

The 'Uplands' represents largely rural areas with forests, open moorlands, and hills rising to our towering mountains. These are iconic Scottish landscapes of both the Highlands and Southern Uplands.

The impacts of climate change will be widely felt here – with warmer temperatures and increasingly seasonal rainfall affecting habitats and wildlife. By improving the quality and connectivity of habitats we can build resilience, helping to build a vibrant and sustainable rural economy in the future.

Unadapted



Adapting



Connected Habitats

Some species will need to move to remain in their preferred climate space. Fragmented habitat can make this difficult. Expanding woodlands and building a green bridge over the carriageway can improve connections between habitats.

Unadapted



Adapting



Mixed-Species Forest

Single-species, even-aged forests are more vulnerable to changes in climate and the spread of pests and disease. Introducing a mix of species and making use of systems like continuous cover forestry can increase forest resilience. This will also benefit biodiversity, improve the landscape and reduce catchment flood risk.

Unadapted



Adapting



Deer

Deer health can be impacted by wet conditions, the spread of disease and inappropriate numbers - which can also reduce plant diversity. Red deer are naturally a forest-edge species, so expanding forest habitat could benefit their health, where grazing, trampling and browsing effects are managed to allow forest regeneration.

Info sheet 6: Uplands

Unadapted



Adapting



Fish

Increasing water temperature and low water levels in rivers will have a detrimental impact on fish health. Expanding riparian vegetation on river banks can provide shade and restore watercourses in degraded areas, creating pool-riffle river beds, with deeper water and areas suitable for spawning.

Unadapted



Adapting



Resilient Buildings

Buildings and their surroundings can be damaged by severe weather like high winds and heavy rainfall, as well as water penetration during prolonged wet intervals causing damp, mould and condensation. Maintenance is important to ensure weather resistance and ventilation. Green roofs and permeable surfaces can reduce localised flooding.

Unadapted



Adapting



Distillery

Distilleries will need to plan for less reliable water supply, overheating in summer and increased flood risk. This can be achieved through increasing ventilation and water efficiency – as well as implementing a strategy to minimise environmental impact.

Unadapted



Adapting



Farming

Warmer conditions can make marginal land more viable for farming, although heavy rainfall increasing soil erosion and unpredictable weather will be challenging. Farming can diversify with low density cattle grazing on the hills and fodder crops on better land. Lowering sheep numbers can reduce erosion on slopes and benefit wildlife.

Info sheet 6: Uplands

Unadapted



Adapting



Shelter

An increase in tree cover and shelterbelts can provide better shelter for livestock during extreme weather conditions, connect woodland networks, host biodiversity and provide a source of fuel for the farm.

Unadapted



Adapting



Reservoir Management

Reservoirs will need to be managed for more variable and seasonal rainfall – wetter winters and drier summers – increased intensity of rainfall affecting water quality, and potential for less snow cover reducing spring peak river flows. Maintenance of impoundments and catchment land use can regulate water supply, reduce flood risk, and ensure water quality.

Unadapted



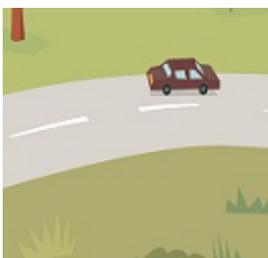
Adapting



Local Energy

Severe weather can disrupt energy supply to local communities and business. Developing local community energy and heat generation, like a biomass boiler using distillery and forestry bi-products, can diversify supply and increase local resilience.

Unadapted



Adapting



Roadside Swales

Heavy rainfall is expected to increase. Roadside swales and other features can manage surface water on roads and runoff onto adjacent land. This can reduce disruption from flooding and improve the quality of water entering the surrounding environment.

Info sheet 6: Uplands

Unadapted



Adapting



Restore Peat Bogs

Blanket peat bog is at risk of drying out and wildfires due to rising temperatures and reduced summer rainfall. Restoring blanket peat bog – for example by blocking ditches to raise the water table – can help the bog function by retaining water. This also reduces downstream flood risk during wet periods and can improve water quality.

Unadapted



Adapting



Breeding Habitats

The water's edge nests of species like red- and black-throated divers can be vulnerable to flooding and fluctuating water levels, as well as predators. Floating rafts have been successful in providing less vulnerable nesting sites. Bird hides also provide tourism opportunities.

Unadapted



Adapting



Sustainable Tourism

There is an opportunity to build on tourism that is sustainable and works to enhance the natural environment. This encourages visitors and locals alike to enjoy outdoor activities. Derelict buildings can be repurposed for economic purposes like hospitality, bike hire and accommodation.

Unadapted



Adapting



Diversify Grouse Moors

Intensive grouse moor management leaves land vulnerable to increased risk from wildfire and erosion. Red grouse are more susceptible to ticks and diseases. Diversifying moors to promote a mosaic of habitats may reduce these risks, increase habitat diversity, while still providing for sport shooting.

Info sheet 6: Uplands

Unadapted



Adapting



Seasonal Tourism

Warmer and drier conditions could lengthen and improve the summer tourist season, although weather will remain unpredictable. There is an opportunity to diversify tourism, taking advantage of outdoor activities like mountain biking. However, less reliable winter snow season could be challenging for year-round tourism in some locations with snow sports.

Unadapted



Adapting



Landslides

An increase in prolonged periods of heavy rainfall can lead to more landslides that disrupt transport routes and other infrastructure. Slope management and reinforcement, through engineered works or tree planting, can protect important infrastructure, minimising damage and disruption.

Unadapted



Adapting



Restore Wet Woodlands

Wet deciduous woodlands are important habitats that need to be encouraged to expand on poorly-drained floodplains. Active management can contribute to flood water storage and provide shade during hot conditions.

Adaptation Scotland is a programme funded by the Scottish Government and delivered by Sniffer



The Climate Ready Places Project was completed with additional support from



Adaptation Scotland

Sniffer, Edinburgh Centre for Carbon Innovation, High School Yards, Infirmary Street, Edinburgh EH1 1LZ, Scotland UK

T: 0131 651 4675 E: adaptationscotland@sniffer.org.uk W: www.adaptationscotland.org.uk

Scottish Charity No SC022375, Company No SC149513. Registered in Edinburgh. Registered Office: 1 Exchange Crescent, Conference Square, Edinburgh, EH3 8UL