

International Year of Deserts and Desertification

Desert Flora

Australia's arid zone supports a rich diversity of flora and fauna. Desert plants have a number of adaptations which enable them to survive extreme temperatures, evaporative winds, high salinity and limited, inconsistent rainfall. As the beginning of the food chain plants are vital to the ecosystems of these regions (for example, plants transfer moisture stored in the earth to animals).

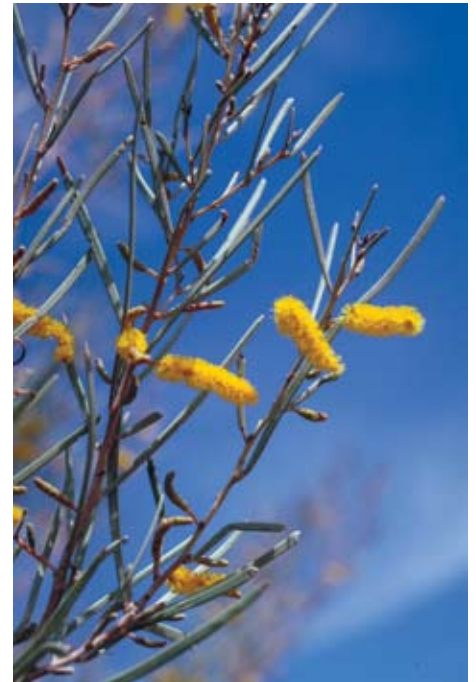
Special features of desert plants

Plants lose water through tiny openings in the leaves called stomata. For protection against water loss, high light intensity and heat, the leaves of many Australian desert plants are small in surface area, often long and slender. Some are covered in fine hairs, resin or wax to trap a layer of humid air and reduce evaporation; others have developed shiny or powdery surfaces which reflect light. There are plants which are nearly leafless, largely relying on their green moisture-retaining stems to photosynthesise food. Some plants shed their leaves completely in times of drought, lying dormant until it rains again. Other moisture-conserving features include leaves which curl tightly in dry conditions or position themselves edge-on to the sun. To gather moisture over a greater area, the root systems are also specially adapted, either

deeply penetrating or widely spreading.

These features allow plants to survive long periods without rain. However, the desert is not always dry and some plants have adapted their entire life-cycle around brief and unpredictable rains. Chemical inhibitors in the seed prevent germination until a suitable amount of moisture is available. After germination is triggered, they grow rapidly, flower and die, spreading new seed for the next heavy rainfall.

The variations in climate, topography and soils within Australia's arid zone have led to a great range of unique plants found nowhere else in the world. Plants of the Australian desert have long been an important part of life for local Aboriginal peoples. They are a source of food, water, medicine and fuel; they also provide materials for making implements, weapons



Instead of leaves, mulgas (*Acacia aneura*) have silvery phyllodes (modified leaf stems), which are vertically aligned. This shape helps them avoid full exposure to the sun, and also efficiently channels any available rainfall down to the roots.



Porcupine Grass (*Triodia* sp) thrives in soils which are low in nutrients and moisture—its roots can reach depths of up to 10 metres. Its hard, waxy leaves roll tightly into vertical spikes, minimising exposure to the midday sun and preventing water loss through stomata on the inner surface.



Australian Government

Department of the
Environment and Heritage



and ornaments. For many people in the desert, certain plants are associated with ancestral beings. Collection of plant foods is a culturally important activity, reinforcing traditional links with country and customs. Tourism in desert regions is also dependent upon the conservation of desert environments.

People outside desert areas are now recognising the value of desert plants. A number of these plants are being studied for their nutritional and medicinal value, and traditional bush foods are appearing more frequently in city restaurants and supermarkets. As low maintenance protection against erosion, drought tolerant plants can be grown to stabilise fragile soils, while salt tolerant desert plants are used to revegetate land affected by the increasing problem of salinity.

Threats to desert plants

Since European settlement, Australia's deserts have been subject to profound change. The survival of some native species has been threatened by land clearing, changing fire regimes and climate, and the introduction of exotic plants and animals. The Australian Government has listed some desert species as endangered under the *Environment Protection and Biodiversity Conservation Act 1999*. This list can be found at www.deh.gov.au/cgi-bin/sprat/public/sprat.pl



The brilliant displays of wildflowers following heavy rains are even more spectacular after extended dry periods. The longer the drought, the greater the build-up of nutrients produced by soil microflora.



The small, succulent leaves of the Saltbush (*Atriplex* sp) store water and secrete salt onto the leaf surface. This enables it to survive in soils with high levels of salt. Saltbush is used as a solution to rising soil salinity in Australia.

Further Information

The Centre—The Natural History of Australia's Desert Regions
Penny Van Oosterzee & Reg Morrison

<http://www.deh.gov.au/parks/uluru/natural/flora.html>

www.australian-aridlands-botanic-garden.org

www.anbg.gov.au/anbg



Unless otherwise stated, photos © Australian National Botanic Gardens

Further Information visit: www.deh.gov.au/events/iydd/index.html and www.iydd.org