

# Plants and Climate Change



Up to half the world's bluebells (*Hyacinthoides non-scripta*) grow in Britain during early spring. If early spring temperatures rise other woodland plants, which need warmth to germinate and grow, will compete with the bluebells. This compounds the already serious problems of habitat destruction and illegal picking. Follow the trail and learn how climate change is affecting plants from all around the globe.

## Japanese Garden

**A**

Flowering Cherry Tree

Accurate records of the flowering time of cherry trees (*Prunus serrulata*) have been kept in Japan for over a 1000 years as there are cherry blossom festivals held every year. Records show that the flowering times have become progressively earlier each spring.



## Double Walled Garden

**B**

Chusan Palm

Almost a tenth of all the 2,200 species of palm are threatened with extinction. The rarest palm in the world is the Hurricane Palm (*Hyophorbe amaricaulis*). It is in the same family as our Chusan Palm (*Trachycarpus fortunei*). Climate change is likely to see an increase in tropical storms and a rise in sea levels that could result in many becoming extinct.



## Double Walled Garden

**C**

Bamboo

Bamboo is an important natural material for people and animals. Some of the world's 2,000 species of bamboo have strange 20–120 life cycles that put them at risk from climate change. If temperatures rise rapidly as some predictions state, the life cycle of these bamboo species could go badly wrong.



## Double Walled Garden

**D**

Magnolia

Magnolias are ancient trees that grow in the tropical cloud forests of the Americas and Asia. They are particularly vulnerable to climate change as these forests are forecast to become drier and more liable to catch fire.



## Double Walled Garden

**E**

Blackcurrant

Blackcurrants (*Ribes nigrum*) need a heavy frost to produce even ripeness in the fruit.

Milder winters are affecting the blackcurrant harvests and we may see the extinction of some varieties.



## Near the Circle of Decision

**F**

Oak Tree

Climate change can disrupt entire food chains. Early budding of oak (*Quercus Robur*) has meant that the caterpillars of winter moths have had to eat less digestible older leaves. This has affected their weight, providing less food for birds. For migratory species using climate cues for migration, changes in the timing of parts of a species' life cycle is likely to cause significant stress on populations.



## Great Glasshouse

**G**

Quiver Tree

The Quiver Tree (*Aloe dichotoma*) is one of the few species which has been studied intensively for the impact of climate change. The soft branches of this succulent tree have been used by San Bushmen as quivers for their hunting arrows for centuries. Increased drought in the regions of Namibia where they are from is causing these long lived and slow growing trees to die out.



## Great Glasshouse

**H**

Protea

The life cycles of two Sugarbird species in South Africa are totally dependent on Protea (Proteaceae) plants, which in turn, rely on the birds to pollinate them. This is an example of co evolution and co dependence and the increasing dry heat caused by climate change could see the extinction of both plant and bird species.



## Great Glasshouse

**I**

Olive Tree

The Olive is the dominant economic crop of the Mediterranean region but climate change, especially long periods of drought in recent years, has meant a decrease in yields having a serious economic impact on the countries in this area. Temperatures have risen so far in recent years that it is now possible to grow olive trees commercially in Southern England.



## Great Glasshouse

**J**

Banksia

Many Australian plants like Banksia speciosa have evolved to survive the effects of bush fires. They do need several years between these fires to reach maturity, flower and produce seed. The frequency of bush fires has increased in recent years due to drought and young plants may be at risk in the future.



## Great Glasshouse East Entrance

**K**

Beech Tree

The European beech (*Fagus sylvatica*) is sensitive to drought and flooding. Studies show that there has been a decline in growth of mature trees across Western Europe in the last 50 years. This important forest species is being affected by hotter, drier summers and increased flooding events in the spring and autumn.



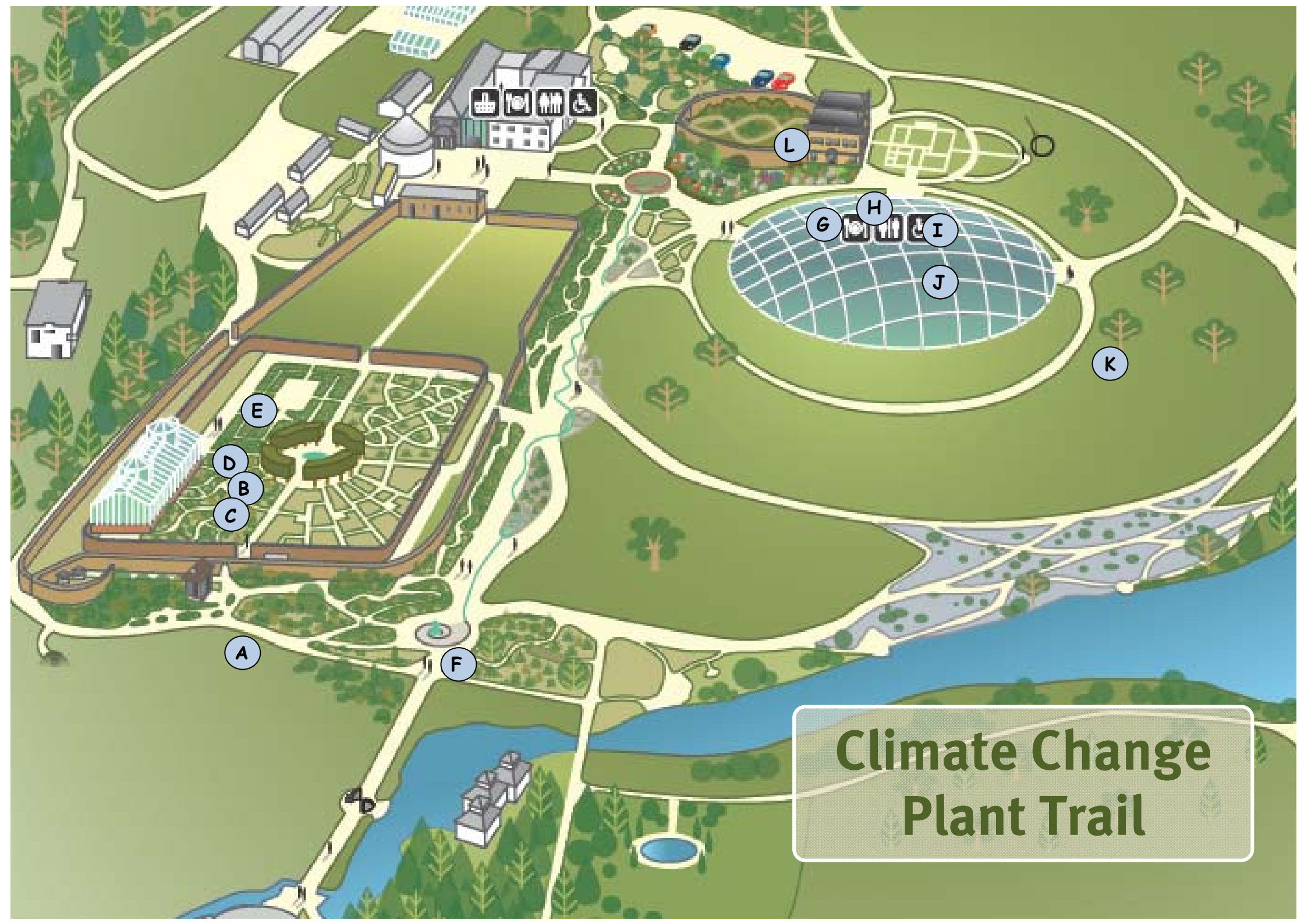
## Wallace Garden

**L**

Maidenhair

Ginkgo Biloba, one of the oldest trees in the world, is in danger from climate change. Bizarrely, its leaves become very vulnerable to freezing when there are more than normal amounts of carbon dioxide in the atmosphere.





# Climate Change Plant Trail