Scottish Environment LINK

Scottish Climate Change Adaptation Programme - Wildlife

Purpose of this briefing

This LINK briefing from the Climate Adaptation Taskforce (CATF) is intended as a resource and reference to be used by LINK colleagues for information regarding Scottish Government policies relating to adaptation of interest to specific taskforce sectors. **Please note this briefing does not include any analysis of the specific adaptation policies**, although the CATF general concerns are detailed below, alongside links to our previous consultation response. The full Adaptation Programme can be viewed here: http://www.scotland.gov.uk/Resource/0045/00451392.pdf

Scottish Climate Change Adaptation Programme (SAP) background

Climate change impacts are being felt now in Scotland, particularly in the natural environment. Scotland needs to act urgently to address the consequences and impacts of our changing climate. Scotland must reduce GHG emissions but also adapt how we run our economy, our society and how we look after our environment. Adaptation is the term used to describe our responses to a changing climate and its impacts – including building resilience. Adaptation is inevitable – the important thing is to plan early and to do it in the right way. With the publication of the SAP, it's essential that climate adaptation becomes a higher priority within Government - **building the resilience of Scotland's environment to climate change must be a priority at a time when our natural resource base needs to be valued as an important asset.**

The Climate Change (Scotland) Act 2009[1] requires Government to lay before the Scottish Parliament '*programmes for adaptation to climate change*'. The Scottish Government has developed measures based on risks identified for Scotland in the UK Climate Change Risk Assessment (CCRA) 2012. The CCRA is however limited and does not adequately cover some impacts, such as sea-level rise or extreme weather events. Publication of the first Scottish Climate Change Adaptation Programme brings into force the adaptation requirement of the public bodies climate change duties, which requires that a public body must, in exercising its functions, act in the way best calculated to help deliver the Programme.

The programme contains an overall **Aim** – to increase the resilience of Scotland's people, environment and economy to the impacts of a changing climate. Within this are three **Themes** and relevant **Objectives** for the long-term (up to 2050), to facilitate achieving the Aim:

Natural Environment	**Buildings and Infrastructure**	**Society**
Outcome: productive, healthy, diverse natural environment able to adapt to change	*Outcome: well-managed, resilient infrastructure and buildings providing access to amenities and services needed*	*Outcome: strong, healthy, resilient communities which are well informed and prepared for changing climate*
N1: understand effects of climate change and impacts on the natural environment	B1: understand effects of climate change and impacts on buildings and infrastructure	S1: understand effects of climate change and impacts on people, homes and communities
N2: support a healthy and diverse natural environment with capacity to adapt	B2: provide knowledge, skills and tools to manage climate change impacts on buildings and infrastructure	S2: increase awareness of impacts of climate change to enable people to future extreme weather events
N3: sustain and enhance the benefits, goods and services the natural environment provides	B3: increase resilience of buildings and infrastructure to sustain and enhance benefits and services	S3: support health and emergency services to respond effectively to increased CC pressures

1 http://www.legislation.gov.uk/asp/2009/12/part/5/chapter/1

LINK'S general concerns with SAP

Some of our initial main concerns that the SAP contains few *new* policies or *new* resources and funding still stand - it is predominantly a collection of existing policies collected together to address the risks highlighted by the UKCCRA. In general there are also no specific **targets** and **timescales** attached to the programme, making progress difficult to assess. The CATF principle concerns are detailed below and our consultation response can be viewed here - many of our comments still apply: http://www.scotlink.org/files/policy/ConsultationResponses/LINKResponseDraftSCCAP13.pdf

- **Ecosystem approach:** We welcome that the SAP recognises that the natural environment provides benefits to Scotland in terms of resilience to climate change. However, we believe an ecosystem approach of 'working with nature' should be central to the SAP to; avoid maladaptation, ensure appropriate scale of action and provide a sustainable flow of benefits from ecosystems, such as flood attenuation (LINK Consultation: Section 1a/2a)
- **Greater clarity**: We welcome the long list of policies in the SAP, however, too many are vague, lack sufficient detail, and fail to outline the actions to be taken. This makes it difficult to confidently assess whether the SAP Objectives will be met. We recommend effort to further develop the policies (LINK Consultation: Section 2b/d).
- **Implementing existing legislation:** Whilst the SAP does include existing policies to improve the natural environment, LINK wants to see the SAP emphasise the need to fully implement all existing environmental legislation. Improving our environment will increase the resilience of the natural environment, society and economy to climate change impact (LINK Consultation: Section 2c).
- **Demonstrating action:** We welcome efforts to embed adaptation across Government but it is vital that adaptation is embedded throughout wider society too. Demonstration projects and an effective communication strategy must be included in the SAP to allow wider society to understand the need for effective adaptation and ensure appropriate adaptation action (LINK Consultation: Section 5b).

Major climate impacts on wildlife in Scotland

The health of our natural environment
Climate change may affect the delicate balance of Scotland's ecosystems and transform Scotland's habitats and biodiversity, adding to existing pressures. Some distinctive Scottish species may struggle and could be lost, invasive non-native species may thrive, while a degraded environment may not be able to sustain productive land or water supply.

The occurrence of pests and disease
As our climate changes, it will create new conditions that may allow existing pests and disease to spread and new threats to become established in Scotland. This may impact on the health of our people, animals, plants and ecosystems if risks are not properly managed.

The quality of our soils
We rely on soils to sustain biodiversity, support agriculture and forestry, regulate the water cycle and store carbon. Soils also have an historic environment value, as a proxy record of environmental change and for the preservation of archaeological deposits and artefacts. Soils and vegetation may be altered by changes to rainfall patterns and increased temperatures - as well as the way we use the land.

The availability and quality of water
As our climate warms and rainfall patterns change, there may be increased competition for water between households, agriculture, industry and the needs of the natural environment. Summer droughts may become more frequent and more severe causing problems for water quality and supply.

Registered HQ office: 2 Grosvenor House, Shore Road, Perth PH2 8BD tel 01738 630804 email enquiries@scotlink.org
Parliamentary office: 3rd Floor, Gladstone's Land, 483 Lawnmarket, Edinburgh EH1 2NT tel 0131 225 4345 email parliamentary@scotlink.org

The increased risk of flooding
Flooding can already have a devastating effect on those affected. With climate change likely to alter rainfall patterns and bring more heavy downpours, we expect flood risk to increase in the future. This could impact on properties and infrastructure – with serious consequences for our people, heritage, businesses and communities.

Biodiversity and Ecosystems
Changes to soil biodiversity and function brought about by the changing climate could have severe implications for the wider ecosystem – reducing its ability to provide nutrients and water to sustain plant growth, and therefore leading to a decline in biodiversity and ecosystem function. In addition, an increase in flooding and erosion is likely to affect water quality, as potential pollutants, such as sediment and nutrients, are transported into water courses.

The pattern of land use may also change, for example the expansion of land used for agriculture – and potential displacement of other land uses to new areas – could have a potentially negative impact on biodiversity. Efforts to increase agricultural yields could have damaging effects on soils, contributing to ecosystem degradation.

Increased demand for water by the agricultural sector may lead to over abstraction – reducing water flow and quality which is detrimental to habitats. Drying of soils and peat bogs could limit their ability to regulate and purify water, leading to a decline in water quality.

Our ecosystems could also be disrupted by invasive non-native species, pests and diseases, with species being displaced or even becoming locally extinct. Warmer temperatures may also cause species to move north or higher up hills to follow their preferred 'climate space'.

This all points to the need to maintain and enhance our ecosystems so that they are more resilient to the pressures of a changing climate and more able to withstand both extreme events and long term change. A healthy ecosystem will be able to adapt over time whilst still maintaining its core functions and thus continuing to provide the ecosystem services we need.

Areas of the SAP relevant to the Wildlife Taskforce

Relevant sections of the Programme are reproduced, verbatim, below. SAP references are included and, where applicable, the LINK consultation response references.

Role of Scottish Government
It is vital that the Scottish Government provides clear leadership in promoting a sustainable approach to climate change adaptation (p24).

What's already being done
The below sets out what is already being done to achieve the natural environment objectives in relation to impacts on wildlife:

Policy: **Increase understanding of the implications of climate change for nature** through data gathering, analysis and research.
How it will deliver: Continuing research and data gathering is needed to detect, quantify and understand the impacts of climate change on nature to inform adaptation policy and management (N1-2, p45).

Policy: **Supporting citizen science and voluntary environmental monitoring**.
How it will deliver: Biological records are a powerful tool in assessing the impact of climate change and are highly valued by research scientists. The results inform us of how climate change is

affecting the natural cycle. Citizen science also helps encourage an interest and responsibility for the natural environment (N1-9, p48; LINK 1).

Policy: Manage and monitor changes to Scotland's transport infrastructure environment to **detect impacts and changes on biodiversity** and vegetation growing cycles through:
• Transport Scotland Biodiversity action plan;
• Transport Scotland Cost Effective Landscaping, and;
• Network Rail Standard - Management of Lineside Vegetation.
How it will deliver: Use transport network auditing regimes under these policies to monitor new biodiversity impacts and detectable alterations in vegetation growing season cycles (N1-13, p49).

Policy: The **Scottish Planning Policy** includes green networks, green space, street trees and other vegetation, green roofs, wetlands and other water features, and coastal habitats in helping Scotland to mitigate and adapt to climate change.
How it will deliver: Green infrastructure can help nature to adapt to climate change by strengthening habitat networks, reducing habitat fragmentation and providing opportunities for species to migrate. It also helps people to adapt by providing other benefits like sustainable drainage, flood alleviation, coast protection, cooling in urban areas, and places for people to walk and cycle (N2-2, p50).

Policy: **Demonstrate adaptive management in National Nature Reserves** to help explain the implications of climate change for nature and demonstrate management that takes account of these implications.
How it will deliver: This work will contribute to adaptation by raising awareness and understanding amongst managers of protected sites and wider land (N2-3, p50).

Policy: **Manage designated sites** for land based biodiversity.
How it will deliver: Identify the consequences of climate change for protected places and the Natura network and put in place adaptive measures (N2-4, p50; LINK 2c).

Policy: **Pilot the use of the Scottish Natural Heritage (SNH) Wildlife Management Framework** to integrate climate change risks into wildlife management decisions (including deer). The Framework includes questions around the impact of management actions on the ability of the species to adapt to climate change and on woodland expansion. It will be tested within SNH and then rolled out for use by others, including land managers.
How it will deliver: This is a tool to support decisions around wildlife management issues such as controlling non-native species, managing conflicts between species, or ensuring sustainable use of species as a resource for food or sport. This should help make such decisions more robust in the face of climate change, and so contribute to adaptation (N2-5, p50).

Policy: **Develop the ecosystem approach** into a usable set of tools for use by decision makers including through the Scottish Biodiversity Strategy 2020 Challenge, and the Land Use Strategy.
How it will deliver: The ecosystems approach promotes a holistic approach to land management which will help to build resilience to climate change and ensure that wider benefits from nature are taken into account in decisions (N2-6, p51).

Policy: **Reduce the pressure on ecosystems from invasive non-native species (INNS).**
How it will deliver: A co-ordinated approach will be used for managing non-native species, using new regulatory powers under the WANE Act and more accessible advice and promotion to support the Code of Practice, will help build resilience to climate impacts. Priority will be given to preventing the establishment and spread of INNS but priorities will also be developed for restoring ecosystems degraded by INNS where it is feasible and appropriate to do so. This approach will help to enhance the resilience of ecosystems by reducing the pressure from INNS (N2-7, p51).

Registered HQ office: 2 Grosvenor House, Shore Road, Perth PH2 8BD tel 01738 630804 email enquiries@scotlink.org
Parliamentary office: 3rd Floor, Gladstone's Land, 483 Lawnmarket, Edinburgh EH1 2NT tel 0131 225 4345 email parliamentary@scotlink.org

Policy: **Implement the Scottish Biodiversity Strategy** which promotes action to enhance the health & resilience of the terrestrial and marine environments, and the benefits they provide to people, taking account of climate risk & principles for helping nature adapt.
How it will deliver: Climate risk is fully integrated into the Scottish Biodiversity Strategy. Research under the strategy will contribute knowledge regarding the priority risks for biodiversity that need to be managed (N2-9, p52; LINK 2c).

Policy: **Embed climate change adaptation** considerations, and potential responses such as habitat networks and green networks, into wider land use planning decisions through the use of Forestry and Woodland Strategies, regional land use strategies, and Strategic and Local Development Plans and development master-plans.
How it will deliver: Habitat Network information will be used to inform land use plans so that the creation and management of woodland and other habitats can be targeted to further strengthen these networks and increase their resilience to climate impacts (N2-11, p52; LINK 2c).

Policy: **Improve the condition and connectivity of native woodlands**; promote natural regeneration as a means of increasing resilience to climate change, and take other steps to increase adaptive capacity in woodlands.
How it will deliver: More native woodlands in favourable condition will increase their capacity to adapt to climate impacts (N2-12, p53; LINK 2c).

Policy: **Assess and manage coasts, promoting adaptive coastal management that works with natural processes**.
How it will deliver: Implementing the Scottish Biodiversity Strategy by addressing the risks to species and habitats due to coastal evolution. Identify locations where habitats are most vulnerable to coastal erosion and sea level rise (N2-20, p55; LINK 2c).

Research
The Scottish Government is funding research into the resilience of Scotland's biodiversity to climate change and land-use change:

- Assessment of the roles of biodiversity in ecosystem function, to inform our understanding of the place of biodiversity within The Ecosystem Approach.
- Identification of the interactions between the changing climate and Scotland's species, habitats and ecosystems, including the main risks to Scotland's biodiversity which need to be managed, and the main contributions of Scotland's biodiversity to mitigation and adaptation to climate change.
- Identification of the potential consequences of land use changes for Scotland's biodiversity.
- Measurement and prediction of the responses of selected species, habitats and ecosystems to changes in the climate and in land use.
- Identification and development of management strategies and practices to address anticipated impacts and increase the resilience of Scotland's biodiversity to climate change and land use change (p62).

Proposals - potential new policies
There are currently only 3 'natural environment' proposals detailed which may become policies if needed during the lifetime of the SAP, 2 of which are relevant to this sector:

1) Establishment of a co-ordinated Energy Sector Climate Change impacts research programme which would consider the impacts of changing energy generation on biodiversity and ecosystem services.

2) Encourage the consideration of climate change impacts (and how they will be addressed) in Forest Plans, and support this with grants and regulations so as to ensure that forest plans support ecosystems and habitat resilience and allow resilience- building measures to

be trialled by forest managers. This will be important in ensuring that forest plans support ecosystem and habitat resilience.

UK Climate Change Risk Assessment

There are several specific UKCCRA wildlife impacts not being addressed by this Programme (technical annex p105):

Risk Not Addressed	**Reason for Exclusion**
Breeding habits/reproductive nature of species	Low risk for Scotland – defer to future Programmes.
Biodiversity risks due to warmer rivers and lakes	This is a prediction rather than a risk.
Asynchrony between species breeding cycle and food supply	Too uncertain - await second UKCCRA to establish if evidence base has improved.
Priority habitats lost due to coastal erosion	Low risk - approximately 70% of Scotland's coastline is classified as hard.

However, risks that are not considered an issue now in Scotland may become problems in the future, one reason why LINK called for the SAP to set a long-term direction (LINK Consultation[2] Section 2). There may also be other potential climate change risks to your sector that are not addressed on top of the above, especially those not identified in the UKCC Risk Assessment. Of those risks that are addressed in the programme, many may be inadequately dealt with.

[2] http://www.scotlink.org/files/policy/ConsultationResponses/LINKResponseDraftSCCAP13.pdf

Registered HQ office: 2 Grosvenor House, Shore Road, Perth PH2 8BD tel 01738 630804 email enquiries@scotlink.org
Parliamentary office: 3rd Floor, Gladstone's Land, 483 Lawnmarket, Edinburgh EH1 2NT tel 0131 225 4345 email parliamentary@scotlink.org