

Central Australian Ranges

Land Management in the central Australian ranges and environs

The mountain ranges of central Australia cover over 115,000 square kilometres.

The mountains are generally referred to as the MacDonnell Ranges but include many outcrops which are identifiably distinct, such as the Harts, Strangeways, MacDonnell, Chewings, James, and Krichauff Ranges, as well as several other smaller regions (see map overleaf).

The diversity of geology and landforms coupled with the highly variable climate provide an extraordinary variety of environments in which organisms may live. This variety is further increased because the region lies in the zone of overlap between tropical and temperate climate systems. There is a significantly higher species richness of reptiles, birds and plants in the mountain regions than in the surrounding plains. This is matched by greater human activity.

The landforms of the mountain region of central Australia are the product of geological processes coupled with climate. The strong east-west orientation of the mountains gives rise to spectacular landforms of long ridges and valleys. The outcrops vary in elevation from about 300-1500m above sea level.

The climate of the mountain region is described as hot and arid, but actually has hot dry summers and cool dry winters. Rainfall is low and highly variable, but somewhat summer dominant.

Because of the protection of gorges, and the diversity of conditions, the ranges harbour various plants and animals that are otherwise only found in the more northerly tropical or southerly temperate regions of the continent.

Plants

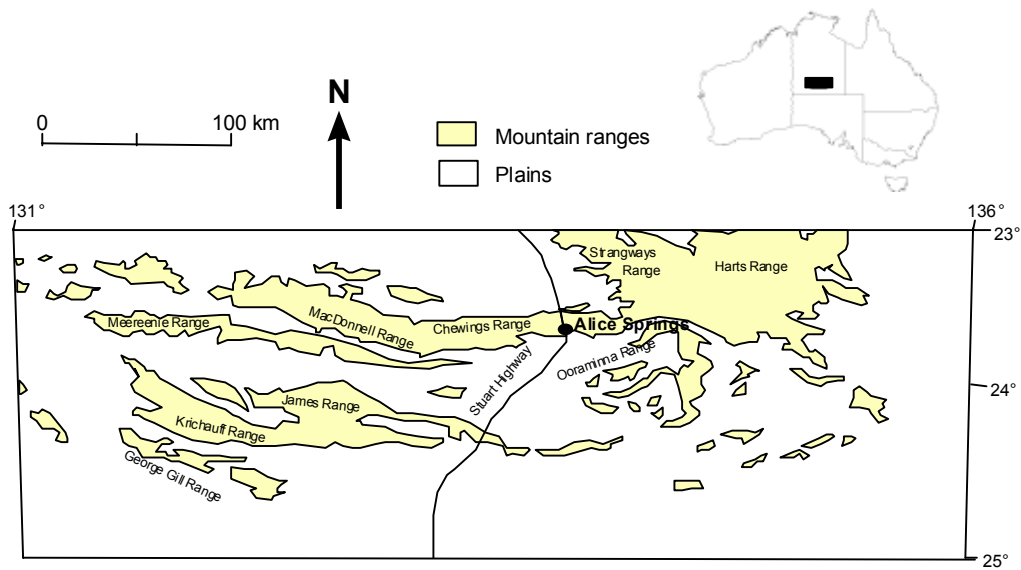
The flora of the mountain regions of central Australia is unusually diverse, with a high frequency and cover of perennial species. There are more than 2000 plant species in central Australia, 1865 of them indigenous to the region. The dominant communities on the mountain ranges are:

- spinifex (*Triodia* spp.) shrublands on the quartzites, sandstones and some gneisses;
- Mulga (*Acacia aneura*) and witchetty bush (*Acacia kempeana*) shrublands on the gneisses and sandstones;
- open Ironwood (*Acacia estrophia-lata*) -Acacia shrublands on the flood-plains adjacent to the hills and rivers; and,
- River Red Gum (*Eucalyptus camaldulensis*) and Tea Tree (*Melaleuca* spp.) woodlands on the watercourses.



Animals

There are 420 species of native terrestrial vertebrates known from the central Australian ranges area - including 231 birds, 123 reptiles, 56 mammals and 10 frogs. Of these, 13 mammals and the malleefowl have become extinct in the area over the last century, with an additional 33 species in decline. During this time 16 exotic species have also become established in the area (13 mammals, 3 birds). Extinctions have been most common in the habitats of the valley floors and around waterholes, due to the impacts of introduced grazers such as cattle, rabbits and feral horses and by predation from cats and foxes.



Map: Extent and location of the Central Australian Mountain Ranges

Fire

Fires occur commonly in the mountains of central Australia, mostly over the summer months, initiated by lightning. Aboriginal people have hunted, gathered and used fire extensively in the mountain ranges for over 20,000 years. Fire remains an important process affecting biota in the ranges. Changes in fire regimes since regular Aboriginal occupation have been implicated in changes in the mammal fauna.



Land use

Land resource use is diverse in the central mountain ranges, including especially pastoralism, Aboriginal habitation, mining, conservation and tourism. Land use over the past century had led to numerous impacts in the region, including loss of biota, soil erosion, and changes in the composition of plant communities. Interests in, and uses of land have changed over the last century, placing new demands on land use and allocation. Critical to making decisions about land use and its management is the understanding of natural resources and their dynamics.

Research

To assist with land use planning by providing a means of assessing the potential conflicts between conservation and other land uses, CAZR and the NT Parks and Wildlife Commission have collaboratively developed the Central Australian Ranges Geographic Information System (CARGIS). CARGIS is a computerised database and interrogation system using ARC/INFO software to provide spatial information on the physical environment and the distribution of flora and fauna in the region.



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