(I did this last year when I was talking about the flora of Britain, but please don't judge me)

Flora of Australia

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Eucalypt forests in Victoria. Australia's tree flora is dominated by a single genus, Eucalyptus, and related Myrtaceae.

- The flora of Australia comprises a vast assemblage of plant species estimated to over 20,000 vascular and 14,000 non-vascular plants, 250,000 species of fungi and over 3,000 lichens. The flora has strong affinities with the flora of Gondwana, and below the family level has a highly endemic angiosperm flora whose diversity was shaped by the effects of continental drift and climate change since the Cretaceous. Prominent features of the Australian flora are adaptations to aridity and fire which include scleromorphy and serotiny. These adaptations are common in species from the large and well-known families Proteaceae (Banksia), Myrtaceae (Eucalyptus - gum trees), and Fabaceae (Acacia - wattle).

Origins

- Australia was part of the southern supercontinent Gondwana, which also included South America, Africa, India and Antarctica. Most of the modern Australian flora had their origin in Gondwana during the Cretaceous when Australia was covered in subtropical rainforest. Australian ferns and gymnosperm bear strong resemblance to their Gondwanan ancestors, and prominent members of the early Gondwanan angiosperm flora such as the Nothofagus, Myrtaceae and Proteaceae were also present in Australia.

The Tasmanian rainforest is considered a Gondwanan relic.

- Gondwana began to break up 140 million years ago (MYA); 50 MYA during the Eocene Australia separated from Antarctica, and was relatively isolated until the collision of the Indo-Australian Plate with Asia in the Miocene era 5.3 MYA. As Australia drifted, local and global climatic change had a significant and lasting effect: a circumpolar oceanic current developed, atmospheric circulation increased as Australia moved away from Antarctica, precipitation fell, there was a slow warming of the continent and arid conditions started to develop. These conditions of geographic isolation and aridity led to the development of a more complex flora. From 25-10 MYA pollen records suggest the rapid radiation of species like Eucalyptus, Casuarina, Allocasuarina, Banksia and the pea-flowered legumes, and the development of open forest; grasslands started to develop from the Eocene. Collision with the Eurasian Plate also led to additional South-east Asian and cosmopolitan elements entering the flora like the Lepidium and Chenopodioideae.

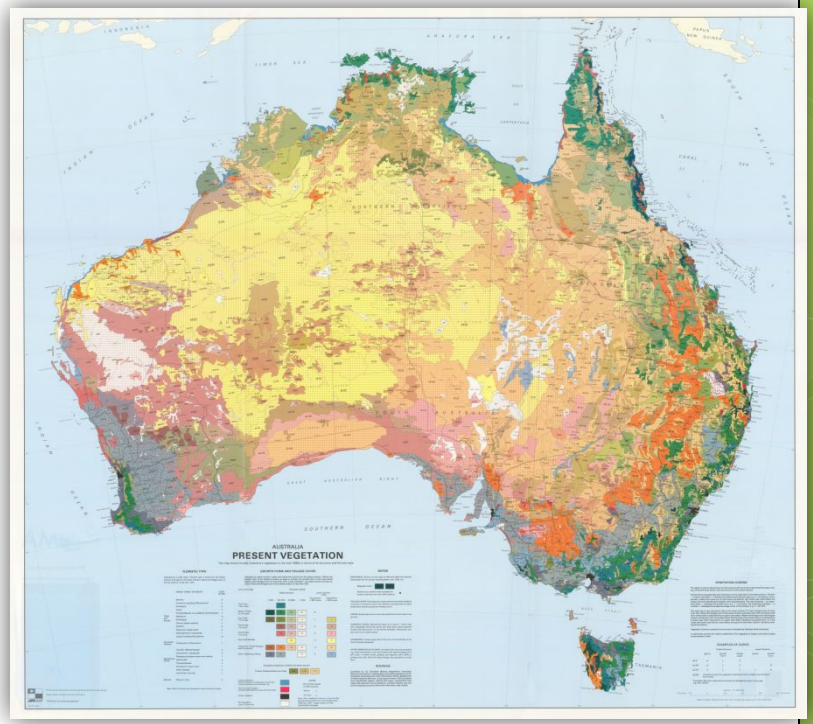
- Rising aridity also increased the frequency of fires in Australia. Fire is thought to have played a role in the development and distribution of fire-adapted species from the Late Pleistocene. An increase in charcoal in sediment around 38,000 years ago coincides with dates for the inhabitation of Australia by the Indigenous Australians and suggests that man-made fires, from practices like fire-stick farming, have played an important role in the establishment and maintenance of sclerophyll forest, especially on the east coast of Australia. Adaptations to fire include lignotubers and epicormic buds in Eucalyptus and Banksia species that allow fast regeneration following fire. Some genera also exhibit serotiny, the release of seed only in response to heat and/or smoke. Xanthorrhoea grass trees and some species of orchids only flower after fire.

Vegetation types

- Australia's terrestrial flora can be collected into characteristic vegetation groups. The most important determinant is rainfall, followed by temperature which affects water availability. Several schemes of varying complexity have been created, the most recent scheme developed by the Natural Heritage Trust divides Australia's terrestrial flora into 30 Major Vegetation Groups, and 67 Major Vegetation Subgroups.

- According to the scheme the most common vegetation types are those that are adapted to arid conditions where the area has not been significantly reduced by human activities such as land clearing for agriculture. The dominant vegetation type in Australia is the hummock grasslands that occur extensively in arid Western Australia, South Australia and the Northern Territory. It accounts for 23% of the native vegetation, the predominant species of which are from the genus Triodia. Zygochloa also occurs in inland sandy areas like the Simpson Desert.

Major vegetation groups in Australia from the 2009 Atlas of Australian Resources



- A further 39% of native vegetation is covered by a combination of:

- Eucalypt woodlands found at the transition between hummock grasslands and higher rainfall areas where conditions still limit tree growth; the woodland may have a grass or shrubby understory. The largest area is in Queensland.
- Acacia forests and woodlands that occur in semi-arid areas where tree growth is stunted. The dominant Acacia species varies with the location, and may include lancewood, bendee, mulga, gidgee and brigalow. The largest area is in Western Australia.
- Acacia shrublands in semi arid and arid regions. The most common are mulga shrublands; the largest area is in Western Australia.
- Tussock grasslands that occur in semi-arid and some temperate[clarification needed] parts of Australia; they host a large variety of grasses from more than 10 genera. The largest area is in Queensland.
- Chenopod/samphire shrubs and forblands that are widespread in the near-estuarine, arid and semi-arid areas. Species in chenopod communities are drought and salt tolerant and include the genera Sclerolaena, Atriplex, Maireana, Chenopodium and Rhagodia while samphire representatives include Tecticornia, Salicornia, Sclerostegia and Sarcocornia. Both South and Western Australia have large areas with this vegetation type.

Hummock grassland, the green hummocks are Triodia pungens and the blue-grey hummocks are Triodia basedowii.

Vascular plants

Australia has over 30,000 described species of vascular plants, these include the angiosperms, seed-bearing non-angiosperms (like the conifers and cycads), and the spore-bearing ferns and fern allies. Of these about 11% are naturalised species; the remainder are native or endemic. The vascular plant flora has been extensively catalogued, the work being published in the ongoing Flora of Australia series. A list of vascular plant families represented in Australia using the Cronquist system is also available.

At the higher taxonomic levels the Australian flora is similar to that of the rest of the world; most vascular plant families are represented within the native flora, with the exception of the cacti, birch and a few others, while 9 families occur only in Australia. Australia's vascular flora is estimated to be 85% endemic; this high level of vascular plant endemism is largely attributable to the radiation of some families like the Proteaceae, Myrtaceae, and Fabaceae.

Non-vascular plants

- The algae are a large and diverse group of photosynthetic organisms. Many studies of algae include the cyanobacteria, in addition to micro and macro eukaryotic types that inhabit both fresh and saltwater. Currently, about 10,000 to 12,000 species of algae are known for Australia. The algal flora of Australia is unevenly documented: northern Australia remains largely uncollected for seaweeds and marine phytoplankton, descriptions of freshwater algae are patchy, and the collection of terrestrial algae has been almost completely neglected.

- The bryophytes – mosses, liverworts and hornworts – are primitive, usually terrestrial, plants that inhabit the tropics, cool-temperate regions and montane areas; there are some specialised members that are adapted to semi-arid and arid Australia. There are slightly fewer that 1,000 recognised species of moss in Australia. The five largest genera are the Fissidens, Bryum, Campylopus, Macromitrium and Andreaea. There are also over 800 species of liver- and horn-worts in 148 genera in Australia

Extinct and Endangered Plants

- Human activities in Australia have led to the extinction of more than eighty species of plants, and the list of endangered plants contains more than two hundred species. Many nonnative species have been introduced to Australia by Europeans.
- Some have become pests, such as the blackberry in Victoria, the lantana in north Queensland, and water hyacinth, found throughout the continent. There are 462 national parks in Australia, as well as other conservation areas, where native flora are protected.

Thanks for your attention <3