

## FOREST CREATION AND CLIMATE CHANGE

### *The benefits of creating new woodlands*

There are many reasons why it is good to plant trees, especially when combined with creating other attractive habitats for wildlife and enhancing the landscape on a large scale, as in The National Forest. Woodland also provides opportunities for recreation and enjoyment, jobs and tourism.

This statement specifically addresses the contribution of The National Forest's trees to reducing the effects of climate change. It has been developed by the Directors of the National Forest Company, supported by commissioned research, and the Board will review it regularly, as it keeps abreast of research and policy in this critical area.

### *The effects of climate change*

There is now an international consensus that climate change is potentially the biggest single threat to the stability of life on earth. Critical habitats may be lost; rising sea levels will threaten vulnerable communities and environments; extreme weather conditions will become more frequent; and the economic costs of dealing with climate change will accelerate if we do not invest now in reducing its effects. Trees will face new pests and diseases and where the trees are stressed by extreme weather conditions, such as temperature, drought and flooding, they may succumb more readily to them.

Against these changes, climate change may also provide some gains. New bird and animal species are likely to spread into the UK, and we will be able to grow a wider range of plants, including more exotic trees. Opportunities for outdoor leisure and recreation will increase.

However, the overall effect is likely to be serious disruption to our social and economic systems, globally and in the UK. Agriculture, land-use and nature conservation will be particularly affected with a marked increase in extreme weather conditions.

### *Trees and carbon*

How can the creation of a mixed, wooded landscape help to reduce the negative effects of climate change and assist us in adapting to new conditions?

Trees and forest soils do absorb carbon. The National Forest Company has researched rates of 'carbon sequestration', the process whereby carbon dioxide is absorbed through the tree's photosynthesis. On average, each National Forest tree will sequester 79kg of carbon, equivalent to 290kg of carbon dioxide, over an 80 year period of growth. The exact rate depends on the soil, the species, the growth rate, and the age of the tree but the right tree in the right place can be an attractive way of removing carbon dioxide.

Carbon can then be 'locked in' by not disturbing the soil, even after felling, and by the use of wood products after a tree has been felled. If burnt locally and the tree replanted it can be a more sustainable fuel than coal, gas or oil.

The current consensus is that tree planting alone cannot meet the UK's carbon reduction needs: given the rate at which sequestration happens and levels of carbon emissions, there is simply not enough land for planting the equivalent number of trees which would be needed. However, tree planting does help and as the trees mature, they will make an increasing contribution to the United Kingdom's ambitious long-term aim of achieving a reduction in the net UK carbon account for the year 2050, such that it is at least 80% lower than the 1990 baseline.

Tree planting is therefore a long-term investment towards creating a more stable planet. However it cannot alone compensate for human activity that generates carbon emissions. Individuals and businesses will also have to undertake changes to their lifestyles, activities and priorities.

For example, one of The National Forest Company's recent business sponsors acknowledged the impacts of executive international flights through tree planting, whilst adopting as many other measures as it could to reduce its overall climate impact.

#### *The National Forest's contribution*

The National Forest is helping to reduce the effect of carbon emissions, in a number of ways:

- The National Forest is indeed sequestering carbon and 'locking it up' for the future.
- Converting a proportion of land to mixed woodlands and conservation areas will help to create a more resilient landscape and counterbalance the potentially high carbon impact of food production, which is very important for the UK and will remain a dominant land use in The National Forest.
- We are developing and promoting locally grown wood fuel, providing a useful additional market for otherwise difficult or uneconomic to sell by-products of management (thinnings, pruned branches etc). Wood products, such as fencing and furniture, as promoted by the developing National Forest wood-based economy, also lock up carbon.
- Fourthly, attractive woodlands for people to enjoy near where they live will provide a healthy environment and the opportunity to participate in leisure pursuits without intensive carbon-producing travel.

In addition to reducing the effects of carbon emissions, woodland and other habitats can help us adapt to the effects of climate change. For example:

- Woodland created with climate change in mind can serve as a buffer to help ameliorate the more extreme local effects on species and habitats.
- A mixed, wooded landscape is strong and resilient in the face of climate change, with linked woodland allowing species to migrate to more suitable environments.
- Trees will filter pollutants and reduce soil erosion by wind and water.

- Trees can provide shade that moderates temperatures in buildings and reduces energy costs (financial and environmental). Shade from trees in urban areas and school playgrounds will make hot summers more bearable.
- Selective planting in flood plains can help manage rising water levels and contribute to flood control.
- Planting specimen trees in parklands will anticipate any loss of older trees from increased storm damage.
- There are also many opportunities to support environmental education within The National Forest, which creates an increased awareness of the issues and a greater commitment to implement the necessary changes to our lifestyles.

*Helping you reduce your carbon footprint*

We hope that you will want to help reduce your carbon footprint by getting involved in creating the Forest with all its many benefits.

If you are an individual, our [Plant a Tree](#) scheme enables you to be part of The National Forest and at the same time reduce the effects of your carbon footprint.

If you are a business, please see how you can add your [Sponsorship](#) to The National Forest or [contact us](#) directly.

Dinah Nichols  
Chair  
August 2009

For an excellent summary of up to date national messages on climate change and forestry see the Forestry Commission's [Climate Change information pack](#).

See [Quantification of the forest resource](#) (Eamonn Wall report) for 2009 research on the future quantity of wood that could be extracted through the management of The National Forest.