concerns can be addressed by the type of relatively simple biodiversity measures that would be relevant to include within Tier 2 environmental conditionality on direct payments. Hence any such biodiversity measures would still need to sit within a wider package of targeted (Tier 3) measures, including something akin to a well-funded agri-environment scheme, in order to achieve the scale of the environmental outcomes required.

9. The biodiversity conditionality measures on offer need to be of relevance to all farming systems in Scotland as all have a role to play in halting and reversing biodiversity loss. The geographical variation in biodiversity needs across Scotland will, however, mean that a wide range of measures will need to be made available to ensure their relevance to the biodiversity needs within the farming systems under consideration in any one area.

10. There will be a need to ensure that any Tier 2 biodiversity measures chosen put as much of a focus on maintaining any existing biodiversity value on a farm or croft as they do on further enhancing that value[7]:

    - There is therefore a need to ensure that any existing good management of biodiversity is recognised and is seen to contribute to meeting the environmental conditions. If such existing beneficial management is not recognised, this runs the risk of having the unintended consequence of existing biodiversity being lost while land managers focus on enhancing biodiversity elsewhere on the farm or croft.

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[5] https://www.pressandjournal.co.uk/fp/news/environment/3008587/davy-mccracken-uphill-battle-to-progress-change-in-farm-biodiversity/

[6] https://scottishwildlifetrust.org.uk/2016/01/50-for-the-future-increase-wildlife-management-on-farms/

[7] Not recognising the biodiversity value arising from any existing management would not only be potentially bad for biodiversity but would also be inherently unjust and would go against the Just Transition principles which Scottish Government are keen to follow in encouraging increased environmental management

- Where the condition does focus on enhancement, this will also require a need to be clear what type of continuing management is required once a farmland habitat has been restored to the desired condition. For example, it is all very well to encourage closing-up of gaps in hedgerows, but there is also a need to be explicit about how any hedgerow should be managed to ensure biodiversity value is maintained.

11. Some biodiversity measures may be effective on their own, but in many instances the best biodiversity outcome will be gained from implementing a bundle of complementary measures. For example, a combination of well managed hedgerows with a 1-2 metre field margin next to them, together with leaving a small area of unharvested crops somewhere on the farm will provide year-round needs for small farmland birds on lowland arable and dairy farms.

12. There is a need to consider the farmland biodiversity aspirations highlighted within the draft Scottish Biodiversity Strategy[8] to ensure that any Tier 2 biodiversity focused measures align with the 26 Priority Actions which are needed to put Scotland on track to halting biodiversity loss by 2030 and restore it across the country by 2045. Examples of these include[9]: continue to reduce deer densities; introduce an agricultural support framework which delivers for nature restoration, biodiversity and high-quality food production; and ensure productive forests deliver increased biodiversity and habitat connectivity.

13. Hence, example biodiversity conditions which could help deliver some of the Scottish Biodiversity Strategy aims include:

- Wading birds like lapwing and curlew are also declining across Scotland and although existing populations of many of these species are now primarily maintained on managed grouse moors, their historic distribution also included inbye fields and lowland farmland. Reversing the declines in these bird species will only be feasible by encouraging more sympathetic management by farmers. The *Working for Waders*[10] initiative is using two consultant-focussed workshops in March 2023 to obtain more examples of the type of conditions that could be introduced. These are likely to include a combination of requiring farmers not to do undertaken certain practices (such as rolling their fields in the spring when waders are known to be nesting) or engaging in active management (such as maintain shallow sides of ditches to allow birds access to invertebrates in those wet habitats or engage in legal predator control during the bird breeding season).
- Maintaining well-managed hedgerows (by closing up gaps and not cutting them every year) and ensuring they had a grassy margin alongside them would also help markedly improve habitat connectivity across inbye fields in upland areas and

[8] https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland

[9] https://s3.amazonaws.com/media.muckrack.com/portfolio/items/18587515/McCracken_Feb_2023_The_Courier.pdf

[10] https://www.workingforwaders.com/

lowland landscape. Such connectivity could also be improved by encouraging trees to establish within the hedgerow network and/or protecting the area around small stands of existing trees from grazing - thereby allowing seedlings to establish and succession to occur.

- It is recognised that unsustainable numbers of deer[11] are acting as a constraint on biodiversity efforts in both upland and lowland Scotland. It is also recognised that farmers and crofters generally do not engage in existing Deer Management Groups (DMGs)[12]. Hence, where deer numbers are considered excessive by NatureScot, making engagement with the DMG within which the farm or croft sits as a conditionality measure could help better inform land and deer managers that may contribute to ameliorating local deer control.

14. Both of Scotland's National Parks have existing programmes aimed at encouraging landscape-scale restoration of biodiversity and natural processes – called *Cairngorms Connect*[13] and *Future Nature*[14] in the Cairngorms National Park and Loch Lomond & The Trossachs National Park, respectively. Focussing any test of the implementation of Tier 2 biodiversity conditions within the National Parks might help identify any additional conditions which, while still proportionate to introduce through Tier 2, are also able to help underpin and complement these landscape-scale aspirations.

15. As has been previously highlighted[15], the number and type of simple but effective biodiversity conditions that would be proportionate to consider for Tier 2 declines as you move from lowland arable, through permanent grassland to upland landscapes. In particular, relatively simple biodiversity measures to implement on rough grazings, the dominant habitat type across Scotland's agricultural land, are more difficult to identify as in most cases the biodiversity value associated with these is dependent on the continuation of grazing by livestock, but with the location, timing and intensity of the grazing by the livestock varying from site to site.

16. Being required to engage with a Deer Management Group in areas with high deer densities has already been highlighted above as one condition that could potentially be implemented on upland farms and crofts dominated by rough grazing. Table 1 and Figure 1 also suggest that establishing (and implementing) a moorland management plan, protecting scrub (or stands of trees) on the open hill, encouraging summer grazing by cattle or setting maximum stocking levels are also potential conditions that could be considered.

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[11] https://www.nature.scot/professional-advice/land-and-sea-management/managing-wildlife/managing-deer

[12] https://www.deer-management.co.uk/dmgs/deer-management-groups/deer-management-group-map/

[13] https://cairngormsconnect.org.uk/

[14] https://www.lochlomond-trossachs.org/park-authority/publications/future-nature/

[15] Thomson & Moxey 2023 *Conceptual delivery approach for Tier 2 enhanced conditionality of agricultural support in Scotland*. Economic Advice & Related Services to Support Development of a New Rural Support Scheme for Scotland

17. Many of these actions will, however, require some form of capital investment (e.g., in fencing to protect scrub or stands of trees), more complex management (e.g., in controlling timing and intensity of grazing) or are rather coarse surrogates (e.g., a maximum stocking density figure[16]) for the biodiversity outcomes that may be desired.

18. As such, some may not be considered proportionate to introduce as part of Tier 2 biodiversity conditionality in comparison to what is being required on farms elsewhere. This also highlights the need for adequate targeted transformative support for farmers and crofts that require capital expenditure in order to make the land eligible for 50% of direct support that is accessible through Tier 2.

19. The High Nature Value (HNV) farming concept provides recognition of farming and crofting systems where low farming intensity (in terms of stocking density and nutrient and/or pesticide inputs) combined with either a high proportion of semi-natural habitats, or a wide diversity of land covers, drives recognised proxies for nature conservation value[17,18]. Over 40% of Scotland's agricultural land is potentially of High Nature Value[19] in recognition of how the combination of these factors operate at the hill farming or crofting system level.

20. RSPB Scotland[20] have developed a system to score the HNV status at the level of an individual farm or croft – on a scale of 0-100 - based on four core components (location; livestock mix and density; input use; broad habitat occurrence). Whilst the suitability of this HNV status metric as an indicator of biodiversity provisioning on farms, crofts and common grazings requires academic scrutiny and ground-truthing (this could be delivered through the Strategic Research Portfolio), it remains a useful indicator of the types of measures that should apply in the uplands.

21. As a priority, consideration should therefore be given to how the mix of measures that constitute RSPB Scotland's HNV indicator could be used as future Tier 2 conditions in grazing areas – with some practical assessment through the National Test Programme. Any such assessment should consider the relative weightings of individual measures, but also of collective measures that constitute RSPB's metric. Embedding such HNV-type measures in the future eligibility conditions associated with any replacement of the Less Favoured Area Support Scheme could also improve public outcomes from its budget.

22. Finally, one argument regularly put forward in recent years for not introducing biodiversity as an environmental condition is that this would be impossible without first conducting a detailed biodiversity audit on every farm or croft. However, it is not necessary nor essential to conduct such detailed audits before deciding on the type of measures of relevance to implement on any one farm or croft. Table 1 and Figure 1 provide examples of

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[16] Acknowledging issues with livestock unit calculations and allocations to sub farm – croft areas.

[17] https://impact.ref.ac.uk/casestudies/CaseStudy.aspx?Id=23904

[18] https://pure.sruc.ac.uk/ws/portalfiles/portal/34256926/McCracken_HNV_November_2020.pdf

[19] https://www.pressandjournal.co.uk/fp/business/farming/3856683/davy-mccracken-regenerative-agriculture-matters-but-lets-not-forget-about-high-nature-value-farming-systems/

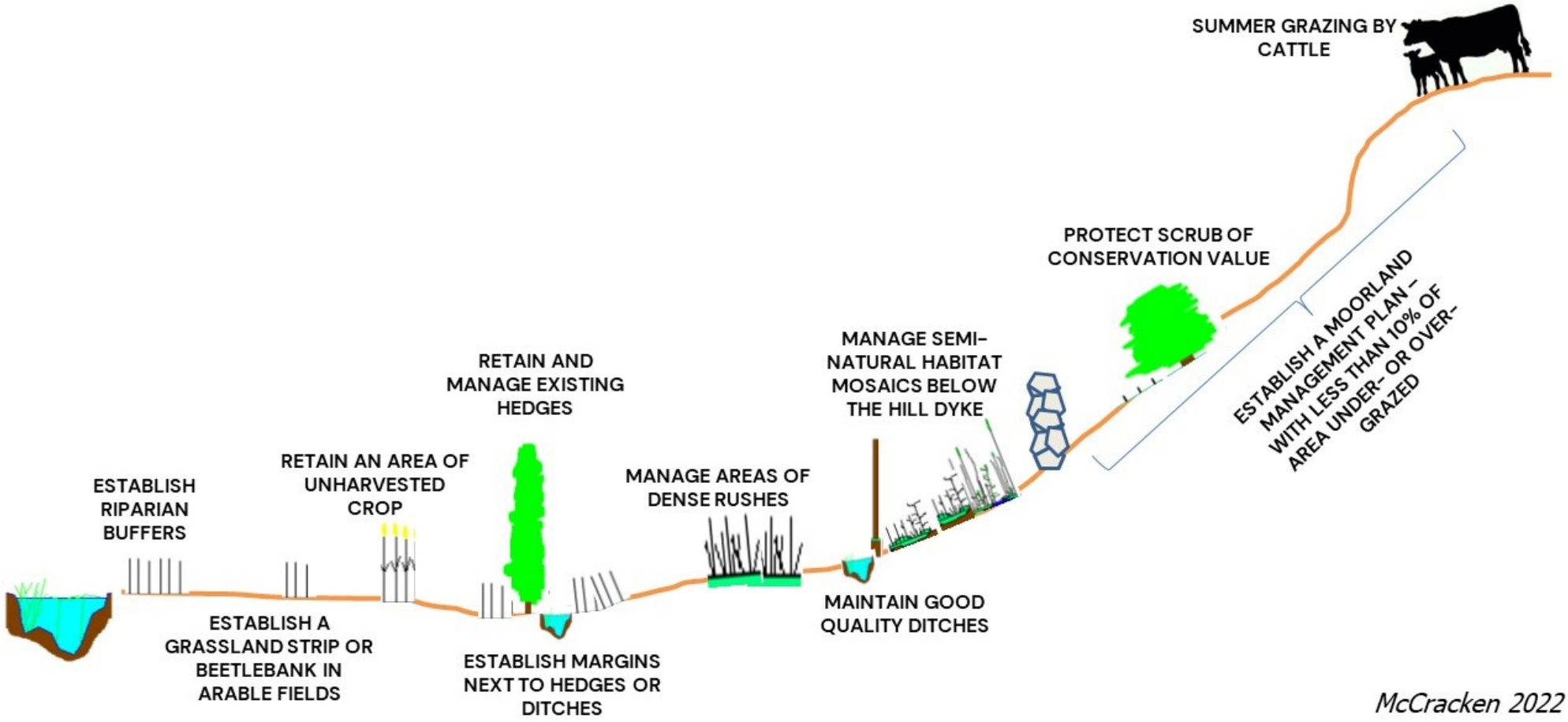
[20] Email exchange and conversation with Andrew Midgley 23rd February and 1st March 2023

measures which would be beneficial to implement but which do not require detailed ecological knowledge on a crofter/farmer's part to know where to implement these.

Table 1. Example biodiversity conditions and associated management actions

Condition	Types of requirements to be met [these are examples and are not exhaustive]
Establish riparian buffers	Establish next to watercourses in grassland or arable fields – but starting from where GAEC limit ends. Establish > 3m in width [width determined by width of watercourse] along the length of watercourse in that field. No pesticides or fertiliser to be applied within the buffer.
Establish a grassland strip or beetlebank in arable fields	Establish between 3m-20m wide grassland strip or beetlebank in centre of arable fields. Not to have fertiliser or pesticide applied – grazing and cutting restrictions apply.
Retain an area of unharvested crop	Retain an area of 0.2 ha of crop unharvested for every 16 ha grown to provide cover and food for wildlife during winter months. Site at edges or corners of field, preferably near existing hedges or walls where possible.
Retain and manage existing hedges	Manage existing hedges so that minimum of 1.5 m tall and 1.5 m wide; fill gaps more than 5m; ensure no more than a 0.3 m gap between ground and bottom of hedge along length; gaps form < 10% of total hedge length. Based on Biodiversity Metric 3.0 assessments of reasonable condition.
Establish margins next to hedges or ditches	Establish a margin of > 1m of undisturbed ground on at least one side of hedge or ditch for the length of the hedge or ditch Based on Biodiversity Metric 3.0 assessments of reasonable condition.
Maintain good quality ditches	Maintain existing ditches so that water levels are maintained in the summer, water is clear with <10% occurrence of algae/weeds indicative or eutrophication, <10 % of the length of the ditch is heavily shaded Based on Biodiversity Metric 3.0 assessments of reasonable condition
Manage areas of dense rushes	Based on old LMO measure in Scotland. Manage areas of dense rushes [where rushes are more than 50% of area] by annual grazing or cutting or both [but not during April to September]. Cut or graze to remove a min of 1/3rd but no more than 2/3rd to leave an open mix of rushes and pasture
Manage semi-natural habitat mosaics below the hill dyke	Establish a grazing management plan to maintain areas of farmland that are made up of a patchwork or mosaic of traditional semi-natural habitats that need to be managed as a single unit. Habitat mosaics can include a mix of wetland, wet grassland, species-rich grassland, tall-herb communities, scrub, heathland and scattered pockets of woodland or wood pasture.
Protect scrub of conservation value	Species of scrub considered of value will vary by region. Manage grazing pressure to ensure a good age range of seedlings, young shrubs and mature shrubs. Maintain glades or rides within the scrub and tall grassland/herbs between the edges of the scrub and adjacent habitat Based on Biodiversity Metric 3.0 assessments of reasonable condition
Summer grazing by cattle	Graze at an appropriate density for at least 12 weeks between 1st May and 31st August
Establish a moorland management plan	Establish an appropriate grazing regime under a moorland management plan. Aim should be to have no more than <10% of the area showing severe overgrazing and no more than <10% showing severe undergrazing

Figure 1. Example biodiversity conditions



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