



Preparing Scotland's Environment for a Changing Climate

**A report of the LINK Climate Adaptation Workshop
4th September 2012, Edinburgh.**

**Prepared for Scottish Environment LINK
by Simon Pepper**

Contents

Executive Summary	3
1. Introduction.....	4
2. Link’s Adaptation Principles and Guidelines.....	5
3. General Points about the Adaptation Programme.....	6
4. Adaptation Initiatives Required	6
5. Comments on Selected Sector Plans.....	7
5.1. Marine	7
5.2. Forestry	8
5.3. Water Environment.....	9
5.4. Agriculture.....	11
5.5. Biodiversity and Ecosystem Services	12
6. Conclusions.....	13
Annex.....	14

Executive Summary

- Scotland's wildlife and natural environment are already experiencing the impacts of a changing climate. Society relies on the natural environment for a huge number of valuable services but these are threatened by many existing pressures which are exacerbated by climate change.
- It is essential that Scotland's Adaptation Programme addresses all the identified risks and threats posed by climate change and is given sufficient resources to fully deliver the required measures.
- In order to help the natural environment adapt to a changing climate LINK believes that the Adaptation Programme must address the following priorities:
 - Current biodiversity monitoring programmes are inadequate for the new challenges presented by climate change; investment in environmental monitoring should be increased, coordination managed and scope extended;
 - The conservation status of existing sites and systems of national and international importance for biodiversity must be optimised;
 - Urgent implementation and practical delivery of existing environmental policies is needed to reduce pressures on the natural environment other than from the climate;
 - Landscape-scale projects are needed, particularly to explore application of the ecosystems approach, and the enhancement of ecosystem resilience;
 - Consideration for the natural environment must be actively embraced and reflected in the Adaptation Programme through integration of biodiversity considerations across all sectors;
 - Routine 'climate-proofing' of all policies (with respect to both adaptation and mitigation) as they are reviewed, taking account of new knowledge;
 - Timely and full implementation of Marine Act specifically the urgent implementation of a coherent network of Marine Protected Areas and a strong, directive National Marine Plan taking an ecosystem approach
 - Action to increase the area and connectivity of habitat types, e.g. native woodland, through a Habitat Network Approach with the aim of increasing resilience and adaptive capacity of ecosystems.
 - Existing plans and policies relating to the water environment must be 'climate proofed', developed and solutions tested through a coordinated suite of pilot projects.
 - A greater focus in the agriculture sector on adapting to impacts of climate change in the farmed environment and promoting measures to help it adapt to climate change within the Scottish Rural Development Programme (SRDP) and by greening Pillar 1 of the CAP.

1. Introduction

Scottish Environment LINK is the forum for Scotland's voluntary environment organisations. With over 30 member bodies it represents a wide range of environmental interests with the common goal of contributing to a more environmentally sustainable society.

LINK's Climate Adaptation Task Force comprises a number of LINK members committed to working on climate adaptation issues. The vision of the Taskforce is that '**The natural environment is enabled to adapt to the impacts of climate change**'. The Task Force works to influence the policies and work of Government, Statutory Agencies and other organisations to ensure this vision is realised.

The natural environment and climate change

Wildlife and the natural environment are on the frontline of climate change. Scotland's unique wildlife and ecosystems – crucial to Scotland's prosperity and the wellbeing of its people – are already seeing the impacts of climate change. Whilst human beings are able to respond and adapt, the natural environment is unlikely to be able to adapt to the speed of change. Ecosystems are likely to suffer and vulnerable species will not survive unless action is taken now to support their adaptation.

In addition, public bodies and private businesses should ensure that their own adaptation actions are sustainable, taking care not to reduce the ability of biodiversity itself to adapt. This is an especially important consideration at a time when all sectors are developing plans to adapt to climate change.

Legislation

In 2013, the Scottish Government will publish a statutory **Climate Adaptation Programme**. This is a requirement of the Climate Change (Scotland) Act 2009 and will set out Government's plans for how Scotland adapts to a changing climate. Government has a schedule to consult on a draft Adaptation Programme in the autumn of 2012. In order to develop the draft document for consultation, the Scottish Government has asked its departments and agencies to review the risks as set out in Defra's Climate Change Risk Assessment (CCRA)¹ and identify policies needed to meet the challenges. It will build upon the Scottish Government's Adaptation Framework² published in 2009, which sets out the existing objectives, timetable and process for helping Scotland adapt to a changing climate. The Framework was developed with 12 accompanying Sector Action Plans.

LINK's workshop

LINK believes it is extremely important that the Scottish Government's **Climate Adaptation Programme** enables the whole of Scotland to adapt to climate change in sustainable ways. This must include measures to increase the resilience of wildlife and ecosystems to future changes and measures to accommodate change. Given the importance of a thriving natural environment to Scotland's society and economy, it is essential that the Programme addresses all the risks and threats posed by climate change and is given sufficient resources to fully deliver the required measures.

LINK held a workshop on 4th September 2012 at the Edinburgh Centre for Carbon Innovation (ECCI) to discuss climate adaptation issues and prepare its advice to Scottish Government. Attended by more than 30 delegates from its network, along with external advisers, the workshop discussed currently available draft documents to identify gaps and propose policies and actions to remedy those gaps.

¹ <http://randd.defra.gov.uk/Document.aspx?Document=CCRAforScotland.pdf>

² <http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/adaptation/AdaptationFramework>

This report

This report is the output of the workshop, summarising the main issues raised and the measures proposed to address them. It summarises LINK's advice to Scottish Government and makes general points about the Programme as a whole and specific points on five sectors which raise most issues for the environment – marine, forestry, water, agriculture and biodiversity.

2. Link's Adaptation Principles and Guidelines

Throughout this process, LINK has assessed the adequacy of current action plans by reference to three sets of Principles and Guidelines³ which it recommended in a paper published in January 2012, summarised as:

Principles for adapting to climate change

1. **Develop knowledge** – of climate impacts and the impacts of our adaptation actions – and then make decisions based on it.
2. **Plan strategically** - with a flexible, long-term view and in a joined-up integrated way.
3. **Build resilience** – in the infrastructure, systems and environment we currently have.
4. **Accommodate and enable change** – so people and wildlife can transition and thrive in new ways and in new places in response to climate changes and impacts.
5. **Adapt sustainably** – to avoid maladaptation³ and detrimental impacts on other elements of the environment.

Guidelines for helping the natural environment to adapt⁴:

- a. Improve understanding
- b. Reduce pressures not linked to climate change
- c. Build robust wildlife populations
- d. Identify and manage important wildlife and habitat area
- e. Deliver conservation action at a landscape scale

Guidelines for adaptation across sectors

- a. Integrate action
- b. Work in partnership with nature
- c. Engage with people
- d. Develop a flexible adaptive approach
- e. Prioritise no-regrets options

³ Full version at http://www.scotlink.org/files/policy/PositionPapers/LINK5_ClimateAdaptPrinciples.pdf

⁴ See annex for proposed revisions to this set of guidelines, in response to lessons learned in their application, and to complement those subsequently published by SNH.

3. General Points about the Adaptation Programme

In the Scottish Government's preparation of the Adaptation Programme, LINK⁵ would like to see more signs of commitment to:

- **Urgency:** action is needed now to address the impacts of climate change already being experienced by Scotland's natural environment;
- **Enforcement:** better implementation of existing policies and legislation is needed on environmental protection - the relevance of these is increased by the threat of climate change;
- **A systems approach:** more holistic thinking is needed to assess risk and guide new policies and to overcome weaknesses in the mechanistic risk-based approach of the CCRA;
- **Proactive intervention:** given the major uncertainties of climate change, proactive measures are needed to increase resilience of ecosystems weakened by over-exploitation;
- **Integration:** these challenges demand closer collaboration between sectors - and between policymakers, NGOs, researchers, resource use practitioners, businesses and local communities;
- **Responsibility:** adaptation plans by the productive sectors should incorporate actions to help the natural environment adapt;
- **Consideration of indirect impacts:** the Programme should also take account of the potentially major effects of climate change impacting Scotland indirectly (including from overseas);
- **Focusing investment:** favouring measures with multiple benefits, given the significant forthcoming reductions in land management subsidies, and major implications of this for adaptation actions;
- **Creative thinking:** for example on use of the relevant thematic objectives of the EU structural funds, especially:
 - Supporting the shift to a low-carbon economy in all sectors;
 - Promoting climate change adaptation, risk prevention and management;
 - Protecting the environment and promoting resource efficiency;
- **Environmental limits:** acknowledging that economic growth has potential to be the cause rather than the solution of these problems if these limits are exceeded.

4. Adaptation Initiatives Required

For these reasons, LINK recommends that the Adaptation Programme must include, should lend fresh impetus to, and provide investment in, the following initiatives:

1. **General environmental monitoring** to detect trends, and inform policies - capitalising on the outstanding quality of voluntary sector biodiversity monitoring and citizen science opportunities;
2. **Routine 'climate-proofing' of all policies** (with respect to both adaptation and mitigation) as they are reviewed, taking account of new knowledge;

⁵ Reference to "LINK" should be taken to indicate the member bodies of Scottish Environment LINK identified as supporting this paper on the title page

3. **Practical delivery of existing environmental policies**, to reduce pressures on the natural environment other than from the climate, for example the Biodiversity Strategy review;
4. **Pilot projects** at a significant scale, particularly to explore application of the **ecosystems approach**, and the enhancement of **ecosystem resilience**;
5. **Cross-sectoral integration** by using 'themes' instead of sectors;
6. **Awareness raising**, as the key to 'climate literacy' and cultural change underpinning all climate change adaptation and mitigation efforts;
7. **Preventative spend and multiple-benefit initiatives**, including early and effective interventions, for example in response to invasive non-native species (including pathogens);
8. **Review and adjustment of SEA protocols** to take account of adaptation needs.

5. Comments on Selected Sector Plans

A number of important sectoral issues should be addressed by, and included in, the Adaptation Programme. LINK has analysed the risks identified by the UKCCRA in five sectors and compared them with Scottish Government's published and unpublished sectoral response plans. This analysis highlighted gaps in the suite of measures so far proposed. The following notes summarise the measures which LINK representatives have identified as being required to address these gaps. This not an exhaustive list of LINK's concerns and proposals which will be developed further during the consultation period once the draft Adaptation Programme is published.

5.1. Marine

General

LINK is concerned by Scottish Government's unnecessarily aggressive, pro-development approach (especially with regard to renewable and aquaculture), characterised by:

- rushing consents for these developments against a background of poor environmental data and ahead of protection measures;
- applying very demanding levels of data support and scrutiny to the establishment of Marine Protected Areas (MPA) and other measures for protection of nature;
- delays in identifying and designating the MPA network, calling into question the priority and resources given to this crucial workstream;
- compromising the actual selection of protected areas by demanding that special preference is given to areas of little development interest;
- failing to resolve the dramatic contrast between the high quality of the legislation and the poverty of progress on implementation of this legislation.

These problems are driven almost entirely by economic growth ambitions. (There is no justification in climate mitigation terms for driving development ahead of reasonable protection measures which could be secured in one or two years).

Marine ecosystems are already damaged by poorly managed fisheries and weakened by the early impacts of climate change. Given the certainty that these climate change impacts will increase, this strongly pro-development approach is placing the integrity of marine ecosystems at risk, with profound implications for their health and productivity.

LINK therefore advises stronger, clearer and **much more urgent** government commitments to:

- rigorous ongoing **monitoring** of the health of marine ecosystems;
- a shorter cycle of **assessment** allowing for rapid response to any evidence of deteriorating trends;
- **adaptive management** in response to this monitoring and assessment, especially of fisheries and of further renewable and oil/gas developments;
- much improved **integration** between government responsibilities for natural heritage, fisheries, energy and economic development;
- rigorous **implementation** of commitments already made in high quality legislation and policy material;
- throughout, ensuring that ambitions for economic growth are pursued strictly and demonstrably within **environmental limits**.

Specific points

Delivery of existing commitments

- a. Marine litter strategy delivered and going beyond MSFD;
- b. Timely and full implementation of Marine Act (including MPA network and National Marine Plan), and Birds and Habitats Directive requirements;
- c. A strong, directive, holistic National Marine Plan taking an ecosystem approach;
- d. Nature Conservation MPA sites selected for best areas, and those meriting recovery, based only on sound science;
- e. All developments (incl fisheries) meeting environmental assessment responsibilities;
- f. Proper management of MPA sites – no 'paper parks'.

Strengthened protection of ecosystems weakened by over-exploitation

- a. Increased resources for monitoring of marine species and habitats;
- b. Commitment to target of recovering fish populations to sustainable levels by 2015;
- c. Commitment for MPAs to 'restore' as well as 'conserve';
- d. Bold and effective strategy for control of Invasive Non-Native Species;
- e. Review of management of Natura sites; adaptive approach to selection/de-selection;
- f. Objectives for fish species both as biodiversity and as commercial species;
- g. Change 'data hungry' approach in data poor marine environment;
- h. Objectives to protect marine carbon sinks.

5.2. Forestry

General

The workshop discussion identified the need for improvements in:

- Integration across sectors;
- Funding weighted towards multiple benefits in the forestry sector, e.g. adaptation, mitigation and ecosystem services;
- Advice, research and information required by practitioners to enable plans to be flexible, based on ongoing environmental monitoring;

- Sustainable procurement (concerted effort to reduce reliance on imported timber and increase consumption of certified timber).

Specific points

- a. **Habitat Network Approach.** Increase the area and connectivity of native woodland (one of our richest habitats but currently only 4% of land area) close to, or next to, existing areas. An increased core area would help woodland environments to adapt and enhance ecosystem services, in addition to carbon sequestration. This could occur through planting or natural regeneration.
- b. **Pests and diseases.** Practitioners need greater information and guidance on how to control and identify disease, how to forecast risk, and what species are suitable for the future.
- c. **Increase diversity of forest and woodland types.** LINK believes that current resource is lop-sided toward single species monoculture forestry. To address the uncertainties of a future climate there is a need to spread risk by ensuring a greater balance between all benefits of forestry, such as timber production, biodiversity, amenity value, and community benefit.
- d. **Focus funding.** Given the signals of funding cuts in the short-term and budget uncertainty in the long-term, existing agriculture and SRDP funds should be focussed to deliver multiple benefits and diversity, e.g. increase native woods on farms.
- e. **Adapt and change practice.** The Adaptation Programme (AP) must increase its emphasis on managing the woods and forests that already exist and expand around them. It must be adaptable to new knowledge and be prepared to change.
- f. **Carbon mitigation and adaptation.** The AP should maximise synergies between carbon mitigation and adaptation. For example investing in high carbon habitats by planting trees will provide adaptation benefits. Removing trees from peat bogs where appropriate, can benefit carbon storage, water resources and ecosystem services.
- g. **Integration with other sectors.** Forests and woods can contribute to adaptation in other sectors. All sectors must work with nature, acknowledge the benefits of trees and woodland, and plan actions which help Scotland adapt to the impacts of climate change. For example:
 - Trees and Agriculture - shade, shelter, increase production, reduce GHG;
 - Trees and Water - flood alleviation and water quality;
 - Trees and Cities - combating heat island effects;
 - Trees and public places - health and well being benefits;
 - Trees and construction - substitution of high energy materials;
 - Trees and renewable energy - mitigation planting and small scale biomass CHP.

5.3. Water Environment

General

- **Implementation.** Delivery of existing plans and policies relating to the water environment (river basin management, flood risk management and water industry investment) must be developed and delivered in an integrated way and climate change adaptation must be central to these.

- **Pilot projects** are needed to test solutions and to raise awareness of how catchment management can deliver multiple benefits and facilitate adaptation.
- **Climate proofing.** All existing plans and policies need to be assessed to see if they are 'climate-ready'.

Specific points

- a. **Investing in demonstration projects.** LINK welcomes demonstration projects of sustainable land management solutions. These projects should seek to deliver multiple benefits such as water quality, sustainable flood management and biodiversity, and they must build in climate resilience. It is critical that these projects involve NGOs and other stakeholders. Many LINK member bodies have specialist knowledge or ongoing projects and thus are able to share expertise and add considerable value to any demonstration projects. The value of demonstration projects would benefit from improved coordination between organisations and agencies.
- b. **Flood Risk Management Plans (FRMPs).** FRMPs are necessary to deliver sustainable flood management and LINK members are involved in the development of these Plans, which will be in place from 2015. The Adaptation Programme (AP) needs to include more details regarding how the FRMPs will address climate adaptation. AP measures must be integrated or inform the draft FRMPs from 2015.
- c. **River Basin Management Plans (RBMPs).** The Sector Action Plan⁶ states that the next RBMPs will be refined to embed climate change in the RBMP programme of measures. LINK believes that the AP should steer the development of RBMPs and that the Scottish Government must show how RBMPs are assessed for a future climate.
- d. **Water Resource Management Plans (within RBMPs).** This is a worthy study of the impacts of low flows on the environment but we would like to see these integrated into other plans.
- e. **Impacts on sewerage network.** We welcome the work to assess the impact of high flows on the sewerage network.
- f. **Water leakage.** The Economic Level of Leakage (ELL) target is 612million litres of water per day. LINK believes that the ELL target would be more ambitious if it were to take into account the costs and benefits of leakage on the environment. The AP must include an action for Scottish Water and its regulators to explore sustainable leakage models.
- g. **Promoting Water Use Efficiency.** The AP must include a measure to increase water use efficiency and reduce consumption at all times, not just during periods of low rainfall. . This must cover domestic and industrial water use. In the past LINK has advocated that 'Scottish Water execute an effective strategy that involves working with others to deliver a water efficiency campaign and to undertake retrofitting where appropriate'⁷.
- h. **Develop an investment plan to address adaptation needs of water infrastructure.** Planning is already underway for the 2015-2025 water industry investment period and climate change mitigation and adaptation must be fully incorporated in this. This plan needs to prove it is following adaptation principles.

⁶ Scottish Government, Water Environment and Resource Sector Action Plan
<http://www.scotland.gov.uk/Resource/0039/00396111.pdf>

⁷ LINK's response to the Water Resources (Scotland) Bill
<http://www.scotlink.org/files/policy/ConsultationResponses/WaterResBillLINKevi2012.pdf>

- i. **Surface water flooding.** A 'Statement on the Government's intentions for improving surface water management' is insufficient in the current Sector Action Plan. Statutory guidance on [Delivering Sustainable Flood Risk Management](#)⁸ expects local authorities to lead on surface water management as part of the flood risk management planning process. Sustainable Urban Drainage Systems (SUDS) are already a requirement for new developments but Government must do more to incentivise and promote well-designed and constructed SUDS that can be positive for biodiversity, flood management and adaptation to climate change.
- j. **Coastal flood risk.** As part of Scotland's new approach to sustainable flood management, managed realignment of coasts should be promoted. LINK believes that a pilot project should be initiated in an area of need to test and demonstrate how managed realignment can help us adapt to climate change while being positive for the environment and society. Financial incentives for managed realignment should be included in the next SRDP.

5.4. Agriculture

General points

- **Narrow sectoral approach.** The current Agriculture Sector Action Plan⁹ is weak, focusing mainly on the implications of a changing climate for agricultural production (crop yields, animal welfare, pests and diseases) and failing to address the impacts of likely changes in agriculture on the wider environment and other sectors. It is poorly integrated with other Sector Action Plans and fails to properly address cross cutting issues.
- **Impacts not considered.** The CCRA is more comprehensive in recognising the impacts of climate change on both production and the underlying factors of production i.e. soils, water, biodiversity, etc. In particular, it highlights some key issues:
 - The opportunities for agricultural production, e.g. a more favourable climate for grass growth and crop production are likely to exacerbate existing trends of intensification and specialisation. This is likely to lead to environmental consequences, such as biodiversity loss, poor water quality and increased GHG emissions. Pressures on marginal land, which are particularly important in terms of ecosystem services, are likely to be significant;
 - The risk of flooding and coastal erosion of agricultural land is likely to increase significantly with consequences for people and communities;
 - Diffuse pollution of water is may increase due to the impacts of climate change and land use change, for example climate change is likely to result in more land being managed intensively. High intensity rainfall events could exacerbate pollutant transport into watercourses and reduced flows in summer may increase pollutant concentrations.
- **CAP reform opportunities.** The CAP will be a key driver of agricultural change in future but there is currently great uncertainty around the reform proposals and what these might mean for Scottish agriculture. However, it is clear in discussions around the reforms that the Scottish Government is not factoring climate change mitigation and adaptation into its thinking.
- **Need for wider debate.** There is a general feeling among LINK members that the current focus of policy and emphasis within the industry is one of maximising agricultural production in order to reap economic benefits. There is no proper

⁸ <http://www.scotland.gov.uk/Publications/2011/06/15150211/0>

⁹ <http://www.scotland.gov.uk/Resource/Doc/175776/0114829.pdf>

discussion of what a more resilient and sustainable food production system should look like in Scotland, factoring in what we know about climate change, and other environmental problems. Such a discussion should consider global changes in agriculture and their potential impacts on Scotland and the role of markets, consumer demand and supply chains in influencing agricultural production.

Specific points

LINK advocates the following to benefit climate adaptation objectives but also deliver against wider environmental priorities:

- a. **Support greening of Pillar I of the CAP**, and ensure that measures, especially Ecological Focus Areas,(EFAs) support adaptation to the impacts of climate change. EFAs can enhance the network of green infrastructure throughout the landscape. For example, farmers could be required to maintain/create: field margins, buffer strips alongside watercourses, uncropped areas, hedgerows, trees and scrub, etc which can deliver multiple outcomes such as wildlife habitat, and reduction of flooding, pollution and soil erosion.
- b. Use the next **Scotland Rural Development Programme (SRDP) 2014-2020** to incentivise land management practices that will: protect and enhance biodiversity; improve water management (including reducing diffuse pollution and flood risk); improve soil management; and mitigate and adapt to climate change. Support for practices that achieve multiple outcomes is critical given future funding constraints.
- c. **Emphasise duration and scale** e.g.: longer term agreements with land managers for durable benefits; and co-operation between land managers over contiguous properties to secure landscape scale benefits.
- d. **Improve extension services** to provide information, advice and training for land managers to help them operate more sustainably and achieve multiple outcomes.

5.5. Biodiversity and Ecosystem Services

General points

- **Integration.** A key blockage to progress in conserving biodiversity and securing ecosystem services, in Scotland and beyond, has been the failure to integrate biodiversity considerations across sectors. All sectors support or have the potential to impact biodiversity and ecosystems. Consideration for the natural environment must be actively embraced and reflected in the Adaptation Programme.
- **Adaptive approach.** Climate change brings high levels of uncertainty about future trends, and we must plan for this. Adaptation plans must themselves be adaptive, flexible and responsive to new knowledge. The knowledge must be provided by sophisticated monitoring.
- **Monitoring.** Current biodiversity monitoring programmes are inadequate for the new challenges presented by climate change; investment should be increased, coordination managed and scope extended.

Specific points

Building resilience through diversity. There are many uncertainties surrounding future climate scenarios and the detail of how biodiversity and ecosystems will react. In response to this uncertainty, the Scottish Government should focus on the general measures that will support and enhance the diversity of species, habitats and

ecosystems even if the exact composition of these is not clear at present. Regulations and incentives must encourage diversity and the Adaptation Programme should:

- a. **Optimise the conservation status of existing sites and systems of national and international importance**, such as the Natura network and HNV agriculture;
- b. **Promote heterogeneity** in the structure of landscapes at all scales e.g.:
- c. Agricultural landscapes: farm plans should work to maximum field sizes, minimum margins, physical and biological boundary diversity and drainage patterns that will produce a variety of habitats and species;
- d. Forest design plans should incorporate explicit requirements for structural variety – edges, clearings, age structures etc., even in commercial plantations.
- e. **Protect current and re-establish lost features** which enhance general biodiversity and Ecosystem Services, e.g.:
 - Brown-field sites in urban areas;
 - Undamaged wetlands, peatlands and clean-water ponds;
 - Appropriately grazed montane habitats in the uplands;
 - Ancient native woodlands;
 - Species rich grasslands and heath;
 - Wood pasture sites;
 - Bog woodlands;
 - Special marine habitats and features.

6. Conclusions

Scotland must respond to changes in the climate with measures which respect the integrity of the environment and which protect and restore the resilience of ecosystems on which society depends for their provisioning, regulatory, and cultural services. This represents a significant and urgent challenge to the Scottish Government in drawing up Scotland's Adaptation Programme. This report recommends that Government 'joins-up' its efforts internally, implement its existing policy and legislative commitments on the environment, and lead effective collaboration with other sectors, whilst maximising the read-across between climate adaptation and other policy objectives.

These themes re-appear in various forms in the advice also offered in this report under sectors most closely linked to the environment – Marine, Forestry, Water Resources, Agriculture and Biodiversity. A particular plea, repeated in several cases, is for renewed investment in background biological monitoring which has suffered severe cuts in recent years, just when it acquires extra significance due to climate change. After all, the effectiveness of Scotland's adaptation response will depend largely on the speed and accuracy with which we can detect changes in living systems.

Simon Pepper OBE, 2012

Prepared for LINK's Climate Adaptation Task Force
<http://www.scotlink.org/public/work/taskforce.php?id=20>

Annex

Guidelines for helping the natural environment to adapt

LINK is considering the following revised version of the guidelines which it published in January 2012. These changes reflect lessons learned in the application of the guidelines in practice.

LINK's revised guidelines (proposed)

1. Improve monitoring to inform adaptation decisions
2. Reduce other pressures and improve management
3. Encourage scale and diversity of high quality features
4. Restore connectivity and pattern in the landscape
5. Take ecosystem approach to land use planning

Also, by concentrating more on general adjustments which natural resource users, managers and planners can apply to their normal work, to take account of nature's needs, these revised LINK guidelines seek to complement the set of guidelines¹⁰ published by SNH in 2012, which focus more directly on the challenge of helping nature adapt:

1. *Reduce other pressures on ecosystems, habitats and species – e.g. pollution, unsustainable use, grazing, habitat fragmentation and invasive non-native species;*
2. *Make space for natural processes including geomorphological, water and soil processes, and species interactions;*
3. *Enhance opportunities for species to disperse by reducing fragmentation and increasing the amount of habitat available;*
4. *Improve habitat management where activities such as grazing, burning or drainage cause declines in diversity or size of species populations, or where modifying management or increasing habitat diversity could improve resilience to climate change;*
5. *Enhance habitat diversity, e.g. by varying grazing or plant cutting management on grassland or moorland, or creating new habitats on farms;*
6. *Take an adaptive approach to land and conservation management e.g. by changing objectives and management measures in response to new information;.*
7. *Plan for habitat change where assessments indicate losses of habitats or species are inevitable, for example as a result of sea-level rise;*
8. *Consider translocation of species in circumstances where assessments indicate the likely loss of a species despite new management measures.*

¹⁰ <http://www.snh.org.uk/pdfs/publications/corporate/Climatechangenaturescotland.pdf>



For more information contact: Jim Densham (Task Force Convener)
Senior Land Use Policy Officer (Climate)
RSPB Scotland
Jim.densham@rspb.org.uk

Scottish Environment LINK is the forum for Scotland's voluntary environment organisations. Its over 30 member bodies represent a wide range of environmental interests with the common goal of contributing to a more environmentally sustainable society. LINK provides a forum for its member bodies enabling informed debate, and assisting co-operation within the voluntary environmental sector. Core activities are information sharing, discussion, and joint action.

LINK assists communication between member bodies, government and its agencies and other sectors within civic society. Acting at local, national and international levels, LINK aims to ensure that the environment is fully recognised in the development of policy and legislation affecting Scotland.

LINK is a Scottish charity (No SC000296) and a company limited by guarantee (No SC250899) working to its [Memorandum and Articles of Association](#), its [Operating Principles](#) and the [LINK Corporate Strategy 2009-12](#).

LINK works mainly through its [Taskforces](#), groups of members working together on topics of mutual interest, exploring the environmental issues and developing advocacy strategies to promote these to other interests, the public and decision-makers.

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For further information about this report please contact:

LINK, 2 Grosvenor House, Shore Road, PERTH PH2 8BD.

Tel 01738 630804

Email enquiries@scotlink.org

Web www.scotlink.org