# The Common Agricultural Policy post-2020: A new Green Architecture, Novel Eco-schemes and biodiversity indicators.

## How can scientists and science help to make it work?

**Workshop report from Ireland**

**26th November 2020**


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### Introduction

The following workshop report follows the template prepared by the coordinating group for this project consisting of iDiv Helmholtz Centre for Environmental Research, the Thünen Institute Federal Research Institute for. Rural Areas, Forestry and Fisheries, and the Universität Rostock (following a request for such workshops from the European Commission).

This workshop report provides input from an *ad hoc* expert group in Ireland brought together by the CAP4Nature network seeking to provide advice, based on relevant scientific research, on how EU Member States in general, and Ireland in particular, could best make use of the proposed 'Green Architecture' in the new CAP framework to achieve Union and national biodiversity targets. It also draws on work undertaken by the Technical Group of the Farming for Nature project, an independent, not-for-profit initiative which aims to support High Nature Value farming in Ireland that was established in 2018.

Ireland is among the 194 signatories to the Convention on Biological Diversity (CBD) that adopted a set of aims called the Aichi Targets ten years ago with a deadline of achieving them

by 2020. National policy is set out in Ireland's third National Biodiversity Action Plan for the period 2017-2021 which was launched in 2017. This sets out Ireland's Vision for Biodiversity as: "That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally." One of the seven priority actions in the Plan is ensuring conservation of biodiversity in the wider countryside, while another is expanding and improving on the management of protected areas and protected species.

An interim review of the implementation of the National Action Plan was published in February 2020. This underlined that the status quo is not currently delivering meaningful results for biodiversity at scale throughout the wider countryside. Key biodiversity indicators continue to decline. The National Biodiversity Data Centre maintains a biodiversity indicator database which has informed its latest report National Biodiversity Indicators: 2017 Status and Trends. More recently, the Irish Environmental Protection Agency report 2020 Ireland's Environment: An Integrated Assessment includes a chapter assessing the status of nature, and concluded: "The challenges involved in protecting Ireland's habitats and species are now more serious than ever and need urgent action". With the exception of the Countryside Birds Survey which, as its name implies, has a focus on birds, there is no systematic, regular, monitoring programme to assess the conservation status of habitats and species in the wider countryside (outside of protected areas), even though this is one of the seven priority areas in the national action plan.

Under the EU Habitats Directive, Member States are required to monitor habitats and species considered to be threatened. The conservation status of listed priority habitats and species is assessed at a national level, not just in protected areas. The third report on the status of habitats and species in Ireland, prepared by the National Parks and Wildlife Service in 2019, stated that most of Ireland's listed priority habitats can be classified as having an unfavourable status. According to the interim review of the National Action Plan, in Ireland, 85% of EU protected habitats are reported as being in Unfavourable status with 46% demonstrating ongoing declines. The main drivers of this decline are agricultural practices which are negatively impacting over 70% of habitats, particularly ecologically unsuitable grazing, abandonment and pollution. Of particular note are declines in peatlands and grasslands, and some of the marine habitats. One-third of our bee species are threatened with extinction in Ireland. Although 30 per cent of the populations of Ireland's breeding bird species are stable or have increased, a fifth are in long-term decline. The overall picture for priority plant and animal species (listed in Article 17 report) is substantially better, with over 70% stable or increasing.

The Prioritised Action Framework (PAF) is a strategic multiannual planning tool, aimed at providing a comprehensive overview of the prioritised measures that are needed to manage the EU-wide Natura 2000 network (which comprises Special Areas of Conservation and Special Protection Areas) and its associated green infrastructure. The Draft Prioritised Action Framework (PAF) for Natura 2000 in Ireland 2021-2027 identifies the financing needs for these measures for the period 2021 – 2027. Examples of the priority biodiversity objectives include: management of freshwater systems, conservation of the freshwater pearl mussel, management of uplands, conservation of birds in serious decline (eg corncrake, breeding waders, partridge,

barn owl etc.), protection and restoration of bogs and other wetlands, management of species-rich grasslands.

**Q1: How can the different Green-Architecture elements optimally complement each other?**

**Your inputs:**

**What key factors and considerations should be made in ensuring the Green Architecture operates best?**

**In their design:**

| EU level | Your Member State (/(region) |
|---|---|
| | |

**During implementation:**

| EU level | Your Member State (/(region) |
|---|---|
| | |

**General comments**

There must be integration and coordination of measures, with a clear hierarchy of ambition and specificity across the entire Green Architecture, starting with eligibility rules through baseline conditions to eco-schemes and agri-environment-climate measures (AECMs).

There is potential for a significant increase in budget for agri-environment measures when eco-schemes and agri-environment measures are included. Projected spending in Pillar 2 in Ireland plus 20% of Pillar 1 envelope devoted to eco-schemes would give a combined budget of approximately €500 million per annum that has the potential to deliver on biodiversity targets.

The Farming for Nature Technical Group (FFNTG) proposals for Ireland's CAP Green Architecture was presented to the workshop participants (Fig. 1) (FFNTG 2020). This envisages an integrated framework across Pillars 1 and 2 of the CAP with three tiers with clear increased ambition from Tier 1 (baseline conditionality, assuming that GAEC 9 applying to all farmland, and not just arable farmland)to Tier 2 (eco-schemes) to Tier 3 (agri-environment-climate measures), supported or complemented by other CAP measures such as redesigned ANC payments with a much clearer focus on environmental outcomes, farm advisory services/wider Agricultural Knowledge and Innovation Systems (AKIS), EIP

operational groups and the cooperation measure, non-productive investments, payments related to Natura 2000 and Water Framework Directive and technical assistance. Eco-schemes should be points based rewarding achievement of specific environmental targets across all applicant farms (see Question 2 for more details) based on proportion of farm covered by eligible features complemented by a limited number of number of farm type/landscape specific actions. The FFNTG proposal includes an innovative approach to agri-environment schemes (Tier 3) with two streams. Stream A would be targeted at general measures across the whole country, while stream B would provide a mechanism for roll out of targeted locally adapted farming for nature measures, focused on hybrid result based payments schemes tried and tested in Burren and various EIP operational groups. The workshop participants saw merit in this overall framework.

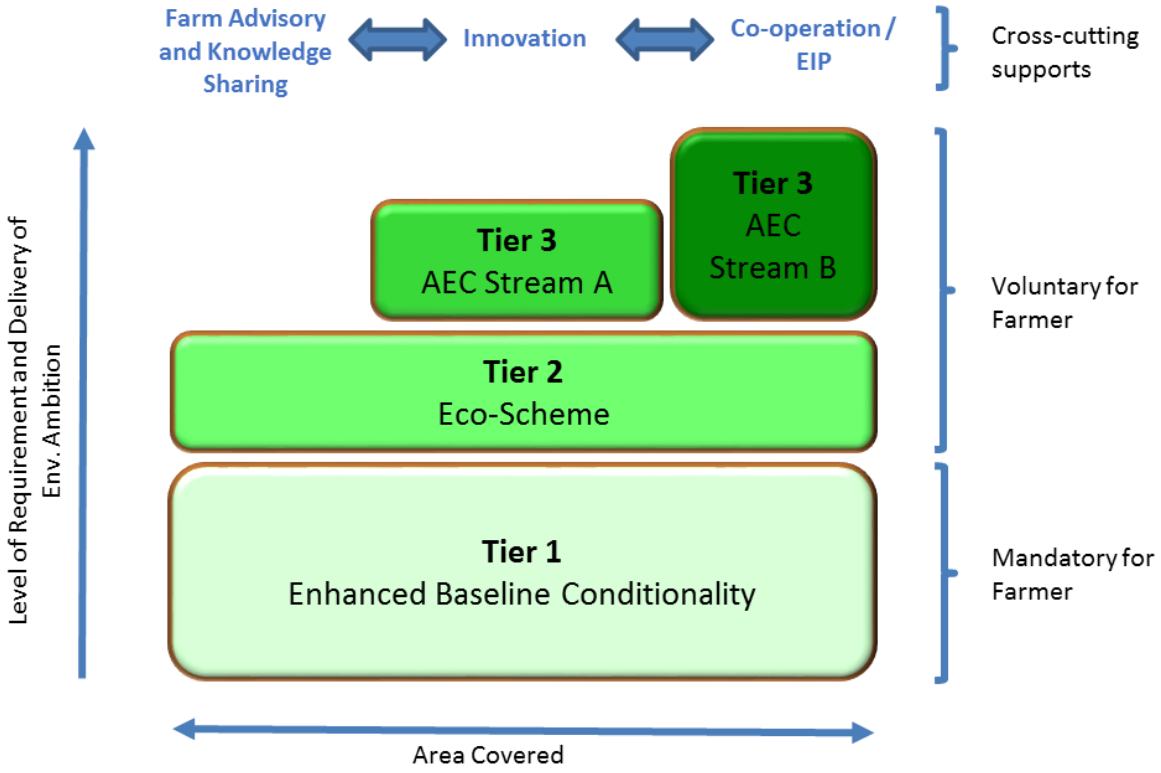


Fig. 1. Proposed CAP Green Architecture for Ireland from Farming for Nature Technical Group demonstrating the hierarchy of ambition and specificity needed to deliver meaningful outcomes for biodiversity.

Land eligibility rules need to be amended so there is a clear value put on agricultural land that contributes to delivery of the CAP objectives including those on environment and climate. Currently some land that contributes most to biodiversity and climate is undervalued or not eligible for support (Rotchés-Ribalta et al., 2020; Larkin et al., 2019) and as a result is threatened with land use change (Rotchés-Ribalta et al., 2020). The workshop noted that amendments to the draft CAP Strategic Plans Regulation have been made by both the Council and Parliament that would extend the concept of eligible hectares to include non-productive

features, but it would still be up to Member States to define these features in their Strategic Plans.

Schemes for boosting competitiveness included in European Parliament Amendment 238 (Article 28a) have the potential both to weaken the CAP Green Architecture and to divert budget away from environmental objectives of CAP.

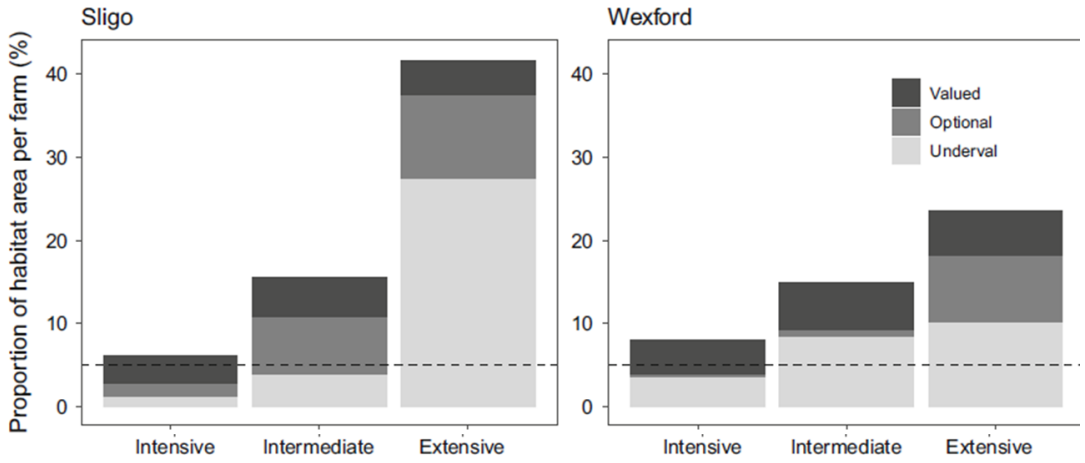


Fig. 2. Proportion of semi-natural habitat area in relation to the classification of policy protection in Ireland i.e. *valued*, protected under national and EU Agricultural Policy; *optional* habitats are eligible under Basic Payment Scheme. Farmers are not obliged to retain them, but can be incentivised to do so under voluntary schemes including Agri-environment Schemes (AES) or EFAs and; *undervalued* habitats not fully protected and farmers are not, in general, obliged to retain them, and those habitats are currently ineligible for agri-environment schemes. Dashed line indicates the 5% value.

**Specific questions:**

**Q1.1: What are the key components to maximising synergy among instruments?**

| **EU level** | **Your Member State (/(region)** |
|---|---|
| | |

- Coherence in eligibility rules across the Green Architecture is critical and retention of landscape features or other semi-natural vegetation that can provide a valuable contribution to meeting biodiversity, climate and water targets should be encouraged through CAP eligibility rules for direct payments. Currently, important semi-natural features for the delivery of a range of ecosystem services on farmland are considered ineligible. Landscape features and other eligible areas under enhanced conditionality

(GAEC 9) and eco-scheme should be taken into account when defining overall eligibility rules to ensure consistency across the Green Architecture.

- Restricting requirements for GAEC 9 to arable land will not enhance baseline conditionality in the Irish context due to the relatively small area of arable land. It will also create very significant coherence problems in designing eco-schemes and AECMs under the no-double-funding rule. To ensure there is a minimum level of green infrastructure across all farms, as in the Commission's draft proposal, GAEC 9 should be extended to all farms including grassland farms. The majority of Irish farms have more than 5% semi-natural features with no fertiliser or pesticide application and many surveys in the wider countryside show farm habitat areas of 10-14% (from samples in farm surveys in Sheridan et al. 2013, 2017; Sullivan et al., 2011; Rotchés-Ribalta et al., 2020) (Fig. 2), though with a lot of variation. Research on intensive farms showed a median farm habitat area of 5% for tillage, 6% for intensive beef and 6.55% for intensive dairy (Fig. 2, from Larkin et al. 2019). Based on these results, the minimum share of land devoted to these features under baseline conditionality should be at least 5%.

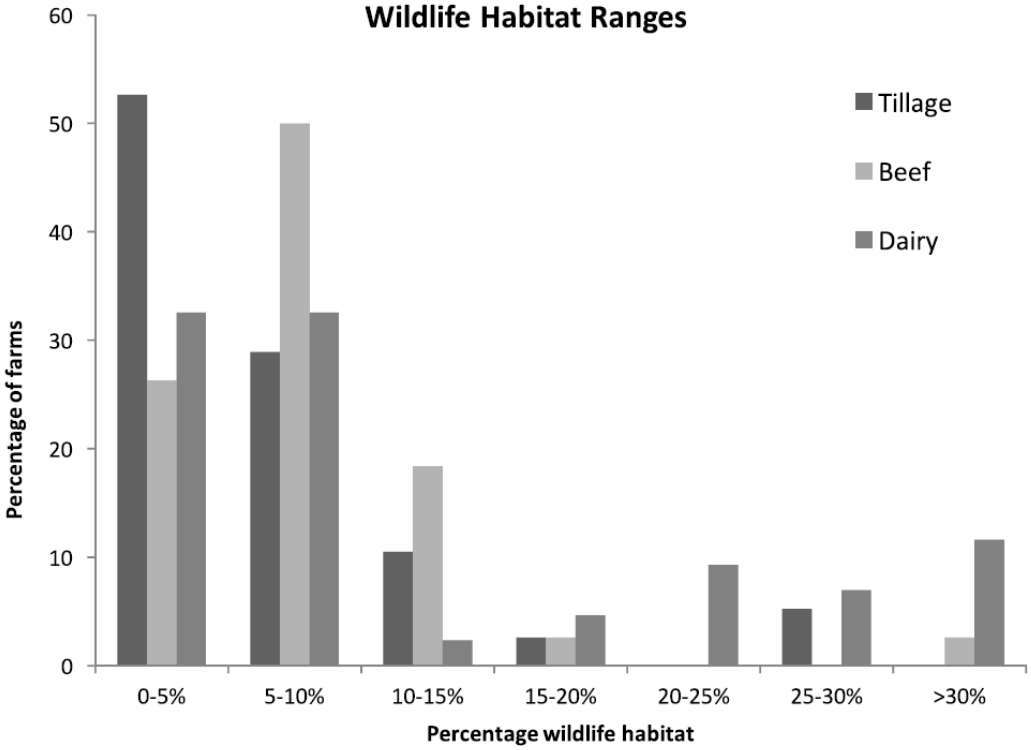


Fig. 2 Distribution of wildlife habitat area (% of total farm area) across surveys conducted on tillage, intensive beef and intensive dairy systems in Ireland. From Larkin et al. (2019).

- There should be additional incentives for farms that exceed this baseline through eco-schemes and agri-environment climate measures to both increase the quantity and quality for provision of a range of ecosystem services from these areas. This would be difficult to design if some farms (arable farms only) are required to maintain a share of non-productive land as a GAEC standard and other farms are paid for this under eco-schemes.

- Through a combination of baseline conditionality and eco-schemes, targets should be set across Irish farms to attain a minimum threshold of 10% semi-natural vegetation and landscape features where fertiliser and pesticides are not used. Eligible areas to meet this 10% should extend to extensively grazed semi-natural grasslands because excluding these areas of value for biodiversity could potentially reduce their protection and increase their risk of degradation through either intensification or abandonment.
- The area of landscape features and the quantity of semi-natural vegetation on farms can be used as the basis for a points-based eco-scheme. Where minimum points are not achieved on a farm then a simple list of additional evidence-based actions per farm would be available e.g. native tree planting, hedgerow planting, riparian buffer strips. This would expand semi-natural vegetation and landscape features to a minimum percentage on all farms. Provision would need to be made for sufficient lead in time for farms to meet criteria where minimum areas do not already exist on farms.
- Agri-environment schemes (AECMs) should have a focus on improving the ecological quality (and not just quantity) of the Green Architecture.

**Q1.2: what are the barriers, caveats to consider?**

| **EU level** | **Your Member State (/(region)** |
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| | |

- Barriers include insufficient ambition; excessive weighting and conversion factors; lack of appropriate advisory support.
- Some other instruments counteracting the effects of the Green Architecture e.g. farm investments for modernisation; Forestry. There needs to be more coherence across the policy instruments.
- Eligibility rules for Pillar 1 have consequences for what is paid for in Pillar 2. This can be resolved with coherent eligibility rules. There is a need to ensure that there is no risk of double payment across the Green Architecture. This may be best achieved by ensuring there is a hierarchy and greater levels of ambition as you move up the tiers in the Green Architecture. The importance of extending GAEC 9 to all farms has already been emphasised.
- Considerable evidence indicates that the list of landscape features should be expanded from the current list. This would have a high biodiversity dividend, and would greatly assist farms to attain and exceed the 5% and 10% habitat area thresholds (Larkin et al., 2019; Rotchés-Ribalta et al. 2020). The FARMECOS (Farming And natural Resources: Measures for ECOlogical Sustainability) project funded by DAFM has a provisional list (unpublished) of eligible features. This includes semi-natural grasslands, heathland, peatland, native woodlands/scrub, wetlands, buffer strips, field margins (no chemical inputs), hedgerows/treelines, drainage ditches on mineral soils, and associated margin, and ponds.
- There is the potential for Member States to lose money if eco-schemes are not taken up in Pillar 1 or requirements are not met at farm level and unused funds need to be

returned to Brussels. It is accepted that it will need a considerable amount of information upfront to operate eco-schemes on a points basis, so this will require early planning for success. To avoid perverse incentives, Member States should be assured that unused funds in any year can be retained, for example, by making use of flexibility arrangements to transfer them for use in agri-environment-climate schemes in Pillar 2.

- It is difficult to accurately map the quantity and quality of semi-natural grassland and this information is absent from current CORINE land cover classification. There is wide variation in the broad type of Irish pastures, which range in type from extensive upland heathland to intensive lowland grassland pasture, with corresponding wide variation in biodiversity values. Current national land cover and habitat maps are being developed by the Environmental Protection Agency and due for release in 2021 which will make semi-natural vegetation/feature mapping feasible across all farms at little additional cost, dependent on the integration of the new land cover map into Land Parcel Identification System (LPIS). Ideally, land parcels should be defined to make them as ecologically homogeneous as possible to underpin results-based measures, although this would have the downside of increasing the number of parcels on some farms.
  It seems that a pilot Farmland Environment Survey is being considered for implementation by DAFM in 2021. This sounds promising, but none of the participants had any further detail on this, or the extent to which it might resolve some of the mapping issues.
- From a logistical perspective, there may be difficulties in implementing and reconciling seasonal farming actions and seasonal administrative deadlines within a single year. In the context of an annual scheme with BPS applications in April/ May and payments in October there will only be 6 months to deliver additional actions. For example, planting hedges or native trees is not typical in the April – October period. Farmers need a choice of actions that build up environmental assets and can be delivered rapidly (Wild Bird cover strips, grass margins/ buffer strips on slopes and riparian zones along with more permanent actions (tree planting/ hedges).
- The preparation for implementation of these more ambitious goals will require substantial inputs of information, and knowledge, which will require time. The transition period before the new CAP enters into force needs to be utilised effectively to overcome this potential barrier.

**Q1.3: Are there (additional) instruments that should be considered for the Green Architecture?**

- Cross cutting supports such as AKIS and farm advisory services, non-productive investments, co-operation and innovation support (European Innovation Partnership Operational Groups) need to be integrated into the CAP Green Architecture.
- Ireland has extensive experience with farm sustainability audits (Bord Bia Quality Assurance and Sustainability Schemes, and Origin Green). There is potential for existing audits to be strengthened and integrated with eco-schemes; for example, to increase the quality of the data collected, reduce administrative burden on farmers and reduce duplication of inspections and data capture for administration.

- With the integration of auditing schemes, there is potential for a simplified contract between the administration and the farmer encompassing the range of environmental commitments and services provided by the farmer. The ideal to work towards is that farmers would have a single agricultural-environmental-climate (AEC) contract that would include all commitments across the Green Architecture rather than having to enrol in multiple schemes. For example if a farmer has a stream B AEC contract which has highest level of ambition in the Technical Group proposal outlined above, it should also incorporate the baseline conditionality, eco-scheme and other AEC commitments so that the farmer can see in one simple map-based contract that if he or she has fields/features with *X* score and undertakes *X Y Z* actions then he or she meets all the requirements. While this would be a massive simplification for the beneficiary, it would admittedly be a much more complex task for the administration.
- There is no need for coupled livestock payments to be used as a policy instrument to deliver biodiversity benefits as long as the overall Green Architecture connects payments to environmental performance. With the exception of payments for rare native breeds of livestock, payments coupled to production are a very crude instrument which have had considerable negative consequences on environmental quality in Ireland in the past. Coupled payments relating to farm level stocking rates do not reflect the large variation in carrying capacity of different pastures on many farms. Well-designed results-based agri-environment payments have been proven to maintain livestock numbers while improving environmental performance in an Irish context (O'Rourke and Finn, 2020; AECOM, 2020). Payments should be linked to environmental outputs NOT to livestock numbers.

**Q1.4: what should be defined as minimum requirements for (success of) the Green Architecture as a whole?**

1. Needs to go above and beyond existing minimum requirements in terms of baseline conditionality and greening, as existing measures are not maintaining environmental quality in Irish countryside (see CAP4Nature 2019, EPA 2020, NPWS 2019).
2. Include the full range of semi-natural vegetation and habitats in the Green Architecture, including farmland habitats formerly considered ineligible (Rotchés-Ribalta et al., 2020).
3. Consider a threshold of 5% of farm area for space for nature (landscape features and habitats) as part of GAEC 9, and applied to all farmland, and not just arable land.
4. Consider a higher threshold of 10% of farm area for space for nature (landscape features and semi-natural habitats) as a focus of the Agro-ecology eco-scheme that pays for habitat area >5% (applied to all farmland, and not just arable).
5. Use AECM actions to implement results-based payments to improve the ecological **quality** of farmland habitats, including those in GAEC 9 and the eco-scheme. This will have the effect of better valuing and protecting existing habitats (that tend to have higher biodiversity value than newly created habitats), incentivising the improvement of degraded habitats, and maintaining those habitats with existing high ecological value. (e.g. O'Rourke and Finn, 2020; Ó hUallacháin et al., 2016; Finn et al., 2020; Rotchés-Ribalta et al., 2020).
   It seems that a 'Results-based Pilot Agri-environment Scheme' is being considered for

implementation by DAFM. This sounds promising, but none of the participants had any further detail on this.

6. Strongly consider incentives for the use of environmental bundles of mutually reinforcing measures to enhance effectiveness. For example, the effectiveness of installing a nesting box for raptors will be enhanced by also adopting rodenticide-free controls in farmyards, and in tandem with habitat measures that favour the prey of raptors. There are similar logical bundles of actions for various objectives that will enhance effectiveness (if they are aligned to good conservation practice in the first place).
7. "To conserve pollinators and help protect pollination services, our expert elicitation highlights the need to create a variety of interconnected, well-managed habitats that complement each other in the resources they offer. To achieve this the Common Agricultural Policy post-2020 should take a holistic view to implementation that integrates the different delivery vehicles aimed at protecting biodiversity (e.g. enhanced conditionality, eco-schemes and agri-environment and climate measures). To improve habitat quality we recommend an effective monitoring framework with target-orientated indicators and to facilitate the spatial targeting of options collaboration between land managers should be incentivised." (Cole et al. 2020).

**Please provide references to support your observations/recommendations:**


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**Q2: What can be the role(s) of Eco-schemes in the Green Architecture, and accordingly, how could they best be designed and implemented?**

**Your inputs:**

**What key factors and considerations should be made in ensuring the Eco-schemes are attractive (for MSs and farmers), effective, and synergistic with AECM and other instruments?**

As a general comment, we note that eco-schemes have to be designed within the constraints of the rules for annual direct payments. This is far from ideal for many environmental and climate measures which require a longer-term commitment such as is possible with AECMs in Pillar 2. While eco-schemes do have greater flexibility in the design of payment schemes, an important element in designing the CAP Strategic Plan will be to reflect on the merits of transferring some of the Pillar 1 funding allocated to eco-schemes to Pillar 2 where they may be used more effectively from an environmental and climate perspective. This will become

more attractive if the ring-fencing of eco-schemes is modified to take into account particular efforts in AECMs in Pillar 2, as proposed in the Council position in the trilogues.

Nonetheless, we still feel eco-schemes can have potential in an Irish context, for example, in paying farmers to create additional landscape features as suggested in answer to the previous question. Once GAEC 9 applies to all farms, such features once created would be protected for the duration of the Strategic Plan. Other examples of practices that would fit within an annual payments scheme include tillage farmers maintaining overwinter green stubble or cover crops, slurry injection rather than splash plate and wide buffer strips near watercourses for dairy farmers. Encouraging regenerative farming practices could also be incorporated, or knowledge transfer.

**Comments on the four flagship eco-schemes**

The eco-scheme proposal assumes that biodiversity is a joint product of many of the activities of these eco-schemes. Care is needed in the design and implementation of eco-schemes to ensure that this biodiversity benefit is realised. In addition, the biodiversity benefit of the eco-schemes is expressed as 'Landscape features' in the Agroforestry and Agro-ecology flagships. Biodiversity is not mentioned as a target of the 'Precision farming' flagship. The 'Carbon farming' flagship is expected to contribute to "Biodiversity related targets, landscape features", and makes a distinction between 'biodiversity related targets' and 'landscape features'. This is the only mention of 'biodiversity related targets', and it would be important for the basis of this distinction to be clearly articulated.

The most directly relevant text for biodiversity is in the following four specific points in the Agro-ecology eco-scheme:

"4) Landscape Features, higher share of permanently devoted areas to landscape features and additional types of elements to be retained, beyond GAEC 9.

5) Land lying fallow with enhanced species composition dedicated for pollination, farmland birds or other target species.

6) Support for low to moderate grazing level in target areas.

7) Implementation of flower strips, margins strips and high diversity grassland strips dedicated to biodiversity."

The definition and interpretation of the terms in point 4 of the Agro-ecology eco-scheme will be crucial to ensuring the applicability of the agro-ecology flagship eco-scheme to the range of farmland habitats that are not classed as Landscape Features. It is essential that point 4 and point 6 encompass wildlife habitats formerly considered ineligible, and that they encompass

High Nature Value farmland. For effective biodiversity conservation, all farmed semi-natural vegetation should be valued as one progresses through the GAEC, eco-schemes and AECM.

The majority of biodiversity on farmland occurs on farmland types that are not classed as 'landscape features' e.g. lowland species-rich grasslands, alpine species-rich grasslands, heathlands etc. These farmland types range from farmland habitats that are considered ineligible for CAP payments to high nature value farmland. It would be important to clarify whether the scope of the biodiversity actions and improvements is limited to farmland areas classed as 'landscape features'.

There is no dedicated biodiversity flagship eco-scheme, which might be a more appropriate option for directly incorporating biodiversity into eco-schemes while also ensuring co-benefits for climate and water (as indicated by the strong overlap in HNV farmland and high water quality in Moran and Sullivan (2017)). This could be used to pay for additional landscape features not paid through GAEC. This might be especially relevant for High Nature Value farming systems that might be:

a) reduced in nature value by agroforestry,

b) already implementing agro-ecology practices and risk replacing existing more beneficial practice by a new practice that is nominated in eco-schemes,

c) not a relevant target for precision farming, or at least that envisaged by the flagship eco-scheme, which seems to be very targeted toward improving the production efficiency of market products from agriculture. The principles of precision agriculture (ICT-based technologies) could be used to improve public good supply in High Nature Value farming systems (for example the Pearl Mussel Project and Hen Harrier Project (and others in Ireland)). These projects are developing sensing technologies, online tools and applications to improve the implementation, targeting, monitoring and rewarding of the supply of public goods and services (including biodiversity, climate regulation, air and water quality).

However, this specific scenario seems to be excluded in the 'Precision farming' flagship proposal. The provision of public goods and services should also be a legitimate a focus of technological support. In Ireland, the Irish Forum on Natural Capital www.naturalcapitalireland.com is developing systems and capacity for natural capital approaches on farmland.

A potential way forward for eco-schemes in Ireland is a points-based system rewarding achievement of specific environmental targets across all applicant farms. This could be based on the proportion of farm covered by eligible features complemented by limited number of farm type/landscape specific actions where minimum points target to achieve payments are not achieved. Eligible areas should include all semi-natural vegetation features on farms (farmed and unfarmed). The proportion of semi-natural vegetation on farms is an important

indicator of the overall nature value of farms in Ireland (Boyle et al 2015). Across Europe the proportion of semi-natural vegetation is important for the supply of a range of regulation and support ecosystem services such as pollination, pest control and water quality for example (García-Feced et al 2015).

The targets set for proportion of semi-natural vegetation in eco-schemes will be dependent on standards set for baseline conditionality. However, if we want to align the CAP targets in MS with the EU Biodiversity and Farm to Fork Strategies, then we should aim for the points target to be equivalent to 10% of the farm covered by eligible semi-natural vegetation i.e. 10% of farm = 100 points and maximum eco-scheme payment. Under this system farmers who do not meet 100 points can opt to increase proportion of eligible features on farm through a limited number of complementary actions with proven benefit/co-benefits for biodiversity, water or climate targets e.g. hedgerow planting, riparian buffer zone creation, field margins, native tree planting/farm woodland plots, pond creation etc. The list of actions where feasible could be adapted per farm system or be specific to required actions to meet specific environmental objectives in national priority areas (e.g. priority habitats, high status water bodies, catchments at risk, additional actions for nitrates derogation farms above legislative requirements etc.)

This will require investment in administrative systems and training; however, because eco-schemes are an innovative instrument, this will be required anyway. There is currently a detailed national mapping programme underway for the entire country set to be completed in 2021. This will map these features at farm level and this resource should be integrated with the LPIS. Since the first introduction of agri-environment schemes in Ireland in 1994 these features/farmland habitats were required to be mapped and identified on all participating farms (at peak participation there were more than 50,000 participating farms), so there should be significant capacity already available in the country in this area. It seems that a pilot Farmland Environment Survey is being considered for implementation by DAFM in 2021, but none of the participants had any further detail on this, or the extent to which it might resolve some of the habitat mapping issues.

A points-based eco-scheme could also be used to solve the loss of unused funds where there is an underspend. Where there is an underspend, the unspent money could be added onto the unit value of points gained by participants in that year as an eco-bonus payment. In this way, the underspend can be distributed as a dividend among eco scheme participants.

Managing more targeted eco-schemes and agri-environment-climate schemes will make greater demands on administrative resources in the managing authority. Despite the fact that the overall benefit/cost ratio will improve, the larger upfront investment (e.g. in IT systems) as well as ongoing recurrent costs can be a disincentive for managing authorities to adopt these more ambitious and effective approaches. There should be provision in the CAP budget

to reimburse managing authorities for these additional administrative expenses, along the lines of the way provision is made to finance Technical Support for RDPs.

**In their design:**

| **EU level** | **Your Member State (/(region)** |
|---|---|
| There should be clear objectives, indicators and targets for biodiversity aims that allow clear assessment of thresholds that distinguish GAEC from eco-schemes from AECM. Detailed description of implementation will be crucial to inform judgement of whether the proposed actions will be expected to be effective or not. | |
| Excessive weighting and conversion (as in the EFA measure of Greening) can have the effect of diluting the real 'space for nature' and actual area of green infrastructure, and the effectiveness of biodiversity conservation. | |
| There should be clear reference in the CAP Strategic Plans to an objective evidence base that justifies the effectiveness of proposed actions to be undertaken under eco-schemes (and in general). The 'cause-and-effect' intervention logic in CAP programming has been most deficient or absent for biodiversity, in comparison to other environmental objectives (Primdahl et al., 2010). The greater the allocation of budget to specific measures, the greater should be the requirement to demonstrate the intervention logic. | |
| In the same way that external validation of financial costings of proposed measures was required for previous RDPs, there should be external validation of the expected ecological effectiveness of proposed measures. Ideally, this assessment should be part of an *ex ante* evaluation. | |
| Farms with a derogation under the Nitrates Directive are required to undertake additional farm management practices; there is a need for clarity about the articulation of | |

| | |
|---|---|
| Nitrates Directive derogation actions with actions and payments within eco-schemes | |
| There is a significant role for EIPs to innovate, stimulate and pilot a variety of targeted biodiversity efforts with different levels of ambitions, which could inform future eco-scheme design and implementation. Ireland has been developing substantial practical experience in implementing such schemes. These include the BRIDE EIP to the Pearl Mussel Project and Hen Harrier Project. | |

**During implementation:**

| **EU level** | **Your Member State (/(region)** |
|---|---|
| Detailed description of implementation in the CAP Strategic Plan will be crucial to inform judgement of whether the proposed actions will be expected to be effective or not. | |
| The Eco Scheme should (ideally) be adaptive and progressive. It may be difficult to get everything right in Year 1, but one can still be ambitious about what it can achieve over time. This highlights the crucial importance of early monitoring and assessment of this new policy instrument, and rapid response to confirm effective actions, and rectify ineffective actions (through removal or modification). Also, the process whereby Member States can change their schemes and obtain Commission approval for these changes should be as easy and painless as possible. | |
| To achieve biodiversity objectives, the provision of effective advisory support with appropriate ecological expertise will be crucial for all biodiversity actions, and especially for results-based approaches. | |
| It is envisaged that eco-schemes will contain a high degree of choice and will contain a mix of light green and dark green options. How will choices be managed to influence selection of, for example, 5 light green options versus 3 dark green options (where the latter have a greater environmental benefit)? | |

**Specific questions:**

**Q2.1: what should be defined as minimum requirements for (success of) the Green Architecture as a whole?**

See response to Q1.4 for definition of minimum requirements.

**Q2.2: what are the pros and cons of a list-based approach (menu of options)?**

**Comment:**

A list-based approach seems to imply that a list of management prescriptions is provided to farmers, and they only implement the prescription to get paid. However, it is possible to envisage results-based payments being offered within a list-based approach.

**Pros:**

There is a very wide range of available options within the four flagship eco-schemes. There is very likely to be an option, or set of options, that can be appropriate to a farm that delivers biodiversity benefits.

Spatial targeting could be used to better reflect local environmental priorities e.g. a sensitive water catchment or an important biodiversity asset (e.g. important populations of swans/geese, or other rare/threatened species) where certain options should be incentivised/ prioritised over others. This would require upweighting of the points for more environmentally effective management practices to be preferentially selected in areas with local environmental priorities.

Having the option of not solely concentrating on income foregone and costs incurred allowed for the assignment of a value to environmentally valuable areas. Options need to be accurately assigned an environment benefit value so that the least beneficial actions need to have payment rates that reflect their true lower value. If so, this will allow greater ambition to be achieved within the available budget.

Similarly, there is an opportunity for win-win outcomes where eco-scheme options can use nature-based solutions. Where co-benefits are explicitly recognised, existing habitats in good condition can be rewarded not just for their biodiversity value, but also for their contribution to carbon capture and sequestration, biological control, water quality and flood regulation etc.

**Cons:**

The eco-schemes options included in the CAP Strategic Plans should have associated scientific evidence that demonstrates their effectiveness, and the most appropriate farming contexts for its implementation. In the past, this 'cause-and-effect' model has been most deficient or absent for biodiversity, in comparison to other environmental objectives (Primdahl et al., 2010).

There is a very wide range of available options within the four flagship eco-schemes. The experience from decades of agri-environment schemes indicates that participants will tend to choose the most financially rewarding of available options (the difference between payment and costs), which may not be the most environmentally effective choice for the local context. (e.g. Cole et al. 2020).

There is a risk of some eco-scheme options having a net negative effect on biodiversity, if implementation is not associated with proper advice and regulation. Some options may have the effect of displacing existing habitats, if the options are preferentially located on the land with lowest land value, which tends to be those areas with highest likelihood of being farmland habitats with biodiversity and ecosystem services. Implementation should ensure no such backsliding at the scale of individual farms, and the design and payment structure of the eco-scheme itself should sufficiently reward existing areas of farmland habitats. This should ensure that such back sliding is not a financially attractive option within the eco-scheme.

**Q2.3: If the EU and MSs choose on a menu option, what would you list as examples that should or should not be included?**

**Examples of potentially effective Eco-schemes:**

| **Examples for good practice** | **Why** |
|---|---|
| Implement a points-based system with a short list of options relevant to a specific farming context | Simplifies the options for farmers and aligns the available options with the most environmentally effective actions for the farm context. |
| Conservation of existing high nature value habitats, and to encompass those that occur outside of protected areas. | Many rare species occur outside of protected areas (e.g. Jackson et al., 2009; Walsh et al. 2015; Matin et al., 2016, 2020. |

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| Wider range of habitats to be considered as landscape features, to improve conservation of existing habitats.<br>This approach should also focus on habitats that occur outside of protected areas, many of which contain rare and threatened species. | Larkin et al. (2019) showed many farmland habitats are present on farmland but considered ineligible.<br>Rotchés-Ribalta et al. 2020. Preferential loss of habitat types that are not protected by regulation.<br>Older and existing habitats have higher nature value than newly created habitats. (Waesch and Becker, 2009).<br>Many rare species occur outside of protected areas (e.g. Jackson et al., 2009; Walsh et al. 2015) |
| Restoration of existing habitats from lower to higher nature value | |
| Creation of new habitats only in areas where there are no existing wildlife habitats. | |
| Installation of ponds | Ponds are a rich biodiversity resource (Biggs et al., 2015), and have declined in incidence in recent years. Wetland habitats are a biodiversity priority for NPWS. Larger ponds can also assist as a reservoir of water for fire control. |
| Control of invasive species | These have not featured in previous AECMs in Ireland. Given the severe threat to biodiversity posed by some alien invasive species, this would be a very worthwhile addition to eco-schemes and AECMs. |
| Eco-scheme options should explicitly consider the need to deliver co-benefits for carbon, biodiversity & water (quantity, quality). Options that deliver more co-benefits should be more highly rewarded. | This will enhance value-for-money, and better recognise the multiple functions delivered by the same land area. |
| Wild bird cover strips should also be considered. Wild bird cover including crops such as radish and mustard can be good for pollinators, and offer multiple benefits for biodiversity over an extended season. However, they should not be located on existing habitats. | |

**Examples of problematic options that should not be included:**

| **Examples of problematic practice** | **Why** |
|---|---|
| Eco-schemes (and AECMs) should not have the effect of installing newly created habitats | Older and existing habitats have higher nature value than newly created habitats. (Waesch and Becker, 2009) |

| | |
|---|---|
| on existing habitats that have high nature value, resulting in a net loss of biodiversity. | |
| 'Boost' schemes should not be included within the budget for flagship ecoschemes, | Boost schemes are aiming to promote competitiveness, rather than environmental goals. |
| Menu options need to be carefully targeted to the farming system, and the priority environmental issues | Participants tend to choose the most financially rewarding of available options which may not be the most environmentally effective choice for the local context |
| Actions for conservation of grassland diversity should have zero or very low levels of applied nitrogen. | Kleijn et al., 2008 |

**Q2.5: What are the pros and cons of a top-up payment versus income foregone? What would you recommend and why?**

**Pros:**

Could allow the welfare value of the environmental outcome to be explicitly rewarded, e.g. carbon sequestration could be rewarded at the market price for carbon regardless of the cost to the farmer to provide the sequestration.

A top up payment can provide a necessary incentive to encourage farmers to participate in the green transition. This may be particularly relevant to actions that provide environmental benefit but may appear to be negative cost for farmers, thus leaving no basis for making a payment for this action even if there is evidence that there is only limited adoption of this measure. Another example is where the intention of the scheme is to maintain existing practices in place where their existence may suggest they are the economically best option for the farm concerned, although the continued existence of the practice may be threatened by future intensification.

**Cons:**

Anchoring the payments made to farmers in costs incurred or income foregone provides some kind of objective benchmark for the level of payment. In the absence of such a benchmark, the top-up paid becomes a bargaining matter between the public authority and the farm organisations. Given that the top up represents a pure income transfer, there is a big danger that eco-schemes using this formula will become income transfer schemes in disguise, much like the greening payment in the current CAP.

The Irish evidence suggests there is sufficient flexibility in the income foregone/costs incurred formula to ensure payments constructed on this basis are sufficiently attractive to farmers. Irish agri-environment schemes are consistently over-subscribed. Given a limited budget for environmental schemes, the more this budget is used to finance income transfers rather than environmental action, the less environmental improvement will be achieved. Given the Irish

record to date, there seems no evidence to change a successful formula. What is clear is that payment levels that are averaged across all farms lead to a self-selection bias in that it is those (less intensive) farms where opportunity costs of enrolment are lower that predominantly participate. But this self-selection bias will not be eliminated simply by raising the average level of payment by including a top-up. This requires more targeted interventions differentiated by different target groups.

There can be a need for reasonable application of the costs incurred principle where the continuation of a desirable farming practice (e.g. extensive grazing) is threatened by intensification. This can be achieved by adopting a results-based approach as much as possible.

**Q2.6: How should Eco-schemes best be organized spatially, among themselves and with respect to AECM?**

Must avoid conflicts between what is designed into ecoschemes and what can be paid in the more targeted agri-environment schemes.

There should be clear threshold targets between GAEC, eco-scheme and AECM that would allow a single parcel to receive payments for all three, with a clear gradation of standards.

**Q2.7: How should MSs address the multiple objectives (income plus environment) and/or avoid double counting?**

No specific suggestions to make under this heading, beyond underlining its importance.

**Q2.8: what should happen with remaining budgets if take-up is low?**

Given the financial value of the eco-schemes, very high uptake is expected in Ireland.

If there is unspent budget, the environmental objective of eco-schemes and the CAP would be best served by allocating it to relevant environmental instruments. For example, this may include a public goods bonus within eco-schemes whereby a remaining budget gets divided among participating farmers. This could be weighted by eco-scheme objective and/or to farmer who exceed the basic requirements of eco-schemes and are not rewarded for the additional public good supply by other instruments e.g. AECM. As another example, unspent eco-

schemes budget could be allocated to AECM in Pillar 2 and spent over a number of years to reward 'deep green' commitments for biodiversity and other objectives.

It is difficult to see how the current proposal to transfer unspent budgets into income support would result in additional environmental benefit, compared to alternative approaches.

**Please provide references to support your statements where possible:**


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## Q3: How can the EU and MSs set S.M.A.R.T targets that are coherent both with the CAP objectives and relevant strategies? (Farm-to-fork, Biodiversity)?

**S.M.A.R.T.: "Specific, Measurable, Ambitious/attainable, Realistic, Time bound"**

*Note: The Biodiversity strategy requires a) 10% landscape features, b) expansion of organic farming to 25% UAA and c) reduction in pesticide (impacts) by 50%.*

**What key factors and considerations should be made by MSs when setting targets in their CAP strategic plans, and how should the EU guide and assess them?**

| **EU level** | **Your Member State (/region)** |
|---|---|
| | |

**General background**

This topic relates principally to targets set at Member State level rather than at farm level (results-based approaches) though the last question in this topic provides an opportunity to link the two.

Question 3 (targets) was discussed prior to Question 4 (indicators) although in EU terminology a target is a quantified value for an indicator. It is difficult to discuss targets without first knowing what the indicators are, so there is some overlap between responses to Q3 and Q4.

The preamble to the CAP SP Regulation (Recital 56) includes the requirement: "In the process of development of their CAP Strategic Plans, Member States should analyse their specific situation and needs, **set targets linked to the achievement of the objectives of the CAP** and design the interventions which will allow reaching these targets…" (bolding added). In Article 7 of the Regulation, it is indicated that achievement of the CAP objectives shall be assessed using **impact indicators**. In the Regulation itself, a 'target' is defined as a pre-agreed value to be achieved at the end of the period in relation to the **result indicators** included under a specific objective" (Art. 2(i)). There is no obligation in the Regulation for Member States to define targets for their impact indicators and that this requirement is only referenced in the preamble.

The specification of the contents of the Strategic Plan (Article 95) only requires Member States to include an assessment of needs and to identify needs for each CAP specific objective (Article 96). It does not require inclusion of targets based on impact indicators as a component of the Strategic Plan. The Commission will have difficulty to fulfil its duty under Article 106 to assess the draft Plans submitted by Member States on the basis of their "effective contribution to the specific objectives…" in the absence of quantified impact indicators included in the Plan.

The draft Strategic Plan Regulation requires Member States when drawing up their Strategic Plans for the specific environmental and climate objectives to take into account the national

environmental and climate plans emanating from a list of legislative instruments in Annex XI that includes the Birds and Habitats Directives. This provides a basis to integrate quantitative targets established under these plans into the CAP Strategic Plans.

Furthermore, the Commission will be issuing guidelines to Member States, based on its assessment of their starting positions, regarding the level of ambition it might expect with regard to the specific targets set out in the Green Deal documents, including the European Climate Law, the Farm to Fork Strategy, the Biodiversity Strategy and the Circular Economy Strategy. These will not be binding recommendations, but Member States should be put under pressure to explain why they would not want to adopt these recommendations.

Results-based indicators, targets and milestones as set out in the draft Strategic Plan Regulation can be appropriate for annual monitoring but are not a substitute for proper measurement of the effectiveness of interventions in achieving the specific objective 6(f) to "contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes" (the biodiversity objective).

Impact indicators will be assessed on a multi-annual basis in connection with mid-term and ex-post reviews to evaluate policy performance. There is no sanction for Member States that are not on track to meet specific objectives related to environment and climate.

**Specific questions:**

**Q3.1: What would count as "ambitious" targets? (how do you measure ambition?)**

The three suggested impact indicators for biodiversity in the draft Strategic Plan Regulation. These are:

I.18 Increasing farmland bird populations

I.19 Percentage of species and habitats of Community interest related to agriculture with stable or increasing trends

I. 20 Share of UAA covered with landscape features

**Additional supplementary impact indicators should be considered** (see also Question 4)**.** One additional target could be the maintenance/extension of High Nature Value farmland, the distribution of which can now be estimated in Ireland (see Fig. 3, from Matin et al. 2020). However, this would only change very slowly over time. The ability to predict the spatial distribution of HNV could be used to formally test whether there is 'targeted allocation of resources to HNV'. The amendment to include a result indicator as proposed in the EP position R29b *Fostering high nature value farming: share of agricultural area under management commitments to generate high nature value* deserves support.

Ideally, it would be desirable to have indicators of habitat quality for ubiquitous habitats such as hedgerows and field margins, ponds. There is potential to use the outcome of results-based agri-environment schemes to feed into a nationally aggregated indicator.

Regarding **level of ambition**, the ultimate objective must be that all habitats are in improving or favourable condition, that all protected species have stable or improving status and that farmland biodiversity (especially in the wider countryside, and not just in Natura 2000) as measured by a range of indicators is in a healthy state. Targets in the CAP Strategic Plan should be aligned with EU Biodiversity Strategy target: "There should be no deterioration in conservation trends and status of all protected habitats and species by 2030. In addition, Member States will have to ensure that at least 30% of species and habitats not currently in favourable status are in that category or show a strong positive trend." As the CAP Strategic Plan will have an end date of 2027, interim targets should be set that would allow the achievement of the EU Biodiversity Strategy target by 2030.

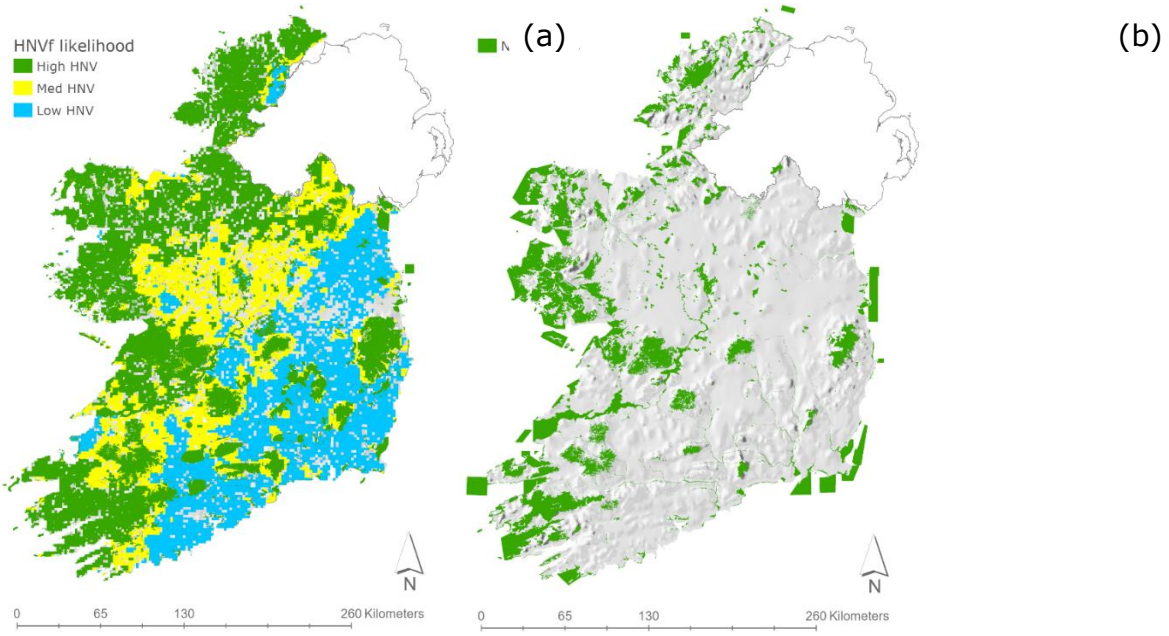


Fig. 3: (a) Extent and distribution of High Nature Value farmland in the Republic of Ireland (adapted from Matin et al. 2020), and (b) Natura 2000 network in the Republic of Ireland.

The Biodiversity Strategy minimum threshold of 10% for space for nature in the wider countryside (based on a wider definition including landscape features as discussed under Question 1) would be an ambitious target. This could be achieved in Ireland through a combination of conditionality under GAEC 9 and incentivised measures to go beyond this mandatory minimum in eco-schemes and AECMs as discussed earlier. "Studies from across Europe show that if a minimum of 10-14% of agricultural land were to be non-productive, then birds, and thus other wildlife, would recover (Busch et al., 2020; BIOGEA, 2020; Traba and Morales, 2019; Walker et al., 2018; Langhammer et al., 2017; Pe'er et al., 2014; Oppermann, 2008). It is the minimum, as at landscape level, 26-33% may be required for landscape-level recovery (Walker et al. 2018). Until 2008, it was compulsory for all farms to leave 10% of their land fallow. Not intended as a biodiversity measure, it indirectly had a significant positive impact for wildlife (Traba et al., 2019)." (quoted in BirdLife International 2020,

https://www.birdlife.org/sites/default/files/attachments/birdlife_europe_reform_the_cap_policy_briefing.pdf).

Additional indicators that could be used to measure ambition in the CAP Strategic Plans include: decisions on regulation and funding e.g. thresholds between GAEC and eco-scheme and AECM; allocation of unspent eco-scheme budget to environmental aims ONLY, or its allocation to AECM in Pillar 2; going beyond minimum commitments to EIPs that address biodiversity; going beyond minimum commitments to build ecological expertise into Advisory Services.

**Q3.2: How should baselines be defined?** (e.g. in terms of year, UAA/habitat cover etc.)

One issue is the definition of the reference year. For climate targets there are international obligations that set the reference year. For many relevant biodiversity targets, there is inadequate baseline information because country-wide monitoring has been lacking. Ideally, the baseline year would be the start of the Strategic Plan period.

Under Article 17 of the Habitats Directive, Member States are obliged to report on the conservation status of natural habitats and wild species listed in the Annexes to the Directive every six years. For Article 17 reporting (Natura 2000), reference year can be the last report, and there will be verifiable evidence to assess change.

Regarding the definition of scope, it was highlighted that measuring biodiversity on UAA alone does not necessarily capture farm biodiversity. Measuring biodiversity through Article 17 reporting alone also omits large areas of farm biodiversity e.g. high nature value farmland, and the wider countryside.

**Q3.3: What should/could be done so that MSs would be ambitious in setting, measuring and meeting the targets?**

Member States should be required to set quantitative targets, based on their needs assessment for their impact indicators in the Strategic Plan.

Member States in setting impact indicator targets should relate these not only to the CAP specific objective but also to the Member State commitments to relevant Sustainable Development Goal targets and indicators.

The Strategic Plans will contain an intervention logic indicating how the chosen interventions are expected to contribute to achieving the biodiversity objective 6(f). Past experience indicates this intervention logic is often absent, least developed, or counter-intuitive for biodiversity (e.g. Primdahl et al., 2010; European Court of Auditors, 2011). Independent ecologists should be involved in formal ex ante assessment of the intervention logic for those measures contributing to the biodiversity objective.

**Q3.4: What should MSs do to ensure that their targets translate into actions by farmers?**
*Recall that AECM and Eco-schemes are both voluntary. If they are not attractive, farmers will not take them up and, consequently, MSs may not be able to meet the targets.*

*Please try to provide concrete, feasible examples*

| |
|---|
| This question was addressed as part of Questions 1 and 2. |

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**Q4: What landscape- and biodiversity indicators could be used to strengthen the indicator-system of the CAP?**

*There are 4 types of indicators:*

1. *Output indicators relate to how MSs spend the budgets*
2. *Result-indicators are measured yearly and should relate to (proxies of) their potential impacts*
3. *Impact-indicators (reported every several years, e.g. during mid-term evaluation and at the end of implementation) are parallel to how ecologists often consider "results" (i.e., actual impacts on the ground, e.g. farmland bird indicators). In post-2020 CAP, this will include "Landscape features" and "Status of species and habitats of the Habitats Directives".*
4. *Complementary Results Indicators to link CAP instruments to concrete outcomes such as biodiversity*

*Based on interactions with DG AGRI, we focussed on Impact and Complementary Results indicators and we considered effective indicators as those that address the following criteria:*

- *feasible to monitor, with already monitoring efforts and data available*
- *straightforward to analyse and report across (several or all) Member States*
- *potentially address different aspects of the landscape or biodiversity.*

*While indicators on other aspects (e.g. GHG emissions, farm income, equity) are of interest and welcome, we focused on indicators for biodiversity.*

**Key message: Funding should be included in the Strategic Plan for resource collection and interpretation of data that can assess the impact of CAP instruments on biodiversity.**

To date, ONLY research projects have generally been able to effectively investigate the effectiveness of CAP measures on biodiversity. It would be preferable to ensure that funding is allocated to research projects rather than to consultants to perform evaluations that are often anodyne and not very informative. The greater the budgetary allocation to a policy instrument, the greater the priority that should be given to its evaluation (Finn and Ó hUallacháin, 2012).

### Q4.1 How can landscape features be best mapped?

Ireland does not currently have a national, high-resolution land use/habitats map. One is in development by the EPA/OSI, due for delivery Q3/4 2021. This will give information on *quantity* of landscape features, but not their *quality* (ecological condition for biodiversity). Ireland did establish an eREPS mapping system https://joinup.ec.europa.eu/collection/geographic-information-system-gis-software/document/online-gis-increase-efficiency-farm-surveying-ereps to support the REPS agri-environment scheme in the 2000s, but this was not maintained.

This system won an innovation through technology award in 2006. This contained data for the around 42,000 farms enrolled in REPS at that time, including data on measure 4 in REPS where all habitats had to be mapped. The fact that it was not pursued has meant a real loss for biodiversity monitoring in Ireland, but it shows what can be done.

**The best approach to mapping is to combine remote monitoring (satellite), complemented with subsampling/ground-truthing,** potentially with better use of Copernicus data. There is the potential for a disconnect between on-the-ground and remote sensed data (e.g. under canopies), hence the need for ground-truthing. Remote sensing could reduce the frequency of field assessment rather than replace it. Time-series remote sensing could be very useful for gauging change through the growing season, e.g. mowing dates. Scale is an issue in remote sensing – some landscape features may be too small to be captured remotely (e.g. field margins <2m width) and grasslands need to be disaggregated into intensive, extensive and semi-natural.

There has been good progress made using apps for on-the-ground mapping (e.g. in the Pearl Mussel Project and Hen Harrier Project EIP projects, and others), but logistical problems in making data available, and aligning datasets remain. The National Biodiversity Data Centre could play a role here. The DAFM are currently rebuilding the LPIS system, and this should be designed to cross-talk with externally-built technology/applications.

It seems that a pilot Farmland Environment Survey is being considered for implementation by DAFM in 2021. This sounds promising, but none of the participants had any further detail on this, or the extent to which it might resolve some of the mapping issues.

**Q4.2 How can the methods for biodiversity indicators be improved, for the habitats and species of the Habitats Directive? Is it feasible in your country?**

Current methods for surveying habitats and species for Article 17 reporting in Ireland are considered adequate, but should be extended to more farmed land in the wider countryside.

The Countryside Bird Survey (CBS, established 1998) monitors farmland bird populations (as well as the populations of other bird species occurring in the wider countryside) (Lewis et al. 2019). CBS data is used to evaluate impacts of agri-environmental policies in Ireland through the Farmland Bird Index, but may have missed early/long-term declines that began/occurred prior to1998 (Corkery et al. 2020).

**Q4.3 What are the best biodiversity indicators that can be proposed for the Complementary Result Indicator (FA 4A)?**

The Irish Environmental Protection Agency (EPA) has invested in monitoring for aquatic taxa, in response to Water Framework Directive requirements. Except for a regular National Forest Inventory (NFI), similar monitoring has not been invested in, nor developed, for terrestrial biodiversity. **This is urgently needed**. A national countryside survey (e.g. similar to https://countrysidesurvey.org.uk/) is required to form the baseline.

| **Indicator** | **Justification** | **For all MSs?** |
|---|---|---|
| Quantity of landscape features/habitats | Most easily mapped using remote methods and verified with ground-truthing | yes |
| HNV farmland extent | HNV farmland is a very important refuge for biodiversity outside of Natura 2000 areas, and well recognised by previous CAP policies. Most of European farmland biodiversity is found on HNV farmland so the maintenance of these areas is vital http://www.hnvlink.eu/download/D4.3.HNV-Link_Policy-Brief_v2019-3-25.pdf | yes requirement in current CAP |

| | | |
|---|---|---|
| Quality of landscape features/habitats, assessed via scorecards | Gives indication of biodiversity condition, which relates to ecosystem service provision; can be linked to payments for ecosystem services/results-based payments | yes |
| Article 17 (habitat and species) monitoring | Methods established, expand into non-protected farmland areas | yes |
| EU Pollinator Monitoring Scheme | Already designed, standardised monitoring that is consistent across MS, goes beyond plant indicators* | yes |

- *Note: Pollinators are specifically included in the EU Biodiversity Strategy to 2030 as one of the ways of restoring biodiversity in terrestrial systems. The EU Pollinator Strategy has published a Pollinator Monitoring Scheme https://wikis.ec.europa.eu/display/EUPKH/EU+Pollinator+Monitoring+Scheme developed by the JRC, which includes a methodology and policy indicators (including ones for the CAP). There is potential to implement this in Ireland, although a key question is who will fund it and whether there will be any funding from Europe. Ireland has the All-Ireland Pollinator Plan guidelines for Farmland https://pollinators.ie/farmland/, which are evidence-based actions that can be implemented across all farmland types. The EIP Protecting Farmland Pollinators project https://www.biodiversityireland.ie/projects/protecting-farmland-pollinators/ is testing whether these actions can be rewarded using a score card and results based payments system.

**Specific questions:**

**Q4.1: Can result- / impact-indicators relate to result-based payments? If so, how?**

Results-Based Payment models, with score-cards for assessment and monitoring of on-farm landscape feature quantity and quality, could be used. These already exist (e.g. via the EIP projects, Farm-Ecos project) and could be used to aggregated and standardise the reporting of results to underpin a national monitoring and reporting scheme.

**Q4.2: Can the proposed indicator(s) be introduced already in the coming CAP? If not, what are the barriers and what should be done?**

There has been no funding for monitoring baseline biodiversity indicators at the wider countryside scale. Science can improve the way indicators are used for performance evaluation systems, but this **requires funding** for researchers.

Many methods focus on plant indicator taxa, habitat quality/structure, but monitoring of other taxa is also required (Delaney and Stout 2018). The expertise is available nationally and technological advancements need to be incorporated. This **requires funding**.

A suite of taxon and habitat based monitoring schemes could be combined in different ways, but a national biodiversity data platform, that aligns with existing datasets, is required.

**Please provide references to support your statements where possible:**

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