

CONSULTATION

Response Document



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Draft Strategy for Environment, Natural Resources and Agriculture Research 2022-2027

(Scottish Government)

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Introduction to CIEEM

The Chartered Institute of Ecology and Environmental Management (CIEEM), as the leading membership organisation supporting professional ecologists and environmental managers in the United Kingdom and Ireland, welcomes the opportunity to comment on this consultation.

CIEEM was established in 1991 and has over 6,000 members drawn from local authorities, government agencies, industry, environmental consultancy, teaching/research, and voluntary environmental organisations. The Chartered Institute has led the way in defining and raising the standards of ecological and environmental management practice with regard to biodiversity protection and enhancement. It promotes knowledge sharing through events and publications, skills development through its comprehensive training and development programme and best practice through the dissemination of technical guidance for the profession and related disciplines. CIEEM was granted Charitable Status in 2020.

CIEEM is a member of:

- Environmental Policy Forum
- IUCN – The World Conservation Union
- Professional Associations Research Network
- Society for the Environment
- United Nations Decade on Biodiversity 2011-2020 Network
- Greener UK
- Irish Forum on Natural Capital (working group member)
- National Biodiversity Forum (Ireland)
- The Environmental Science Association of Ireland

CIEEM has approximately 600 members in Scotland who are drawn from across the private consultancy sector, NGOs, government and SNCOs, local authorities, academia and industry. They are practising ecologists and environmental managers, many of whom regularly provide input to and advice on land management for the benefit of protected species and biodiversity in general. This response was coordinated by our Scotland Policy Group.

We welcome the opportunity to participate in this consultation and we would be happy to provide further information on this topic. Please contact Jason Reeves (CIEEM Head of Policy and Communications) at JasonReeves@cieem.net with any queries.

Comments from CIEEM

1. Are the objectives and priorities set out in the strategy sufficiently clear?

Yes - however a greater emphasis on, and joined up thinking with, the response to the climate emergency is needed. This should also be linked to the impacts of biodiversity loss and recognise the connection of these issues to the sustainable future of land management in Scotland (and vice-versa).

2. The research strategy outlines 5 Research Themes. Is this an appropriate way of structuring our work?

Given the urgency for addressing the climate emergency and biodiversity crisis, as recognised by the Scottish Government, these threats should form an overarching framework for the Research Strategy recognising the need to address them in tandem through the utilisation of Nature-based Solutions. In this respect, we applaud the intention to set up a new Scottish Centre of Expertise in Biodiversity, and would recommend continuing strong support and expansion of the work of the Scottish ClimateXChange. We would like to see greater awareness raising of the work of ClimateXChangereach and links across sectors such as agriculture and industry.

The theme Human Impacts on the Environment is a cross-cutting theme which impacts many, if not all, of the other categories. This should be re-assessed and integrated into the Research Strategy structure.

It should also be recognised that farming and forestry produce more than food. They also contribute to the sustainable production of raw materials such as timber, wool and seaweed.

3. Do you think the research strategy will enable us to get the best research and scientific evidence from the best providers?

Yes. We welcome the emphasis on building strong relationships and connecting research with the wider Scottish and UK public sector, businesses, Scottish universities and the UK Research Councils.

While it is appropriate that most funding goes to the SEFARI network, the strategy should also recognise and support the value of research carried out by NGOs, citizen science, consultants producing Environmental Impact Assessments, industry and other bodies such as the Marine Planning Partnerships. Much valuable research information is produced outside the conventional research publication paradigm and a joined-up approach is needed to maximise the value of such studies, including promoting research protocols and quality assurance methods. In the Agricultural sector, there is also a long history of individual farmers carrying out experiments on their farms, often in advance of research institutes, and with greater promotion of protocols and quality assurance methods. This is something that could be more widely encouraged and may contribute to greater data collection needs, for example, in response to new global biodiversity targets.

Due to the recognition of the ongoing climate emergency and biodiversity crisis, there may be a need to re-evaluate the relative contributions to the component institutes of the SEFARI network to ensure adequate resourcing for research into natural capital approaches. The ecological sciences team at the James Hutton Institute (JHI) for example has suffered reductions in funding at a time when support should be increased. It must be recognised that some areas of research need a higher proportion of support than others due to availability of funding from other sources. Consideration should be made to whether contribution from industry could for example fund more of the crop research work undertaken at the Dundee site of JHI. Partnership approaches will also become more important to achieve shared goals.

Greater distinction between the workings of the Main Research Providers and the Centres of Expertise would also be welcomed, with clarity of governance and the inclusion of research expertise from other sources to be enhanced.

There is still a huge disconnect between research and industry, particularly relating to infrastructure. For example, a lot of management decisions on the ground are based on knowledge rather than scientific evidence, despite the growing amount of information produced by the research community. There is limited evaluation of what works and what does not, for example, the effectiveness of some mitigation measures is unknown. Efforts should be made to address this. We

would like to see more co-creation of research projects between industry and the main research providers. A potential way to advance these linkages is industry based [CASE PhD studentships](#). A greater awareness and provision of Level 6 and 7 apprenticeships is also needed, for example the [Level 7 Ecologist Apprenticeship](#) and the [Level 6 Environmental Practitioner Apprenticeship](#). Working with the UKRI funding bodies to increase the allocation of these available in Scotland would be beneficial.

On the ground action can also be influenced through changes in policy and legislation. There should be recognition of the need to connect research to decision-makers to ensure policies are evidence-led.

The relevance and functioning of each of the Centres of Expertise should be reviewed regularly and integrated into others where appropriate and where would provide beneficial outcomes, for example, the Centre of Expertise on Water could be integrated into the work of Centres of Expertise on Biodiversity and Climate Change. This is a good way of streamlining, avoiding duplication and keeping things up to date and relevant, especially where Centres have cross-cutting functions and interests.

4. Are the proposals for maximising impact appropriate?

Yes, we welcome the horizon scanning and link between science producers and users, however, these proposals lack detail. Science programmes are largely driven by scientists in a top-down approach and a greater focus on establishing what knowledge is needed by the presumed end-users is needed. There are good links between the farming community and its research network. However, this is less true in relation to decision-making by Local Authorities, for example, of their biodiversity duty. Examples of best practice should be supported and replicated throughout sectors to ensure effective direction of research and impact. As outlined above, we would like to see much greater co-creation of projects.

We very much support the work of the Centre for Knowledge Exchange. However, this work is an integral part of all research and, therefore, would be better and more efficient if integrated throughout, rather than a standalone body. There is a risk that with a separate body, opportunities may have been lost in earlier stages. Researchers have had to place greater emphasis on public engagement and knowledge exchange in funding proposals. However, this is often piecemeal and not properly supported by research organisations and universities. Therefore, the research is often not reaching the potential users of the information. The Centre for Knowledge Exchange should provide training on evidence synthesis and dissemination to researchers as well as reaching out to industry and more widely to assist in interpreting and utilising the results on research and evidence.

Systematic reviews such as that conducted by [Conservation Evidence](#) have tremendous value in providing an evidence-based framework to support decision-making. Although we should not replicate the work of the Conservation Evidence team, consideration should be given to where Scotland-relevant synthesis of evidence may be valuable.

5. Do you support the proposals on delivering our investment?

We are very concerned at the proposed movement away from long-term research to deliver the Responsive Research Fund (RRF). Supporting long-term, empirical research is a fundamental role of governments. It is essential that governments support the back-bone of long-term monitoring and research, particularly with the rapidly changing climate and environment. The closure of CEH Banchory and the change of emphasis in NERC has resulted in a real loss of long-term ecological research, much of which was not that costly but immensely valuable.

While the discontinuation of individual research projects that have ceased to deliver for the needs of a changing world and end-user community is necessary in managing budgets, there is a limit to the research value of short-term projects, where environmental variability and seasonal differences are marked (and increasingly so). It would be more appropriate to identify and support long-term strategic research, especially that of an empirical nature, where it is needed in discussion with end-users. Long-term strategic research from sources external to the SEFARI network should be supported where organisations are better placed to implement it.

As noted above, we fully support and welcome the creation of a new Centre for Biodiversity.

A lot of data is generated by a vast array of organisations. Greater emphasis should be placed on integrated open access data and data infrastructure/national hub as outlined in the [SBIF report](#). The SBIF report also recognises the limitations of current data collection methods, for example, confusion is caused by the range of routes to submit the National Biodiversity Network (NBN Atlas) and there is a lack of resourcing. There are also restrictions on the availability of data for commercial purposes from all NBN data contributors. Centralised provision of the kind that SBIF recommends would allow for developers to purchase and give appropriate source accreditation for data more readily.

There must be a move away from accessible to accessed research through research/practitioner exchanges. We also need to consider future changes in data generation and acquisition, for example: eDNA, remote sensors, Artificial Intelligence and crowd-sourced data, and how accessible this data will be to feed into Biodiversity Indicators in the future.

6. How do you think the Responsive Research Fund (RRF) should be developed and operated?

We recognise the need for a RRF, particularly highlighted by the events of Covid-19 and the ongoing need for adaptation. However, as discussed under Question 5, there is concern that the process of diverting funding away from long-term research to deliver short-term gains may negatively impact the research base.

The commitment to open competition is welcome, however, it should be recognised that institutions with reduced capacity to invest in high-quality bids are at a disadvantage. The RRF is designed to respond to new policy needs so it is important that those people who are closely involved in policy making are able to make their views known.

7. Do you support our aims in working collaboratively with other funding providers?

Working collaboratively with other funding providers whether in Scotland, the UK or elsewhere is welcomed and should be encouraged through the Strategy. A sustained effort for attracting international research support is needed and close links within the UK should be maintained. There is potentially a huge loss of funding as a result of Brexit for research organisations and NGOs that also carry out immensely important research.

8. Do you support the new structure for Governance set out within the strategy?

Yes, but it is currently unclear where the end-users, who are key in any assessment of impact, appear in the organogram. This should be amended in the final version of the strategy with a clear description of reporting mechanisms and how independent quality reviews will take place.

In relation to monitoring progress, measures of scientific excellence are important and appropriate, but need to be balanced against measures of actual impact. A piece of work may meet the highest scientific standards of excellence and be useful for developing the field of study but have had rather little impact on the relevant policy area. On the other hand, if all studies have a significant impact

then perhaps more radical or speculative ideas that might have had an even greater impact might have been filtered out.

As previously mentioned, clarity is needed on the relationship between the Centres of Expertise and the relationship with the work of SEFARI members.

9. Do you have any further comments or suggestions?

The Draft Strategy for Environment, Natural Resources and Agriculture Research 2022-2027 should recognise the interconnected nature of the climate emergency and biodiversity crisis, and seek to address them in tandem where possible. However, it must also recognise that, as the *State of Nature Scotland 2020 report (1994-2016)* shows, climate change is just one of nine main drivers acting on nature in Scotland. Biodiversity research must also focus on the other main drivers as outlined in the *WWF Living Planet Report 2020* and the *IPBES Report (2019)* to enhance resilience of ecosystems to climate change.

We are concerned that little is said about supporting the science research base within Scotland itself which should be a fundamental part of the Strategy. Maintaining a Scottish expertise relies on education, learning and support for Scottish researchers, in addition to the SEFARI network. A clear line to the development of new researchers and research capabilities is needed.

Respondents can also choose to respond on specific Research Themes or Topics within the strategy:

We have restricted our comments to Theme C and Theme D which most closely reflects CIEEM members' area of expertise.

Theme C - Human Impacts on the Environment.

As mentioned previously, this is a cross-cutting theme which impacts many, if not all of the other categories. Consideration should be given whether this should be integrated into the structure with emphasis placed on the dual climate and biodiversity crises. We agree that research on the climate emergency must connect with a range of other research on our land use and natural assets. This includes biodiversity, circular economy, rural economy, land-use, agriculture, natural capital, public health, flooding and soils.

We would like to see targeted research on the effectiveness of Nature-based Solutions for carbon sequestration and biodiversity and how Nature-based Solutions link with resilience and climate adaptation. Nature-based Solutions are often considered in rural areas but we also need further understanding of their implementation and effectiveness in urban environments. Integrated research should be conducted, resulting in management recommendations to increase ecosystem resilience to climate change (including for coastal systems) and the impact of transformative land use change and adaptation.

Understanding of species range shifts is crucial for species of conservation concern, for example, in determining what evidence there is for corridors for wildlife migration and interactions with land management. Equally important is the question of how climate change will influence the future establishment and spread of invasive non-native species (INNS) in Scotland. How do we consider species choice in landscaping going forward under a changing climate? This has links with plant health and disease resistance, for example, in the selection of tree species.

C6. Use of outdoors and green space

There is already a lot of expertise and research published on the needs outlined in this section, for example Scotland's People and Nature Survey¹ and the Greenspace Use and Attitude Survey 2017². Evidence of the value of nature and factors influencing people's attitudes to nature is increasingly important but is fairly well known.

Theme D - Natural Resources

D2. Water

We support many of the outlined areas of priority here. We would like to see much greater integration with land management and catchment-scale approaches. This is particularly important for INNS where there needs to be improved links and co-ordination due to the significant spread of INNS through water courses. There needs to be monitoring and evaluation of changing agricultural policies and practices at the catchment scale, potentially funded by new agri-environment schemes.

D3. Soils

Soils are integral to long-term sustainable food production and any changes in agriculture policy and reform must have this at its core. There should be analysis and improved spatial mapping of soil carbon sequestration potential and carbon loss risk tied into land management and potential changes in land use, for example afforestation. A useful output would be an assessment of techniques to conserve soil carbon in agriculture and forestry and updated guidance on land management for carbon rich and non-peat soils.

D4. Biodiversity

We are pleased to see the aims:

- Evidence-based solutions that enhance nature and biodiversity, across a range of policies, practice and scales (including green infrastructure, farming, protected areas, habitat connectivity and ancient woodland restoration) while recognising the connections to other sectors. The role of Biodiversity Net Gain as an approach should be assessed here.
- Enhance our evidence base of effective conservation action, to recognise which interventions are working and why.

Going forward we should be assessing and understanding biodiversity at the landscape-scale, including the efficacy of habitat restoration/conservation measures and changes in land use policy across landscapes.

Co-creation of projects by researchers and practitioners would enhance the objective evidence for standard conservation management practices (such as rope bridges, amphibian ramps etc.). Research on successes and failures of mitigation measures for biodiversity implemented through development is essential and will ultimately save costs generated from the implementation of ineffective measures.

There is also a need for consideration of the balance of rural and urban research, and greater awareness of biodiversity needs and opportunities in urban areas. A significant opportunity is presented by the development of National Planning Framework 4 and its key themes of Net-Zero

¹ <https://www.nature.scot/scotlands-people-and-nature-survey-participation-outdoor-recreation>

² https://drive.google.com/file/d/1x_GfzPxFf059X-3Imz20Mj51EHCoN8F6/view

Emissions, A Wellbeing Economy, Resilient Communities and Better, Greener Places³, which recognise the need for planning and urban areas to address the climate emergency and biodiversity crisis.

A lot of money and effort is spent on invasive species control which is often not the most efficient use of time and funding. Research is needed on the effectiveness of control measures, alternative approaches and restoration following INNS removal. Research should seek to understand the life cycle of INNS to target the control at the stage with the most impact.

³ <https://www.gov.scot/publications/scotlands-fourth-national-planning-framework-position-statement/pages/3/>