



Tour



Survive and Thrive

Plant Adaptation Trail

Glasshouses edition

Plant Adaptations

Plants have evolved over time to suit their environment allowing them to survive and thrive in different habitats. These are called adaptations and come in many forms. Some are physical such as spines and succulent leaves, some are hidden such as large tap roots that stretch deeper into the ground to reach water. Adaptations have evolved over millions of years and most plants just wouldn't exist without them. We have many examples of plant adaptations here at the National Botanic Garden of Wales, especially in the glasshouses. We've picked some of our favourites for you to find yourself!

Now that you're an adaptation expert, can you spot other plants with unique adaptations around the Garden? They don't have to be in the glasshouses!



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Mae fersiwn Gymraeg o'r ddogfen hon ar gael



1. *Euphorbia polygona* · African Milk Barrel



A South African plant that has adapted to tolerate drought through its succulent nature, allowing it to store water. It has also developed a prickly appearance, which are modified stipules. Not to be confused with a cactus!

2. *Vachellia karroo* · Sweet Thorn



Also found in South Africa, this fascinating Acacia has spines that act as a defence mechanism against herbivores. In this case, giraffes! They also have the added benefit of offering protection for small birds against predators.

3. *Aloe arborescens* · Candelabra Aloe



Aloe plants are famous for their succulent leaves, but did you know their flowers are equally fascinating? Long and tubular in shape, they're designed to attract birds such as the Sunbird, whose long beak easily reaches the nectar. The thick flower stems also help support the bird as it feeds.

4. *Salvia rosmarinus* · Rosemary



You may recognise this plant which is commonly used as a herb. But did you know that the lovely scent of Rosemary actually exists to deter predators? It certainly doesn't deter us!

5. *Melaleuca elliptica* · Granite Bottlebrush



Wildfires are a common occurrence in Western Australia so a lot of plants have had to adapt to this. The papery bark of this Melaleuca will go up in flames quickly which prevents the rest of the plant from being scorched.

6. *Banksia blechnifolia* · Fern Leaved Banksia



If you look closely you can see that the leaves of this plant are lined with fur. This is to protect it from the sun! A natural sun cream. The seed pods of this plant have also adapted to fire, which release seeds when burnt.

7. *Nepenthes maxima* · The Great Pitcher Plant



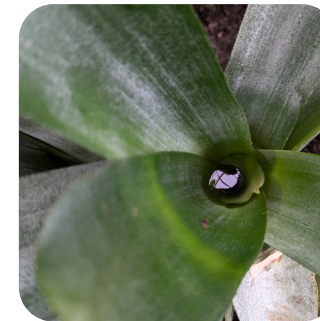
Some plants aren't all what they seem. This one grows small containers named pitchers which contain a digestive liquid that attracts insects by its smell. The prey then falls in and gets dissolved by the juices at the bottom. A great way to get those necessary nutrients!

8. *Monstera deliciosa* · Swiss Cheese Plant



Originating from Mexico's lush tropical forests, the Monstera uses aerial roots to climb neighbouring plants in search of sunlight. Its unique leaf holes allow light to reach lower foliage while shielding it from strong winds and rain. The pointed leaf tip or 'Drip Tip' ensures water quickly runs off, preventing damage in heavy rain.

9. *Aechmea coelestis* · Sky Blue Bromeliad



Bromeliads are epiphytes, meaning they grow on other plants to get water and nutrients. Look closely at this plant, you'll see the funnel-shaped reservoir full of water. This holds quite a lot of microscopic life in it that produces the nutrients the plant needs. A symbiotic relationship!

Explore plants from six regions in our Great Glasshouse: California, Australia, the Canary Islands, Chile, South Africa, and the Mediterranean Basin. These areas share a Mediterranean climate—hot, dry summers, cool winters, and dazzling sunlight—and host over 20% of all flowering plants, despite covering less than 2% of Earth's surface.

Step into our Tropical House to discover vibrant rainforest plants, adapted to hot, humid conditions with high rainfall. Tropical rainforests, covering just 6% of the land, are a biodiversity hotspot, housing more than 80% of the world's documented species.

Introduction