



Defra Science Advisory Council (SAC)

Minutes of meeting, 13th January 2022

Actions arising

Action number	Action	Owner
January (22) 01	<u>Work Plan</u> : To bring Defra's Systems Team to a SAC meeting to facilitate a discussion focusing on defining 'systems perspectives' so the SAC is clear on the approach and can offer expert advice where appropriate.	SAC Secretariat

1. Welcome and apologies

The Chair welcomed attendees, apologies are recorded in Annex A.

2. Chief Scientific Adviser (CSA) update

The CSA updated the SAC on George Eustice's (Secretary of State for Environment, Food and Rural Affairs) keynote speech at the [2022 Oxford Farming Conference](#); his speech covered progress of Environmental Land Management (ELM) at the local and landscape scale, alongside habitat creation, Net Zero, and biodiversity issues.

The CSA also acknowledged that this was the last SAC meeting for Prof. Dame Henrietta Moore and Prof. James Wood, thanking them for their work in the SAC.

3. Biodiversity: fundamental research and development (R&D) questions

Defra presented a summary of the main policy questions that Defra are trying to solve from an evidence perspective for biodiversity.

The SAC reflected on problems of fundamental uncertainties and the issue of "solving the unsolvable" with regards to collecting enough data and assessing at which point diminishing returns are reached. Noting the direct relationship between precision and cost and questioning the need for absolute precision. The SAC considered an alternative approach of tackling biodiversity questions from a co-benefit's standpoint, whereby the question becomes the objective. When looking to maximise co-benefits in the context of non-linear and dynamic systems, co-benefits need to be closely tied to pathways which in turn requires a vision of their delivery. Defra linked the discussion on pathways to targets with the systems thinking approach, currently used within the policy planning and ELM schemes (specifically



regarding the need to improve landowner/manager take-up of specific schemes and the knowledge gaps that are impeding this).

The SAC suggested that Defra be more explicit in its assessment of biodiversity policies, acknowledging the inevitability of trade-offs. For example, increasing the number and size of wetland areas (for restoration purposes) may provide more sites for migratory birds, but could trigger a greater emergence of new disease. When considering biodiversity gains, connectivity, and contact, there must be consideration given to heightened disease risk.

The SAC also considered how landscape configuration can become a limiting factor in determining outcomes linked to interventions. Defra needs to assess how best to target interventions. Consideration needs to be made as to where the biggest benefits are likely to come from, not just regarding biodiversity gains but other key issues such as carbon sequestration and the measures which have the greatest positive biodiversity outcomes per-pound of public spending.

It was noted that considerable progress to biodiversity gains could be gained using the currently accrued knowledge. In some instances, however, a lack of specific evidence may be used as an excuse to forgo policy implementation. The SAC discussed whether the current stumbling block for action across England is a lack of evidence or a social/political issue. As such it was suggested that the list of questions presented in the accompanying paper could be considered a list of desirable objectives. It was thought Defra could benefit from collating a list of clear examples where a lack of evidence is preventing progress, alongside an assessment of the timescales needed for adequate evidence gathering.

The SAC acknowledged that there appear to be four key knowledge gaps which Defra could look to explore:

1. For some endangered species fundamental knowledge is missing but there is limited active research.
2. There is limited understanding on the scalability of biodiversity measures (often for cost and logistical reasons, most knowledge is gained from small areas or specific habitats that are often isolated without sufficient understating as to if/how it can be scaled up).
3. More research is needed on how to adapt public behaviours to be more biodiversity positive (from individuals to business, and industry).
4. More clarity is needed regarding what best motivates landowners/managers to enact measures to improve biodiversity.



The SAC suggested a review of the recent paper by [Dessart et al. \(2019\)](#) which might provide additional useful insight. Defra considered the lack of evidence on what makes specific interventions effective a potential avenue for future social science research, suggesting that a synthesis of the research would be a strong starting point.

Additionally, it was considered that Defra could better incorporate evidence gained via private landowner/manager intervention. The SAC suggested that to promote biodiversity positive actions from the public would require a large-scale system change and that this would need to be supported by new interdisciplinary research with a greater focus on the social sciences. The SAC raised the idea of greater collaboration between Defra and the Natural Environment Research Council (NERC), or for a NERC funded synthesis review to address these issues.

The SAC also noted that urban areas play an important role in national biodiversity, but are missing from current the targets and questions (linking to the [Royal Commission on Environmental Pollution's report on The Urban Environment](#)).

In conclusion the Chair thanked Defra for the paper and introducing the discussion, noting that the SAC can help with data issues and that this can be followed up outside of the regular discussion. Highlighting the key issues around endangered species knowledge gaps, issues/concerns/feasibility of scaling, and need for improved integration of social science research.

4. SAC-Exotic Diseases (SAC-ED) update: Avian Influenza

The SAC-ED chair, gave an overview of the current Avian Influenza outbreak across the UK, noting that this outbreak is unprecedented both in terms of number of infections and geographic area. Infection appears to be primarily resulting from a series of outbreaks triggered by spill over from migratory and native wild bird populations. Farm-scale biosecurity issues is increasing transmission within farms and linked premises but there is generally good biosecurity on a national level. Disease hotspots were initially found around coastal areas, but there are now a greater number of infections occurring in historically 'low risk' areas.

It was noted that recent land use changes, along with increases in demand for poultry, is a likely contributor to increased disease risk. Current methods of disease management have been focused on "lessons learnt" and while this has been useful, it was suggested that going forward there is an increasing need for a proactive approach to disease mitigation, for which SAC-ED will likely play a key role (working alongside Defra's Animal and Plant Health Agency (APHA)).



An explanation as to why disease risk maps use concentric circles around a site, instead of polygons specific to routes of highest transit risk was provided: current analysis methods allow this approach to be the most efficient in terms of speed to produce and implement. It was noted that in the future, further research could be conducted to assess methods for quick generation of risk maps with consideration to transit pathways. However, speed was reaffirmed as being the most crucial aspect to disease containment/management, which current mapping approaches facilitate.

The cost of an outbreak versus the cost of preventative biosecurity measures was also raised, with the SAC asking if it was cheaper for a farm to deal with an outbreak than it is to enact strict biosecurity measures. As there is a lack of evidence to quantify this, it warrants further investigation. Biosecurity measures that protect against avian influenza will likely have co-benefits especially given most birds are contained within a relatively small number of large flocks, thus measures taken there will have the best economic benefits. It was noted that this issue also has ties with the social science questions posed in earlier discussion, specifically with regards to how to ensure take-up by smaller farms and the balance independent action and external incentives.

5. Work plan and any other business

The chair suggested that, following the discussions held in 2021, the SAC could produce a short opinion piece detailing the SAC's interpretation of "systems perspective". They questioned if there was enthusiasm within the SAC to produce this, acknowledging the likely difference of opinion between SAC members on the interpretation of systems perspectives.

The CSA agreed that producing a SAC report would likely be a useful exercise for the SAC and Defra but suggested that before this was undertaken there should be discussion (at a SAC meeting) with Defra's systems team as a primer. This would enable Defra to present their ways of working/thinking and provide the foundations for a SAC report.

ACTION January (22) 01: To bring Defra's Systems Team to a SAC meeting to facilitate a discussion focusing on defining 'systems perspectives' so the SAC is clear on the approach and can offer expert advice where appropriate.



Annex A: Attendees and apologies

SAC Members

Louise Heathwaite (Chair)
Richard Bardgett
Peter Cox
Lin Field
Henrietta Moore
James Wood

Rosie Hails
Nick Hanley
Rowland Kao
Rosie Hails
Susan Owens

Defra's Chief Scientific Adviser's Office

Gideon Henderson – Chief Scientific Adviser
Rob Bradburne – Deputy Chief Scientific Adviser
SAC Secretariat

Devolved administration observers

Defra officials in relation to specific agenda discussion

Defra Head of Natural Science

Apologies

Lisa Collins – SAC member
Matthew Williams – Scottish Government Observer
Alistair Carson – Northern Irish Government Observer
Caryl Williams – Welsh Government Observer