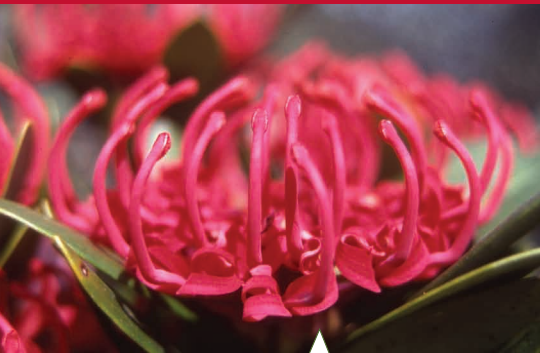


Tasmania - from the wet west to the dry east.

This collection is maintained with the assistance of the Regional Branch of the Australian Plant Society.

Influences on the development of the Tasmanian plant mix



When Gondwana existed as a super continent, Australia and Tasmania, Africa, South America, New Zealand and Antarctica shared many plant families and some Genera.

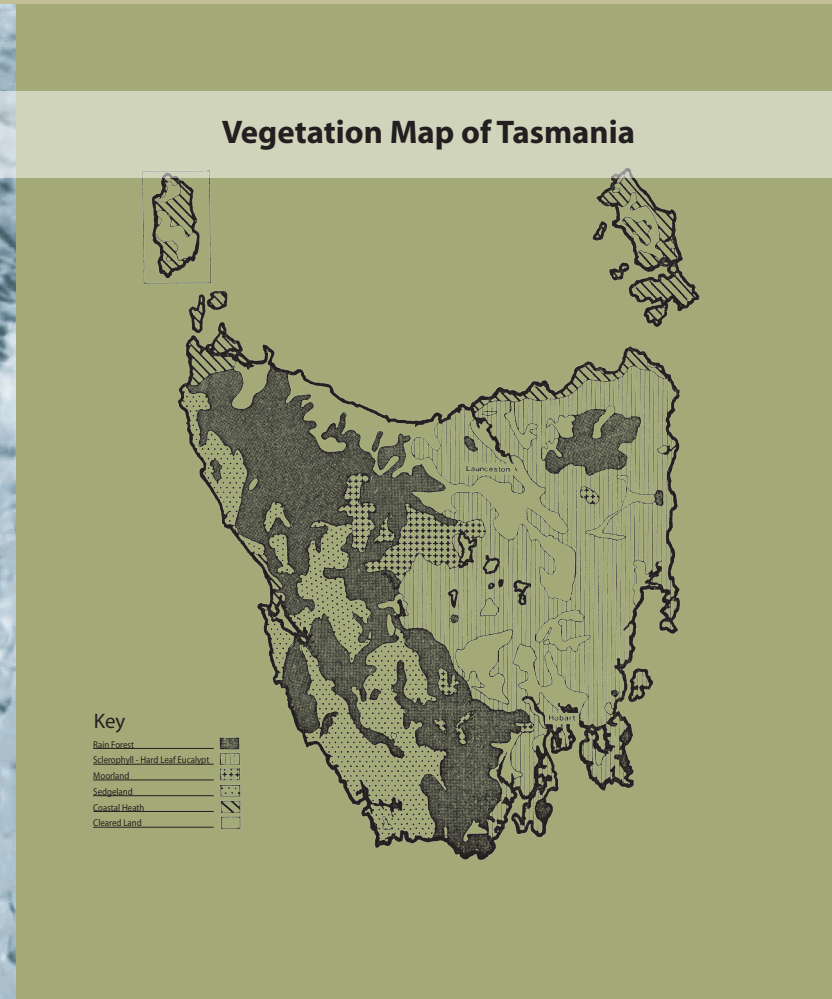
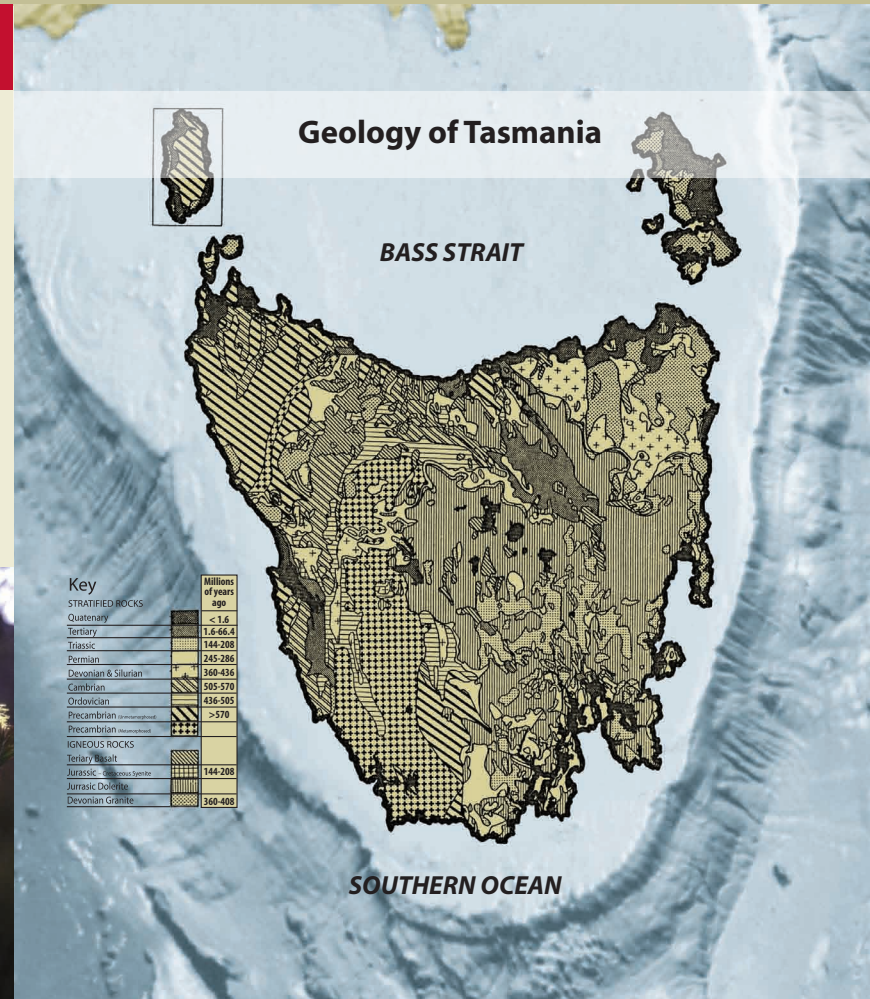
For example, the protea family has members in all those land masses except Antarctica. The Southern Africa panel covers the protea family more fully.

Tasmania was the last land mass to break away from Antarctica. The opening of the gap between these land masses allowed the ocean to circulate around Antarctica, cooling the earth's climate and so locking up vast quantities of water as ice.

As Australia drifted north, its climate became drier and hotter. Plants evolved to cope with the climate changes. Tasmania's southern position, surrounded by ocean, kept the island relatively cool and moist so plants did not have to adapt as much. Much of the flora of the ancient continent is represented in Tasmania. An example is the southern cool temperate rainforest.

Tasmanian plants have adapted to moist fire free conditions while plants in other parts of Australia are more drought and fire tolerant.

The bottlebrush (*Callistemon pallidus*) a plant more adapted to drier plant communities.



Montane moorland and cool oceanic heathland

The Tasmanian highland vegetation developed in isolation from the Australian Alps. Even during ice ages, hundreds of kilometres of lowland vegetation separated the two high altitude environments.

Montane plants have to cope with wide temperature fluctuations, with periods of below 0°C and exposure to winds. Cold may be prolonged if the ground freezes. Plants may be blanketed by snow or the mountains by cloud. Snowmelt or clear weather can cause intense rays of light, resulting in high temperature. Wind or sun can dry the plant and soil.



Plants require moisture and warmth. Small hard leaves offer protection from the drying effects of sun and wind. Low growth avoids wind. Branches grow close together to shelter the parts of each plant. Some leaves are rolled or have hairs as mechanisms to provide shelter from winds.

Examples of these growth habits can be seen at the Alpine Arbor.

Moorland

East Coast communities

New growth on pandani Richea pandanifolia

Most plants on the east coast are exposed to full sun and the effects of dry winds, so leaves are small and firm, often with a waxy coating. Flora developing under such conditions are described as sclerophyll [hard leaved]. Where wind blows salt or sand through the plants, many have evolved hairs or scales to protect the leaves and stems from the drying effects of salt and abrasion by wind borne particles.

The Correa and she-oak [*Allocasuarina* species] are typical of these plants.

The rock under the Bicheno area and on the Tasman Peninsular weathers to form a rich soil. At Freycinet Peninsula the main rock is granite, which weathers to produce a poor soil.

These climatic and soil conditions have produced local flora with a large number of endemic plants.

In the Tasmanian collection, an area represents the east coast woodland and forest. From a distance, because the plants have sclerophyll leaves, they look like plants on mainland Australia. Closer inspection reveals notable differences.

Grevillea australis grows in other parts of Australia, but the two forms here have distinct differences. *Melaleuca* generally like damp sites but *Melaleuca pustulata* grows on hillsides in the driest part of the east coast of Tasmania.

The predominant flower colours in the east coast are white and yellow. These colours are typical throughout Tasmania.

Factors affecting plant distribution within Tasmania

Tasmania consists of several distinct environments.

The elevated central plateau and mountains form a barrier between east and west. For most of the past two million years, this central plateau was covered by an ice sheet.

Topography causes high rainfall on the west coast, while the centre, east coast and the south east are relatively dry.

Rocks in the south west are high in silica; when these decompose, they form poor soils. Rocks in the north west and centre form richer soils.

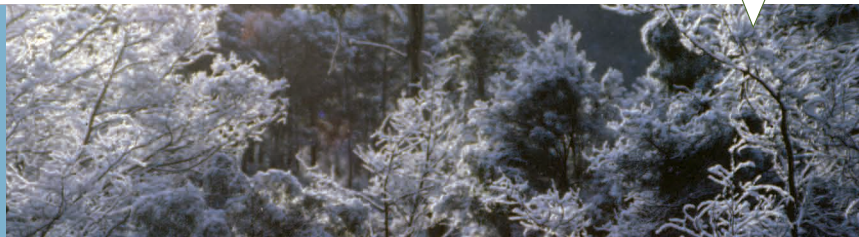
The deep valleys and mountains provide a diversity of heights, slopes and exposures to sun.

At least 10% of Tasmania's plant species are endemic; they grow nowhere else in the world. Many distinctive plant communities developed. Three of these are featured here.

Forest covered in frost



Richea pandanifolia under snow



Cool temperate rainforest

Southern cool temperate rainforests have fewer species dominating the canopy than do tropical rainforests. In Tasmania the dominant species is the myrtle beech [*Nothofagus cunninghamii*]. There are small areas where sassafras [*Atherosperma moschatum*] or leatherwood [*Eucryphia lucida*] are co-dominant. In higher altitudes, the King Billy pine [*Athrotaxis selaginoides*] or cheshunt pine [*Diselma archeri*] co-dominate or form conifer forests.

The leaves of many rainforest plants have fine teeth or serrations. They are generally bright green. The leaves in the canopy have to tolerate harsh conditions and so tend to be hard. Myrtle beech leaves are small, like those of the southern-most members of the genus *Nothofagus*.

While climbers and lianas are found in tropical rainforest, they are absent from cool temperate rainforest. The understorey may consist of ferns or shrubs such as laurel [*Anopterus glandulosus*] or the plum [*Cenarrhens nitida*] or pandani [*Richea pandanifolia*].

In some locations, the canopy and understorey are of almost equal height; this is called a thamnic forest. Mosses, liverworts and lichens can be abundant. Understorey plants have to collect whatever sunlight can penetrate the canopy, so their leaves tend to be large, soft and a rich green from the large number of chloroplasts.

