



Trees can help reduce flooding and improve water quality

- 1) **Reduce the risk of flooding by reducing run off**
- 2) **Improve water quality by filtering out pollutants**

1) **Reduce the risk of flooding**

Trees can reduce surface water run off

The importance of trees and woods in reducing the risk of flooding was recognised in the Natural Environment White Paper.

Surface water runoff is the major cause of flooding in our towns and cities. The risks are increasing as more hard surfaces areas are being created, by paving over gardens and developing business car parks for example.

The frequency and severity of storms are predicted to rise as our climate changes and thus the problem of surface water flooding is likely to worsen. However, preliminary results from research by Manchester University indicate that trees can help reduce surface water runoff by as much as 60% compared with asphalt. ²

Trees decrease the rate at which rainfall reaches the ground and runs off into watercourses and drains. In both urban and rural areas this allows more time for natural and man made drainage systems to take water away, reducing the likelihood or severity of rivers flooding or surface water inundating homes.

The events of the summer of 2007 demonstrated the major impacts floods can have. In all, around 5.2 million properties in England, or one in six properties, are at risk of flooding. More than 5 million people live and work in 2.4 million properties that are at risk of flooding from rivers or the sea, one million of which are also at risk of surface water flooding. A further 2.8 million properties are susceptible to surface water flooding alone.

The Environment Agency¹



Photo WTPL/SKind

Woodland can also create a sponge effect.³ This means that water can infiltrate into the soil and then be stored there. The lack of soil disturbance and recycling of leaves and other dead material from trees in woodland leads to an increase in soil organic matter and development of soil structure with natural channels and pores.

Studies at Pont Bren in Wales have shown that infiltration rates were up to 60 times higher in young native woodland compared to neighbouring grassland.⁴

The importance of natural processes in flood defence was recognised in the Pitt Review⁵, particularly in dealing with small scale flooding events.

The National Trust has also found that woodland creation in the upper water catchment can reduce the risk of flooding further downstream.⁶

2) Water Quality

Improving the quality of your water

Woods act as filters, removing damaging pollutants from rivers that run through them.⁷ Correctly situated trees can also stabilise river banks. This would protect against erosion and further pollution.

In urban areas, runoff not only contributes to localised flooding, it also pollutes water courses and increases water treatment costs. Collecting rainwater, planting trees and creating permeable surfaces in gardens, drives and car parks can make a significant difference in this area.

References

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