HIGHLANDS™ REWILDING

Scotland's Biodiversity Strategy Consultation Response

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The evidence of Biodiversity Loss

Using your own knowledge and the evidence presented, to what extent do you agree that there is a nature crisis in Scotland? Why do you think that?

We would prefer that reference be made to "existential threat" when describing the twin crises of climate meltdown and biodiversity collapse. Without the urgent transformative change called for by UK and Scottish Governments, the huge existing losses of biodiversity will become far worse as the impacts of climate change grow. For example, as things stand, we are on track to see our forests and bogs burn nationwide and our ability to feed ourselves diminish. We cannot expect social cohesion to hold up under these kinds of stresses. The crisis is existential.

The draft strategy does a good job of summarising the basis for such a conclusion. Of course, there is much, much more in the scientific journals, popular and specialist. One piece of evidence worth mentioning specifically is the demonstrable decline in insects over time, including pollinators. For example, one piece of recent research has shown that the number of flying insects in the UK as a whole has declined by 60% between 2004 and 2021 (Ball *et al.*, 2021). In Scotland alone, this decline is comparably smaller (28%) – but still this is an extremely alarming decline, given that insects and pollinators are fundamental components of our environments and rural economies. This "insectocalypse" argument is particularly difficult for obdurate contrarians to obfuscate their way out of, and is indicative of broader declines in biodiversity that threaten our way of life. Most of Scotland is already estimated to have levels of 'biodiversity intactness' so low that "ecosystems may no longer reliably meet society's needs" (Hayhow *et al.*, 2016).

The scale of recent losses, as quoted in the introductory text, itself demonstrates a crisis – not only in the extraordinarily rapid decline in Scotland's biodiversity, but also in the challenge this poses for the biodiversity strategy. Biodiversity losses are so large and rapid that they may indicate a global mass extinction event (Cowie *et al.*, 2022); turning around trends of this strength will require radical action, especially when the impacts of accelerating climate change are considered.

What do you see as the key challenges and opportunities of tackling both the climate and biodiversity crises at the same time?

The challenges centre on the main incumbencies, in fossil-fuels and land use. The coal, oil and gas industries have shown themselves capable of ruinous behaviour in defending their practices and products, despite all evidence of the harm they cause. They must be stopped: mainly by government and civil action, and by direct replacement of their products with climate-friendly alternatives. The land-use incumbency is proving, in our view, much more willing than the fossil-fuel incumbency to shift modalities in the face of emerging evidence of the harm many of their past practices have had.

Even when such barriers are overcome, great challenges remain in tackling two existential and linked crises at the same time. It is essential that responses to each are timely, effective, and complementary, with little room for mistakes or contradictory actions in different policy areas (such as exploiting North Sea fossil fuel reserves while attempting to restore climate-vulnerable peatlands for carbon sequestration; Ferretto *et al.*, 2019). Achieving this means addressing these existential challenges with the urgency they require, as Government did when the Covid pandemic began, and is doing again as energy prices rise.

Fortunately, the potential for climate change mitigation and biodiversity conservation to work together and provide benefits across other policy areas is an increasing subject of research. It is essential that this research is considered in policy formulation to properly assess costs and identify 'win-wins' (Karlsson *et al.*, 2020). For instance, research has shown that a combined strategy to protect areas with high carbon stocks and biodiversity in the UK would be at least 90% as effective as strategies focusing only on one or the other (Thomas *et al.*, 2013). It is well established that natural systems (such as peatbogs) are very significant tools in climate mitigation, while also being crucial to biodiversity (e.g. Leifeld & Menichetti, 2018; Dinsa & Gemeda, 2019). Improving environmental health also allows these systems and the species within them to adapt to climate change, and so to continue to provide these benefits. Additionally, many of the best sites for carbon and biodiversity are within the least productive 10% of our agricultural areas, on which less than 1% of our calories are produced (National Food Strategy, 2021). There is also strong evidence for specific actions to maximise co-benefits: reducing degradation of existing forests; restoring wetlands and peatlands; rewilding, restoration and reforestation; and moves towards 'regenerative' agricultural practices (Smith *et al.* 2022).

While these approaches inevitably involve some trade-offs, it would be a mistake to assume that socio-economic impacts are negative. In fact, tackling biodiversity loss and climate change is likely to present major opportunities for socio-economic benefit. In Scotland, this can involve redressing the iniquitous balance of power over land, restoring local communities and 'repeopling' the Highlands. Future harm can also be insured against, because healthier ecosystems will help us to adapt to the climate change we have already caused (Ripple *et al.*, 2022). Finally, these actions will enable us to re-establish connections to nature and improve our physical and mental health standards; an urgent priority for a country with some of the worst levels of nature connectedness, health inequality and health outcomes in Europe (Richardson *et al.*, 2022, Scottish Government 2020).

Highlands Rewilding will be doing all it can to help make these crucial co-benefits happen and will endeavour to help in two main ways. First, in managing our own land for carbon and biodiversity uplift, and aiming to make an ethical profit in the process, we intend to help demonstrate that the system change needed in land management can lead to a new prosperity for all landowners. Second, by turning our land into a world class open laboratory for natural-capital verification science, we aim to help make the new natural-capital economy more investable, and more quickly so.

These opportunities, if pursued by a critical mass of Scottish actors in addition to Highlands Rewilding, can sum to a major holistic opportunity for the Scottish government **to lead the world in fashioning natural-capital-based economies.** Scotland has the land and the domestic talent base, both in her businesses and universities, to do this.

One specific opportunity that particular excites us is in the use of data. In the pursuit of biodiversity uplift, vast amounts of natural-capital data will be generated by satellites, drone-based sensors, ground-based sensors, eDNA analysis, and observational work by ecologists. With AI and machine learning, there will be major scope both to verify carbon- and biodiversity uplifts to Triple A grade, but also to mine efficiencies and cost reductions in data gathering. Highlands Rewilding aspires to lead the way in this field, and to provide such a unique service for fellow landowners - whether private individuals or communities - that we are called upon, alone or more likely with partners, to help in other countries. In this way we hope to lead the way in creating a new Scottish export category in natural-capital services.

One further opportunity is through better engagement of communities. The strategy currently gives evidence from RSPB's research that four out of five UK children are not connected to nature but nine out of 10 UK adults would like children to learn about wildlife. To tackle the current existential threat a step change is needed in the way we live and this can only be achieved through outreach and education. Highlands Rewilding is ideally placed to do just this and we are already making connections with local communities and schools. If such approaches were mirrored nationwide, there may be a chance to make the changes needed.

Strategic Vision – Framing and Context

Draft Vision

By 2045 we will have substantially restored and regenerated biodiversity across our land, freshwater and seas.

Our natural environment of plants, animals, insects, aquatic life and other species will be richly diverse, thriving, resilient and adapting to climate change.

Everyone will understand the benefits from and importance of biodiversity and will play their role in the stewardship of nature in Scotland for future generations.

Is the draft vision clear enough?

The draft vision has clear intent, but is unclear in its wording, leaving it very much open to interpretation and making progress towards it hard to judge. We would encourage reference to quantitative targets and drivers of biodiversity loss, and explicit definition of subjective terms within the strategy. To some extent the vision appears designed to be unverifiable (e.g. "thriving", "Everyone will understand…"), which is worrying given the crucial importance of this strategy. The scale of the challenge requires a bold but concrete vision that government fully intends to meet, which the draft vision does not appear to be. Finally, we note the laudable references in the vision to biodiversity, species and people, but the absence of reference to ecosystems. We strongly suggest that healthy, functioning ecosystems (for which the Government has already defined indicators) should be a key priority, as the basis for the aims currently contained in the vision.

Is the draft vision ambitious enough?

The draft vision is ambitious and does imply a transformation of our relationship with nature. However, it uses vague language that could be taken to suggest a lack of concrete ambition. Furthermore, it covers a 23-year timespan that will inevitably see major changes in Scotland's natural environments, and so requires short-term ambition to be greater and more prominent. If some level of biodiversity recovery is to be achieved, dramatic changes in our impacts on Scotland's ecosystems are an urgent priority.

We suggest greater prominence for the Milestone of reversing biodiversity loss by 2030 – this is the more immediate, necessary and concrete objective. We also suggest, as above, inclusion of ecosystem health and functioning as a near-term prerequisite for the vision, and one that requires restoration of natural processes across spatial scales.

Do you have any suggestions for a short strategic vision which would form the title for the strategy?

Restore and regenerate our natural environment to provide resilience into the future, for everyone's benefit.

How Will We Know When We Have Succeeded?

Scotland's Rural Environment – Farmland, Woodlands and Forestry, Soils and Uplands

Do the 2045 outcome statements adequately capture the change we need to see?

No, they are too vague and weak in places. For farmland, it is important to be clear about how practices will have changed; the 2030 milestones actually contain more detail and ambition on this. And a definition for high quality food production would be helpful; this implies (reassuringly) that production volume is not the main target, and so there is scope for incorporating less intensive agricultural practices. Restoration of degraded ecosystems deserves a point in itself. Deer range and grouse moor management are central, as indicated in the text, to determining upland outcomes. They must therefore do more than 'contribute' to undefined 'high standards of sustainable land use'. They need to be actively, and urgently, fostering the restoration of species and habitats if the vision is to be achieved. To encourage land managers to take up these forms of management (which do represent a genuinely substantial and difficult change for many), the strategy could take this opportunity to clarify that there will be commensurate financial incentives.

Are the 2030 milestones ambitious enough? Are we missing any key elements?

In many ways yes, these are suitably ambitious. Key elements that are missing include targeted milestones for habitat connectivity, small-scale diversity, specific actions for keystone/threatened species and species movements to track the changing climate. Particularly important are concerted efforts to restore viable populations of threatened or extinct species that play disproportionate roles in increasing levels of biodiversity; the beaver is perhaps the best example of this.

As well as ensuring connectivity and landscape scale restoration it would be good to see binding commitments to effectively protect areas of land. It has been found that while 28% of UK land is recorded as 'protected', less than 5% is actually effectively protected for nature, with many protected areas in Scotland being ineffective and in unfavourable condition (Starnes *et al*., 2021). Properly protected

areas (in the sense that biodiversity outcomes are prioritised, not that they are necessarily exclusive of other objectives) are a key tool for biodiversity recovery and strengthening them should be one of the first targets for the strategy.

On the specific milestones, the decline of biodiversity on farmland has been precipitous in recent decades, in Scotland as elsewhere in Europe. At the same time, agri-environment schemes of various kinds have not have their intended effects, despite costing a great deal of public money (e.g. Brown *et al.*, 2021; Daskalova *et al.*, 2019). It is important here to focus on the drivers of loss rather than application of untested solutions – these drivers are, in particular, intensification of management and loss of habitats. In the Scottish context, grazing pressure has been a major form of intensification in upland areas, which needs to be reversed. It would be inappropriate to spend more public money on a 'reformed agricultural subsidy scheme' that does not engage directly with these drivers. It may also help here to define what 'high-quality food production' is used to mean – Scotland has a real opportunity to prioritise food that is good for human health and the environment, as the low levels of agricultural productivity in much of the country make maximising output less of a priority. Given this, any new subsidy scheme should strongly reward the essential contributions to biodiversity recovery and climate change mitigation that land management can make.

What are the key drivers of biodiversity loss in this outcome area?

These drivers are well-established. The increasing intensity with which farmland is managed has had extremely detrimental effects on biodiversity. The strategy states that 70% of Scotland is solely or partially managed for agriculture and so it follows that this intensification (increased chemical inputs, overgrazing, loss of flower rich pasture) is a key driver of biodiversity loss. However, a relatively small proportion of land in Scotland (10%) is arable, while pasture accounts for 20%. This means that the remaining 40% of agricultural land is rough grazing – which, as the strategy states, is predominantly grouse moor and deer estate management. This is a vast area of land (approximately 3.6 million hectares according to the 2018 Scottish Agricultural Census), which is currently being managed for a limited number of species. The current extremely high densities of deer are well known to be supressing tree growth and natural regeneration (e.g. NatureScot, 2019), which has knock-on effects for the myriad other species dependent on less-impacted habitats. Sustained overgrazing can maintain vegetation in a depauperized state (eg. Pendergast *et al.*, 2016; Siero *et al.*, 2019), which means that losses can be (and have been) very large and extensive and not recoverable in small steps.

The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) authoritative report on Land Degradation and Restoration makes clear in its Foreword that "the unsustainable management of croplands and grazing lands is currently the most extensive direct driver of land degradation", and one that is not adequately addressed by "reactive and fragmented" policies

that "fail to address the ultimate causes of land degradation." This reiterates the need not only for recognition of these drivers in Scotland, but also for the biodiversity strategy to engage directly with them and not only with the levels of biodiversity that they dictate. The same logic also requires direct engagement with the financial drivers of biodiversity loss, which far outweigh the financial resources dedicated to biodiversity recovery in the public and private sectors (Dempsey et al. 2022).

What are the key opportunities for this outcome area?

The two sections in the strategy previously mentioned ('Towards a nature-rich landscape in the lowlands' & 'Towards a nature-rich landscape in the uplands') are good summaries of the opportunities that exist to restore biodiversity in this outcome area. We believe a greater emphasis should be placed on how land managers can achieve these changes.

There is also an opportunity for Scotland to pioneer new methods and markets for nature restoration. As one of the world's most nature-depleted countries (Hayhow *et al.*, 2016), but one with great capacity for research and innovation, Scotland could lead approaches that would have enormous potential elsewhere. These could develop traditional land management approaches that provide provisioning services including food alongside a wide range of other ecosystem services, as well as a strategic balance of land use for human benefit and for nature recovery. Developing well-designed and regulated carbon and biodiversity credit systems would help, opening up new opportunities for environmentally-beneficial forms of management. Finally, existing products such as wild venison could be re-purposed as cheap, sustainable and local sources of food, supporting upland management as well as healthy food provision.

What are the key challenges for this outcome area?

A key challenge is that changing land management to the extent required is a substantial, qualitative break from management trends of recent decades. This involves considerable uncertainty for established businesses and communities, and people's attitude to the land and how it should look. Perceptions have changed greatly – in farmland as well as in open uplands – over the last couple of generations as to how 'the countryside' ought to look. Creating awareness about these shifting baselines and showcasing best practise examples of how things could be will be essential here, as will providing well-grounded new possibilities for land-based businesses that motivate rather than impose the changes required.

The Conditions for Success

Have we captured the key enabling factors which are essential in order for our strategy to be successful?

Yes, we feel that this section of the strategy is the most comprehensive but still lacking in detail as to how each outcome will be achieved. It has become well established that mainstreaming biodiversity into the plans, strategies and policies of different economic sectors is key to reversing biodiversity declines (eg. Whitehorn *et al.*, 2019). This mainstreaming is mentioned in the strategy but more detail is needed as to how biodiversity can be successfully integrated in the policies of the forestry, fisheries, tourism and agriculture sectors, as well as the energy, infrastructure, manufacturing and processing sectors. It is also really important here to avoid a false dichotomy between biodiversity recovery and production of energy and food.

Are there good examples of enabling conditions in other strategies we could learn from?

Positive biodiversity strategy stories can be found in South Africa & Costa Rica (Huntley, 2014), which have been helped by the extremely high levels of biodiversity in each country - despite high levels of threat, it has led to high interest and support from donors. This financial support has been further assisted by the democratic and transparent governance systems that provide security and longevity to mainstreaming investments. This demonstrates how mainstreaming strategies need to be accompanied by nature protection policies and political support to be truly effective.

Another success story comes from the global fisheries sector (Friedman *et al.*, 2018), where it has been found that the 'architecture for the mainstreaming of biodiversity' has developed considerably over the last two decades across international, national and regional frameworks. This has developed because of strengthened communication and discovered common ground between the fisheries and biodiversity conservation communities. Improved communication is essential to enable cross-sectoral institutional collaborations on policies and actions.

Can you set out how you think any of the proposals set out in the consultation might help to eliminate discrimination, advance equality of opportunity and foster good relations?

Can you provide any evidence which informed your conclusions?

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