Trees can help us to adapt to a changing climate. They provide shade, alleviate flooding, and create a valuable wildlife habitat

(11) Adaptation: how our woodlands can help society to adapt to a changing climate

Appropriately located woodland can help society and biodiversity to adapt to the impacts of climate change. Trees planted in the right places can reduce the risk of flooding, provide shade for our wildlife, reduce soil erosion and help to cool down our towns and cities.

Trees in the urban environment
The urban heat island effect means that temperatures in our towns and cities tend to be around 2°C higher than in rural areas. The built environment is also designed to increase runoff which means that water supply to these trees is often limited. Therefore it could be said that trees in urban areas are already adapted to the type of climate change that we can expect to see in the UK over coming decades.

Trees and woodlands are a vital component of what has become known as 'green infrastructure' – a network of interconnected and multipurpose green areas. It is important to think about whether the species currently used as street trees will be suited to our future climate. Online resources to help planners, landscape designers, developers and ecologists to make these decisions are available at: http://www.right-trees.org.uk

An urban heat island is a built up area which is significantly warmer than surrounding rural areas. The main cause is modification of the land surface by urban development.

Potential benefits from expansion of urban trees and woodland:

- Trees absorb and reduce air pollutants, which are often highest in urban areas.
- Trees reduce the impact of heavy rains and floodwaters. This will become more important with the increase in severe weather events that are predicted. It also means that trees can have an important role in urban drainage systems.
- Trees help to cool towns and cities through evaporation of water, reflecting sunlight and providing shade.
- Planting trees and woods in urban areas creates wildlife corridors. This can help species movement in response to climate change.

Flood alleviation

As well as reducing the risk of flooding in urban areas, woodland in headwater catchments can reduce the intensity and volume of floodwaters. Floodplain woodland lower in the catchment can provide floodwater storage and reduce peak flows.

Riparian woodland

Trees planted along riverbanks can also provide shade, helping to maintain lower water temperatures. This can help limit the effects of climate change on fish populations.

Pony sheltering under trees in the New Forest

Soil erosion control

Tree canopies reduce rainfall intensity, act as a windbreak, and stabilise soil, reducing erosion. By reducing soil erosion trees also help to reduce consequent diffuse water pollution and the flooding that results from water courses silting up.

Summary

- Trees can help society and biodiversity to adapt to climate change: yet another reason to make sure that our woodlands are resilient to climate change

- Trees in urban areas have an important role to play in reducing the urban heat island effect
- Trees and woodlands can help to reduce the impact of floodwaters by reducing their volume and intensity