

The 'Lowlands' represents areas of productive agriculture and smaller towns and villages, many with a heritage of mining and industry. This place captures the rolling hills and plains of eastern Scotland and the central lowlands.

A warming climate could improve growing conditions and agricultural productivity. Making the most of this opportunity will depend on carefully managing changes to water, soils, pests and disease. As extreme storms become more frequent, flood management measures will become even more important to help protect people and assets locally, as well as settlements downstream.

### Unadapted



### Adapting



### Soil Management

Soil and crop management will need to respond to changes in growing seasons, rainfall patterns and water availability. For example increased heavy rainfall may increase soil erosion, run-off, compaction and crop damage. This could be countered by improving soil quality, using cover crops to reduce soil exposure, strengthening hedging, field trees and other field boundaries, and ploughing along slope contours.

### Unadapted



### Adapting



### Crops

A warming climate could benefit agricultural productivity and allow new crops, although weather will remain variable and at times damaging. Changes to farming practice could take opportunities and minimise threats, for example through establishing tree shelter-belts and making use of poly tunnels (perhaps with smart materials).

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### Adapting



### Re-naturalising Watercourses

Re-naturalising watercourses (by de-canalising and restoring meanders) is a natural flood management measure that can reduce flood risk downstream. This improves water quality, provides riparian habitats for wildlife and reduces maintenance costs.

# Info sheet 5: Lowlands

## Unadapted



## Adapting



### *Archaeological Sites*

Heavy rainfall and changing patterns of land use can increase soil erosion and disturbance to archaeological sites, especially if damaging cultivation, grazing or burrowing animals are present. Controlling rabbits, limiting to light grazing and preventing invasive vegetation can protect the Iron Age hill fort.

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## Adapting



### *Changing Crops*

Increased heavy rainfall can lead to soil erosion, crop damage and impact on water quality due to runoff from fields. It may be appropriate to change to a different crop, for example small-scale short rotation coppice willow that provides energy for biomass and supports community resilience.

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## Adapting



### *Reconnecting Floodplain*

Heavy rainfall can increase flooding in the catchment. Natural flood management can reduce flood risk, for example by removing the flood bank to reconnect the river with the floodplain, which provides storage of flood water.

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## Adapting



### *Livestock Management*

Waterlogged ground is vulnerable to poaching by cattle, causing erosion and pollution. In summer, cattle may be vulnerable to heat exposure during heatwaves. Farming practices can adapt, for example by building sheds, fencing land by rivers, and providing trees for shade.

# Info sheet 5: Lowlands

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### *Creating Habitat*

Nature and biodiversity is vulnerable to climate change. Creating a pond from former gravel working can provide new habitats for wildlife, woodland for birds including new arrivals like nuthatch, and opportunities for recreation, including angling.

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## Adapting



### *Lowland Raised Bog*

Lowland raised bog is vulnerable to drying out in summer. The restoration of bogs by blocking ditches and managing agricultural runoff can improve ecosystem function and increase resilience. It can also slow deterioration of archaeological remains.

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## Adapting



### *Protect Infrastructure*

With an increase in flooding, key infrastructure such as water and wastewater facilities may need increased flood protection. A variety of methods can be used to adapt sites to flood risk, for example, constructing hard defences, creating upstream storage for flood waters, and raising control equipment above flood level to maintain services during floods.

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## Adapting



### *Improved Livestock Buildings*

Hotter summers can lead to overheating for livestock kept indoors. Improving ventilation in buildings will reduce this risk. There is also potential to capture biomass for local energy production.

# Info sheet 5: Lowlands

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## Adapting



### Surface Water

Localised surface water flooding in the village during heavy rainfall events can be reduced by increasing permeable surfaces and green infrastructure like green roofs and swales.

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## Adapting



### Flood Protection

New flood protection measures can protect the village. The river can be given space on the floodplain that includes planned flooding of the play area, which is designed to recover quickly after an event.

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## Adapting



### Historic Sites

Historic structures can be consolidated or restored to reduce vulnerability to changing weather. Adaptive and proactive conservation of exposed features, for example turf roofs and soft capping of walls, can limit the damage. Some buildings may be restored for use.

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## Adapting



### Active Travel

The longer season for outdoor activities is an opportunity to encourage more cycling and walking for recreation and active travel, reducing car use and providing health benefits. New safe cycle routes can be provided into and through the countryside.

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