Welcome to the Great Glasshouse Ecology Trail

You are about to go on a worldwide journey past plants that come from some of the planet's most endangered habitats – those which have a ***mediterranean climate*** of moist, cool winters and hot, dry summers.

*Only **1.7% of the Earth's surface has this type of climate**.*

- Yet it is ***home to over 20% of all known flowering plant species***
- It occurs on western coasts of **Australia, South Africa, Chile, California** and across the **Mediterranean Basin**
- Habitats in these areas are as threatened as tropical rainforests.

The numbers on the map refer to information in the text below.

Now begin your journey down the slope.

On your left is the tangled low shrubby vegetation characteristic of the **South African Fynbos**. The **south-western Cape** is one of the richest floral areas on Earth - over 8500 plant species live in this small area (compared to 1800 native plants in Britain, which is 3 ½ times bigger in size) and 68% are unique (endemic) to this region.


Erica caffra

On your left, look for **(1)** ***Erica caffra*** (see photo). Like most ***Ericas***, it has needle shaped leaves which are well adapted to the hot, dry summers, when plants need to minimize water loss. Many of the 650 South African ***Ericas*** have fragrant tubular flowers which have evolved to be pollinated by long-beaked birds and long-tongued insects.


Restio sp.

As you carry on down the path, you may feel the temperature cool. This lower area represents water-filled gullies, which criss-cross the **Fynbos**. Known by the Africaans as 'kloofs' they are characterized by the tall **(2) Cape reeds -** ***Restio sp*** (see photo). There are a staggering 320 different species of ***Restio*** that are unique to the Cape.

Carry on round the corner. Past the pond are **(3)** plants found in the **mountain laurel forests** of the **Canary Islands**. Rain clouds condense on the tall laurel trees, turn to water and drip down the tree trunks like raindrops. This unique forest habitat once dominated large part s of the Mediterranean Basin

but is now restricted to tiny fragments. Widespread deforestation has now been halted after conservationists made a link between tree loss, tourism and a dramatic decline in natural water supplies.

Turn right at the T junction. After you've past the white sandstone walls, you'll find on your left **(4)** plants from the **Chaparral** of **California**. Situated on a thin strip of coast, this habitat of prickly **oak, ceanothus** and **yucca** gave rise to the 'chaps' worn by cowboys to protect their legs. Colourful annuals, such as **lupins, clarkias** and **Californian poppies (**see photo**)** create a seasonally stunning landscape.

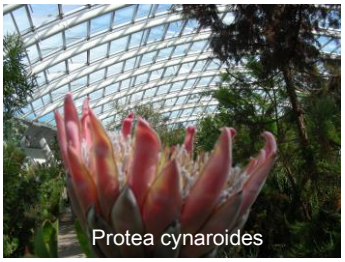
On your right, is the start of the **Australian** zone. Only a small area of **Western and South Australia** has a med climate but over 8000 plants grow there, 75% of which are uniquely adapted to this area. The rarest is **(5)** ***Grevillea maccutcheonii*** (see photo). This is a member of a family of plants called the **Proteaceae** which originated on the ancient supercontinent of Gondwana. As this landmass broke up into smaller continents, some 140 million years ago, the plants became separated by thousands of miles of ocean. There are currently about 1400 different species in the family and they are found only in the Southern Hemisphere, mainly in Australia and Africa with some in South America.

Continue along the path and turn right. This habitat, which Aborigines called **Kwongan**, is full of plants that have adapted to fires which tear through during arid seasons. **(6) Hakeas** (see photo) and **banksias** are tree-like plants whose woody cones are so hard they only open up in the intense heat of a fire. This gives their germinated shoots a competitive advantage in the scorched landscape.

You'll come across a bridge – cross over it. Now you are amongst plants found in the coast and foothills of Central **Chile**. This habitat is known as the **Mattoral**. This has less natural fires than other med climate areas, so plants like the **(7)** ***puya*** are not as adapted to cope with fire as those in Australia. Many of the **Mattoral's** tree species have leathery leaves.

As you leave Chile, you come to another bridge. As you cross it, look to your left to see **(8)** more of the Canary Islands' display, especially a variety of succulent plants like **euphorbias** and **aeoniums** (see photo). These have developed a thick waxy surface to allow them to store up water in hot dry conditions.

Towards the end of the bridge, you have now entered the **Maquis** habitat of the **Mediterranean Basin**. Notice how fragrant the plants are here. **(9) Lavender, rosemary** and **thyme** are all distinctive. Many plants only smell when crushed – this is a natural defence against grazing animals. Others give off a beautiful perfume to attract pollinating insects and birds.



Walk further along the path and you're back in **the Cape area of South Africa**. Here you'll find a stunning variety of **proteas** each with distinct flowers and colourful bracts. The **(10) King protea** ***Protea cynaroides*** has evolved flat vertical leaves to reduce moisture loss. Its flowers, which can take up to 4 months to fully emerge, are rich in fructose and glucose to attract pollinating birds.
Like the **proteas,** many of the **(11)** ***Leucadendron*** trees you see here look like they'll become huge trees. But on the **Fynbos**, they have to grow quickly as they get caught in scrub fires every few years.

At the end of the path **(12)**, you might see some spectacular flowers, such as Chasmanthia, Freesia and Gladiolus growing out from bulbs. Bulbs allow plants to lay dormant in the hostile hot and dry summers and med climate regions have developed a greater diversity of bulbous plants than anywhere else on Earth.

We hope you've enjoyed this Ecology trail.