Australian Government
Department of the Environment and Energy

NVIS Fact sheet
MVG 5 – Eucalypt woodlands

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 5 – Eucalypt woodlands:

- form a transitional zone between the higher rainfall, forested margins of Australia (MVG 3) and the open woodlands (MVG 11 and 13), shrublands (MVG 16) and hummock grasslands (MVG 20) of the arid interior
- are distributed across all states, but most notably Queensland, Northern Territory, Western Australia and New South Wales
- may be replaced by MVG 12 in the tropics, where *Sorghum* spp. dominate the ground layer
- Eucalypts are typically the dominant trees throughout, but species of *Acacia* or *Callitris* may occur in a subcanopy
- generally describes ecosystems that contain trees widely spaced with their crowns not touching. The tree layer has a crown cover of 20 - 50 per cent (projective foliage cover 10 – 30 per cent)
- comprise woodland understoreys in the east that are mostly grassy, while those in the west are predominantly shrubby
- are the most extensively cleared and modified MVG
- are highly fragmented due to clearing for crops and improved pastures in the south-eastern and south-western wheat-sheep belts
- comprise 'parkland' landscapes, retaining remnant trees of the original woodlands in the eastern and southern parts of Australia, that evoke a strong sense of place for many Australians.

(Banner Photo) Box Gum Grassy Woodland, near Wellington, NSW
(Photo: Andrew Tatnell, DoEE)

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Facts and figures

Major Vegetation Group	MVG 5 - Eucalypt woodlands
Major Vegetation Subgroups	8. Eucalyptus woodlands with a shrubby understorey 9. Eucalyptus woodlands with a tussock grass understorey 10. Eucalyptus woodlands with a hummock grass understorey 59. Eucalyptus woodlands with a with ferns, herbs, sedges, rushes or wet tussock grassland 65. Eucalyptus woodlands with a chenopod or samphire understorey
Typical NVIS structural formations	Woodlands (tall, mid, low)
Number of IBRA regions	81
Most extensive in IBRA region	Present: Cape York Peninsula (Qld)
(Est. pre-1750 and present)	Est. pre-1750: Brigalow Belt South (Qld, NSW)
Estimated pre-1750 extent (km^2)	1 284 522
Present extent (km^2)	845 283
Area protected (km^2)	136 249

Wadi (*Eucalyptus coolabah*) woodlands showing post flood regeneration, Culgoa, NSW (Photo: D. Keith)

Structure and physiognomy

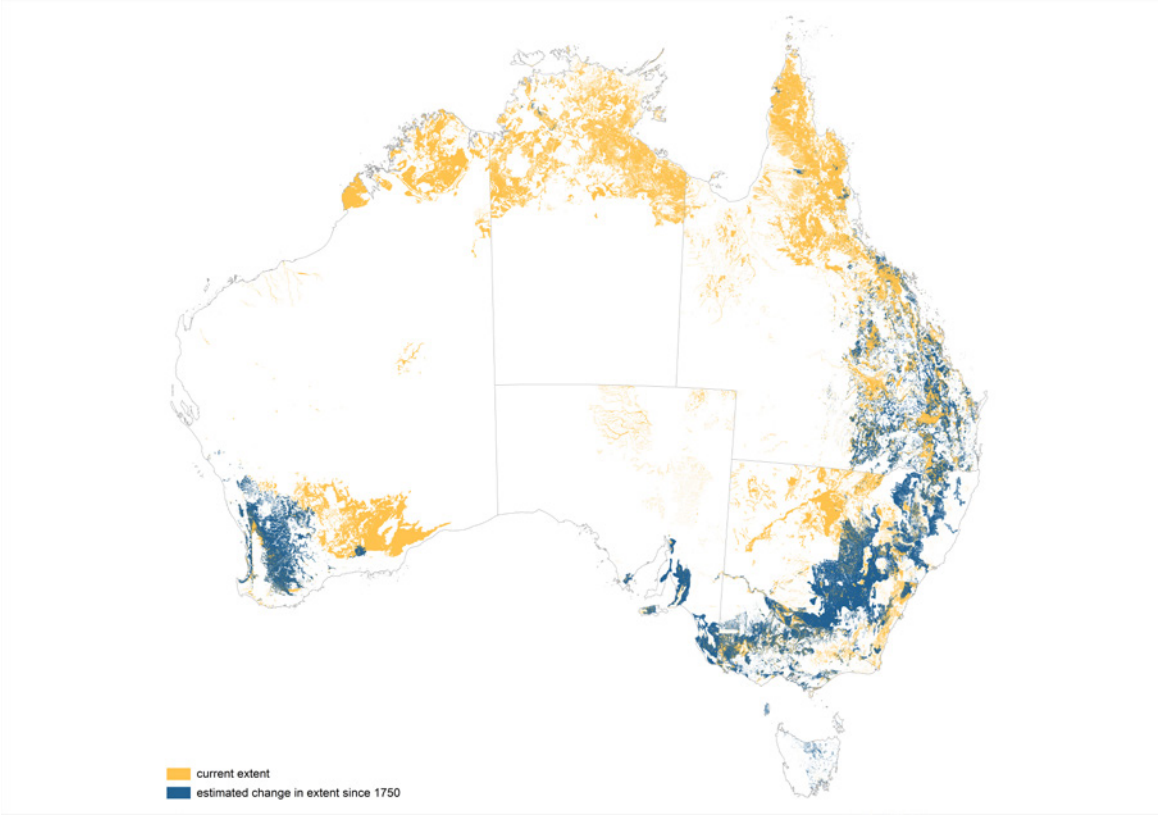
- The tree layer has a crown cover of 20 – 50 per cent (projective foliage cover 10 – 30 per cent) and is typically 10 – 30 m tall.
- Trees canopy leaf sizes vary from notophyll (20 – 45 cm^2) to mesophyll (45 – 150 cm^2) and leaves are invariably vertically oriented with essentially identical surfaces.
- May have a patchy understorey stratum of mostly non-sclerophyllous shrubs, which is more prominent in south-western Australia than in south-eastern Australia.
- The ground layer is dominated by tussock grasses with forbs, and is essentially continuous in south-eastern Australia, but generally sparse in south-western Australia.
- Tussock grasses include both C3 and C4 species that vary in dominance depending on temperature, light regimes and aridity.

Indicative flora

- Eucalypts are dominant throughout, with one to four species represented in a stand, or more than four species in the northern and western areas of the distribution.
- Non-eucalypts are uncommon in the tallest tree stratum, but species of *Acacia* or *Callitris* may occur in a subcanopy.
- Woodland composition and understorey vary regionally and with landscape context.
- Dominated in the east by 'box' and 'ironbark' eucalypts of section *Adnataria* within subgenus *Symphyomyrtus* of *Eucalyptus*, with some species of section *Exsertaria* (red gums) and, in the cooler climates, species from section *Maidenaria*. In the west, however, eucalypt species within section *Bisectaria* are dominant.
- Woodland understoreys in the east are dominated by a largely continuous ground layer comprising a mixture of C3 and C4 grasses and herbs, differing markedly from those in the west, which include a greater cover of shrubs and a less conspicuous grass component. The balance of this mixture varies with C4 grasses dominating in warmer and drier climates, and C3 grasses dominating in cooler more humid climates.

Environment

- Occur across a wide range of environments varying in climate, soil type, soil parent material and hydrology.
- The climate varies from Mediterranean in south-western and southern South Australia to summer rainfall dominant in northern New South Wales and southern Queensland.
- MVG 5 is most prevalent in regions with 200 – 800 mm mean annual rainfall.
- Occurs from sea level to 1800 m in altitude on relatively fertile loam–clay soils on a variety of fine grained sedimentary and igneous substrates.
- Usually found on the fringes of forested areas and water courses or where soil moisture or nutrients may be limiting for tree growth.
- The large number of eucalypts and their associated species occur on a wide range of environmental gradients. These relationships have been further complicated by the impact of land use following European settlement.



Geography

- In south-eastern Australia, temperate Eucalypt woodlands form a relatively continuous belt on the inland side of the Great Dividing Range from approximately 27°S in southern Queensland to the lower south-east of South Australia with a narrow strip running north and south of Adelaide. Within this zone the woodlands occur in a mosaic with areas of grasslands.
- In Tasmania, eucalypt woodlands are interspersed with grasslands and forests throughout the north-east and in the Midlands as far as 42°S.
- Eucalypt woodlands are widespread in south Western Australia and often form a mosaic with heathlands, mallee and salt lakes.
- Largest distribution of woodland type in Australia and occurs in all states and territories.
- Largest distribution is found in Queensland (>294 461 km^2).
- Makes up the largest MVG in New South Wales.

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

Change

- Approximately 430 000 km^2 cleared since European settlement: approximately 34 per cent of the estimated pre-1750 extent cleared accounting for 42 per cent of total clearing in Australia.
- Temperate woodlands are some of the most extensively cleared, heavily modified and highly degraded vegetation types in Australia, e.g. less than three per cent of the original cover of woodland dominated by White Box/ Yellow Box woodlands remains.
- An important part of cereal cropping and pastoral zones. The cleared areas are extensive so that the broad fabric of the landscape from a vegetation perspective has been lost.
- Temperate woodlands are the scene of some of the most dramatic and spectacular examples of ecosystem collapse with thousands of hectares that survived broad-scale clearing affected by secondary tree dieback and salinisation processes. Many are now listed as endangered ecological communities under Australian legislation.
- In Queensland, New South Wales and Victoria pasture improvement and tree thinning have been extensively employed in the grassy woodlands, while the shrubby understorey of other Eucalypt Woodlands has been removed to increase pasture growth.

- The shrubby understorey of remnants has often been removed either mechanically, by use of frequent fire or intense livestock grazing. These modified systems have been invaded by exotic species or have their perennial components largely replaced by ephemerals when exposed to overgrazing. In some cases, native vegetation originally mapped as Eucalypt open woodlands (MVG 11) may be modified Eucalypt woodlands.
- Urban development has encroached on localised areas of woodlands.
- Modified by pastoral activities and altered fire regimes in many places e.g. in some parts of Western Australia fire frequency changed from once every 40 – 50 years to once every six – eight years following European settlement.
- Fire regimes in remnant woodlands have changed as a consequence of fragmentation and managing fire hazard to intensive agricultural and urban areas and consequently many of the woodlands have been invaded by aggressive introduced plant species. Examples of woodlands subject to urban and rural pressures include the Cumberland Plain woodlands of western Sydney and roadside remnants in the south-west Australian wheatbelt.
- Foremost amongst threats to eucalypt woodlands are clearing of vegetation, weed invasion, the fragmentation of woodland areas, inappropriate fire regimes and unsustainable grazing management.
- Less than 16 per cent remains in secure protected areas with most areas under private or leasehold management.
- Stewardship activities are often spurred on by dieback, the need to control dryland salinisation and recognition that in many of the agricultural landscapes only senescent trees remain.

Key values

- Biodiversity including a variety of charismatic trees, understorey grasses and shrubs, and dependent fauna of one of Australia's major biomes.
- Refuge for a wide range of vertebrate and invertebrate species, including threatened species.
- Ecotourism, including bushwalking, walkways and landscape features.
- Water balance—much of the area affected by groundwater rise coincides with area of eucalypt woodlands.

List of key management issues

- Control of clearing, edge effects and disease (e.g. dieback).
- Grazing by livestock and feral animals.
- Dryland salinity.
- Restoring connectivity between remnants (e.g. wildlife corridors).
- Remnant protection and expansion.
- Fire regimes.
- Weed control.
- Long-term monitoring to inform future management strategies.

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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.

Notes

- This fact sheet should be read in conjunction with MVG 11: Eucalypt open woodlands.