Australian Government
Department of the Environment and Energy

NVIS Fact sheet
MVG 16 – Acacia shrublands

Australia's native vegetation is a rich and fundamental element of our natural heritage. It binds and nourishes our ancient soils; shelters and sustains wildlife, protects streams, wetlands, estuaries, and coastlines; and absorbs carbon dioxide while emitting oxygen. The National Vegetation Information System (NVIS) has been developed and maintained by all Australian governments to provide a national picture that captures and explains the broad diversity of our native vegetation.

This is part of a series of fact sheets which the Australian Government developed based on NVIS Version 4.2 data to provide detailed descriptions of the major vegetation groups (MVGs) and other MVG types. The series is comprised of a fact sheet for each of the 25 MVGs to inform their use by planners and policy makers. An additional eight MVGs are available outlining other MVG types.

For more information on these fact sheets, including its limitations and caveats related to its use, please see: 'Introduction to the Major Vegetation Group (MVG) fact sheets'.

Overview

Typically, vegetation areas classified under MVG 16 – Acacia shrublands:

- comprise understoreys dominated by multi-stemmed acacia shrubs with the most widespread species being Acacia aneura (mulga)
- have mulga vegetation which takes on a variety of structural expressions and is consequently classified partly within MVG 16 where the overstorey is dominated by multi-stemmed shrubs, partly within MVG 6 in accordance with the Kyoto Protocol definition of forest cover in Australia (trees >two m tall and crown cover >20 per cent, foliage projective cover >10 per cent); and partly within MVG 13 where the woody dominants are predominantly single-stemmed, but with crown cover less than 20 per cent
- occur where annual rainfall is below 250 mm in southern Australia and below 350 mm in northern Australia
- have species composition varies along rainfall gradients, with substrate and rainfall seasonality
- transition into MVG 13 Acacia woodlands with higher rainfall and varying soil types
- are most commonly found on red-earth soils.

Acacia carneorum (needle wattle, purple-wood wattle), Wanaaring, NSW (Photo: M. Fagg)

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Facts and figures

Major Vegetation Group	MVG 16 - Acacia shrublands
Major Vegetation Subgroups	20. Mulga (Acacia aneura) woodlands and shrublands +/- tussock grass +/- forbs 21. Other Acacia tall open shrublands and [+/- tall] shrublands 22. Acacia (+/- low) open woodlands and sparse shrublands with chenopods 23. Acacia (+/- low) open woodlands and sparse shrublands with hummock grass 24. Acacia (+/- low) open woodlands and sparse shrublands (+/-) tussock grass 25. Acacia (+/- low) open woodlands and sparse shrublands with a shrubby understorey 32. Other shrublands 45. Mulga (Acacia aneura) open woodlands and sparse shrublands +/- tussock grass 51. Mulga (Acacia aneura) woodlands and shrublands with hummock grass 52. Mulga (Acacia aneura) open woodlands and sparse shrublands with hummock grass
Typical NVIS structural formations	Shrubland (tall, mid, low) Open shrubland (tall, mid, low) Sparse shrubland (tall, mid, low)
Number of IBRA regions	63
Most extensive in IBRA region (Est. pre-1750 and Present)	Great Victoria Desert (WA and SA)
Estimated pre-1750 extent (km²)	875 348
Present extent (km²)	855 366
Area protected (km²)	161 518

Acacia ligulata (sandhill wattle), SA (Photo: M. Fagg)

Structure and physiognomy

Forms extensive open shrublands dominated by *Acacia* shrubs generally less than four m tall (Keith 2004).

A sparse small shrub layer may occur and generally has a sparse ground cover of ephemeral herbs and perennial plants that responds to rain.

Often has a ground layer of hummock and/or tussock grasses.

MVG 16 is characterised by the microphyll phyllodes (2.5 – 20 cm^2) to nanophyll phyllodinous needles (0.25 – 2.5 cm^2) of the dominant *Acacia* which are grey, terete to narrow phyllodes that are vertically oriented aiding water distribution and minimising heat absorption.

Indicative flora

A single species of multi-stemmed acacia shrub typically dominates, but may co-occur with other members of the genus as sub-dominants or occasionally co-dominants. Acacia as a co-dominant with other genera are typically assigned to MVG 17 Other shrublands.

Acacia aneura (mulga) is the primary dominant species and commonly co-occurs with other *Acacia* species or with scattered *Eucalyptus* or *Casuarina*. Widespread congeners include *Acacia victoriae* and *A. tetragonophylla*, while *A. estrophiolata, A. grasbyi, A. quadrimarginea, A. pyrifolia* and *A. xiphophylla* may be regionally abundant in parts of central and Western Australia.

Another main *Acacia aneura* association, found mainly on sandplains, occurs with *A. calcicola, A. ligulata, A. kempeana, A. murrayana, A. ramulosa* and *A. tetragonophylla*.

Other dominant species include *A. cambagei* (gidgee), *A. victoriae, A. brachystachya* (turpentine mulga), *A. resinomarginea, A. georginae* (Georgina gidgee), *A. ramulosa* (bowgada), *A. eriopoda* (pindan), *A. tetragonophylla, A. loderi, A. harpophylla* (brigalow), *A. catenulata* (bendee), *A. torulosa, A. orthocarpa, A. victoriae, A. ligulata, A. sclerosperma, A. tumida, A. eriopoda* and *A. eremaea* (snakewood).

Associated species include *Grevillea spp., Eremophila spp. (*emu bush*)* and a wide range of chenopod shrubs *(Atriplex, Maireana, Sclerolaena)* and *Senna spp.*

Density of the overstorey affects the type of understorey that occurs within these communities. Understorey composition is also affected markedly by rainfall that can include both winter and summer events, ranging from tussock and hummock grass species to ephemeral herbs and forbs.

Environment

Climatic conditions are generally dry, hot summers, with cool to warm winters. Rainfall is variable although maximum falls occur in either summer (for northern Australia) or winter (for southern Australia).

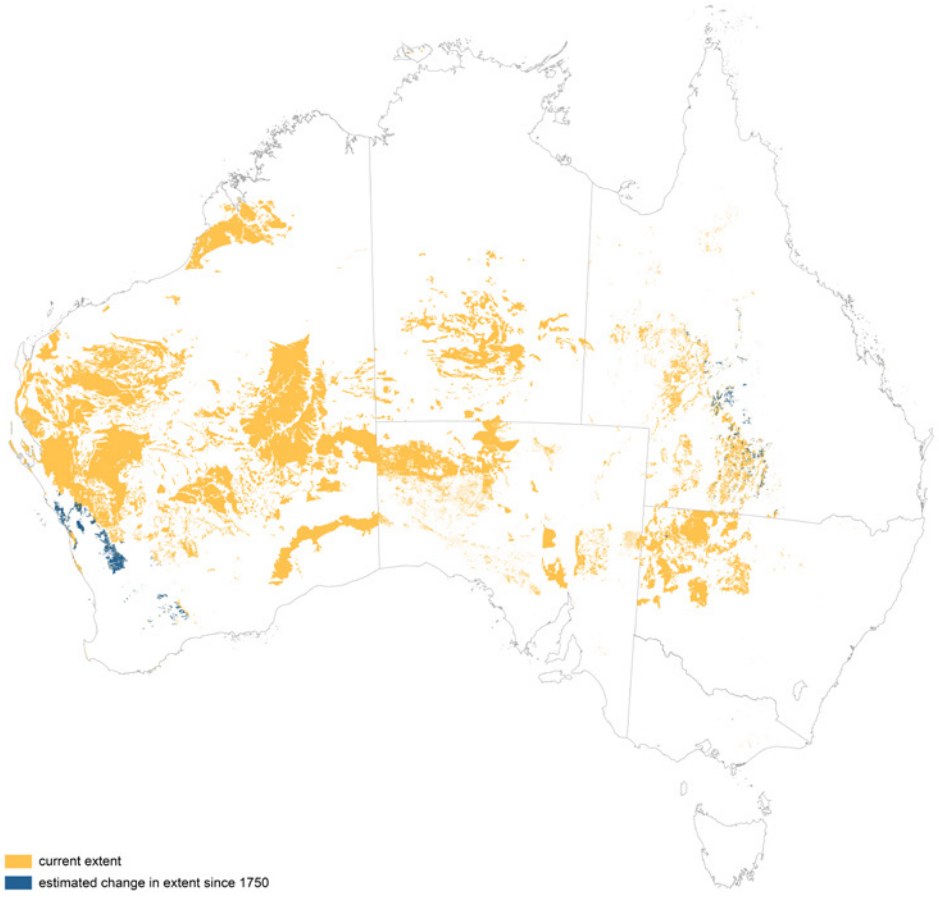
Occurs in the driest regions of Australia where rainfall is generally 300 mm or less.

Most commonly grows on plains and sandplains that may receive additional water by run-off from adjacent slopes, hills or low ranges.

Associated with residual uplands, slopes and stony peneplains or extensive red siliceous sandplains.

In Western Australia, occurs on stony hills of granite and gneiss and on lateritic scarps and breakaways.

Acacia hillii, Tanami Desert, NT (Photo: D. Keith)



Geography

- Dominates large areas of Australia particularly Western Australia, the Northern Territory, South Australia, Queensland and New South Wales.
- Largest area occurs in Western Australia (537 534 km^2).
- Occurs mainly in arid regions although they also extend into the arid tropical regions of north-west Queensland and eastern Northern Territory.

The above image outlines the location of this MVG group in Australia.

Change

- Approximately two per cent (20 000 km^2) of the estimated pre-1750 extent cleared accounting for 1.9 per cent of total clearing in Australia as a result of pastoral activities.
- Overgrazing has limited recruitment of dominant shrubs.
- Invasive plants, notably *Cenchrus ciliaris* (buffel grass), are transforming ground layer structure and making the vegetation more regularly fire prone.
- Some areas have been protected in conservation areas.
- Threats include regular or too intense fires and combined grazing pressure from domestic, feral and native animals causing loss of understorey and soil disturbance.

Key values

- Biodiversity (endangered ecological communities and species).
- Regulation of the flow of scarce resources across the landscape providing zones of deposition for water, nutrients and organic debris.
- Soil conservation in arid rangelands.
- Remnant populations of a wide range of vertebrate and invertebrate species.
- Eco-tourism in desert landscapes.
- Low-value pastoral production.

List of key management issues

- Grazing pressure from both domestic stock and feral animals.
- Interactions between stocking rates and drought cycles, implementing pastoral management systems that avoid cumulative legacies of soil degradation caused by sustained overgrazing into successive drought episodes.
- Location and access to artificial watering points, which are associated with intensification of herbivore activity and associated impacts.
- Feral animal control.
- Control of invasive grasses.
- Ensuring fire regimes are appropriate with long fire intervals.
- Long term monitoring to inform future management strategies.

References

Australian Surveying and Land Information Group (1990) *Atlas of Australian Resources. Volume 6 Vegetation*. AUSMAP, Department of Administrative Services, Canberra, 64pp. & 2 maps.

Beadle N.C.W. (1981) *The Vegetation of Australia.* Cambridge Univ. Press, Cambridge, 690pp.

Foulkes J., dePreu N., Sinclair R., Thurgate N., Sparrow B. and White A. (2014) Chenopod and acacia shrublands. In: *Biodiversity and Environmental Change Monitoring, Challenges and Direction* (eds. Lindenmayer D., Burns E., Thurgate N. and Lowe A.) pp. 439 - 478. CSIRO, Victoria.

Johnson R.W. and Burrows W.H. (1994) *Acacia* open forests, woodlands and shrublands. In: *Australian Vegetation* (ed. R.H. Groves) pp. 257-290. Cambridge Univ. Press, Cambridge.

Hodgkinson K.C. (2002) Fire regimes in Acacia woodland landscapes: effects on functional processes and biological diversity. In: *Flammable Australia.* The fire regimes and biodiversity of a continent. (ed. Bradstock R.A., Williams J.E and Gill A.M.) pp. 259 - 280. Cambridge University Press, Cambridge.

Keith D. (2004) Ocean Shores to Desert Dunes. The native vegetation of New South Wales and the ACT. Department of Environment and Conservation (NSW), Hurstville.

National Land and Water Resources Audit (2001) *Australian Native Vegetation Assessment 2001.* National Land and Water Resources Audit, Canberra, 332pp.

Neldner, V.J., Niehus, R.E., Wilson, B.A., McDonald, W.J.F. and Ford, A.J. (2014) *The Vegetation of Queensland. Descriptions of Broad Vegetation Groups.* Version 1.1. Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts.

Tongway D.J. and Ludwig J.A. (1990) Vegetation and soil patterning in semi-arid mulga lands of eastern Australia. *Australian Journal of Ecology* vol. 15, pp. 23-34.

Data sources

Interim Biogeographic Regionalisation for Australia (IBRA), Version 7.

National Vegetation Information System, Version 4.2.

Collaborative Australian Protected Areas Database – CAPAD 2014 – Terrestrial.