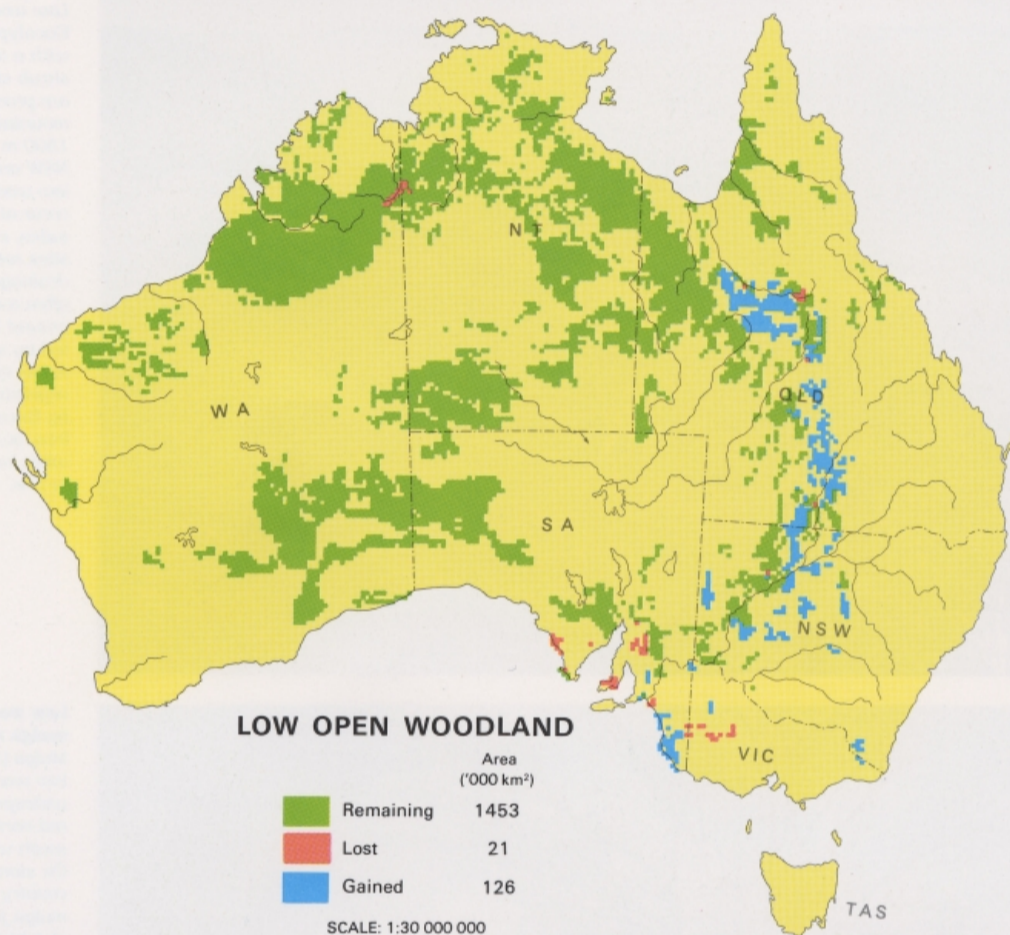


## Low open woodland Trees <10 m high; <10% foliage cover

L1

Low open woodlands are found throughout much of inland Australia where the scarcity of water and poor soils limit the height and density of trees. Eucalypts and acacias commonly dominate the tree layer but other genera also appear on the maps. The most widespread subforms are those with a hummock or tussock grass lower stratum, but shrubby or other herbaceous understoreys also occur. The ground layer of low open woodlands is often the most conspicuous feature of these landscapes, particularly when the trees are very sparsely scattered.



**Low open woodland of western myall over bluebush in SA**  
Western myall (*Acacia papyrocarpa*) is a long-lived species which forms low open woodlands (wL1kZ) or tall open shrublands, associated with chenopod shrubs such as pearl bluebush (*Maireana sedifolia*). One major occurrence is found on calcareous or sandy soils in the 125–300 mm annual rainfall zone north-west of Spencer Gulf (SA). It is also prominent along the margins of the Nullarbor Plain in WA. Most of the western myall plains in SA are used for sheep grazing and the combination of domestic stock and rabbits has seriously depleted the natural regeneration of the species.



### Low open woodland with tall shrubs

L1S

This vegetation occupies intermediate positions between woodland and shrubland. There is a wide range of tree species, with *Acacia* prominent among the shrubs.

The 'pindan' vegetation, characterised by a dense shrub stratum beneath low eucalypts (eL1wS), occurs over a large area of earthy sands to the south-west of the Kimberley region in WA. *Eucalyptus dichromophloia* is prominent in the tree stratum and *Acacia* (especially *A. tumida* and *A. eriopoda*) in the shrub stratum. In the drier areas further south-west the tree layer diminishes, leaving only the shrub layer (wS3H). The areas of eM2S north of Broome and Derby are

higher-rainfall equivalents of the pindan vegetation. There are also sparse tussock grasses including *Chrysopogon* and *Sorghum* species, and *Plectrachne pungens*, though the hummock grasses *Triodia pungens* and *Plectrachne schinzii* increase with decreasing rainfall.

Across the southern inland this subform occurs on a range of soils, mostly in areas of low relief but also in the Flinders Ranges. The trees include *Callitris glaucophylla*, *Casuarina cristata* and species of *Eucalyptus* (e.g. pL1wS, eL1wS, xL1xS) over a variety of tall shrubs including *Acacia aneura* and *E. socialis*. A former area of wL2S in central Qld is now wL1xS.

### Low open woodland with low shrubs

L1Z

Examples of this subform (xL1xZ, eL1xZ, eL1kZ) occur on the margins of the *Astrelba* grasslands (aG2, aG3) on the Barkly Tableland in Qld and NT. *Eucalyptus argillacea* and *E. terminalis* are prominent in the tree layer, along with species of *Terminalia* and *Lysiphylum*. The shrubs include species of *Acacia*, *Cassia* and *Carissa*, with *Chenopodium auricomum* in low-lying areas.

Other examples are found across the southern interior of Australia, especially on calcareous soils in areas with an annual rainfall below 300 mm. The characteristic trees include *Acacia papyrocarpa*, *Casuarina cristata* and *Myoporum platycarpum*, with *Eucalyptus largiflorens* and *Heterodendrum oleifolium* further east. The low shrubs are mostly chenopods,

especially species of *Atriplex* and *Maireana* (e.g. wL1kZ, qcL1kZ, eL1kZ, crL1kZ).

The shrub layer has been reduced by grazing in some areas, such as the former areas of qL1kZ and cL1kZ, north-east of Adelaide, now coded as qL1yG and cL1yG. At the southern end of Eyre Peninsula an area of *Melaleuca lanceolata* and *Allocasuarina verticillata* (mL1xZ) has been partly replaced by seasonal pastures (yF3) and crops.

Present areas of this vegetation between Cobar (NSW) and Cunnamulla (Qld) represent the appearance of a dense layer of shrubs (wL1xZ, weL1xZ, ewL1xZ, wpL1xZ), the 'woody weeds' referred to under L2Z, in former grassy woodlands.

### Low open woodland with hummock grasses

L1H

These open woodlands are found on sandplains, dunefields and shallow stony soils. Although the hummock grass layer is conspicuous, the plants are well spaced so the overall cover is relatively sparse.

*Eucalyptus* is widespread in the tree stratum, with many examples of eL1tH in the 200–800 mm annual rainfall range across northern Australia. Species include *E. dichromophloia*, *E. terminalis*, *E. setosa*, *E. leucophloia* and *E. brevifolia*. The hummock grasses include a number of *Triodia* species, such as the widespread *T. pungens*, *T. wiseana* on stony soils in the Hamersley Range and the Kimberley region and *T. mitchellii* in the easternmost areas in central Qld. *Plectrachne schinzii* is found in some sandy areas and *P. pungens* in the Kimberly.

*Eucalyptus gongylocarpa* and *Triodia basedowii* are major species in

the Great Victoria Desert (WA, SA), where annual rainfall is usually less than 150 mm. Sparse tall shrubs also occur, notably *E. youngiana* and *Acacia aneura*. Across the sandy country of western-central Australia, for example around Lake Amadeus and the Petermann Ranges, there are low open woodlands of *Allocasuarina decaisneana* with scattered shrubs and an understorey of *T. basedowii* (cL1tH).

In the north-west of the Great Sandy Desert, *Eucalyptus* is replaced by *Owenia reticulata* (oL1tH). Some other northern areas are dominated by a range of genera including *Grevillea* and *Lysiphylum* (xL1tH). The ranges of central Australia carry such tree species as *Atalaya hemiglauca*, *Hakea lorea*, *Callitris glaucophylla* and *E. papuana*, over several species of *Triodia*. There is an area of mL1tH in the Top End of the NT.

## L1

## Low open woodland with tussock grasses

L1G

This subform is found on heavier soils than that with a hummock grass understorey, mainly in low rainfall areas. Other examples occur naturally within the limits of taller woodlands, where poor or heavy clay soils limit tree growth.

Across northern Australia *Eucalyptus dichromophloia* is widespread, as are *E. terminalis* and *E. pruinosa* under lower rainfalls (**eL1yG**). The grasses include *Themeda australis*, *Setaria nervosum*, and species of *Chrysopogon*, *Sorghum* and *Heteropogon*, along with *Aristida* in drier areas. *E. tectifica* also occurs in the upper stratum in the Kimberley region and the Top End, as does *Plectrachne pungens* in the ground layer. The tussock form of *P. pungens* is the principal grass in the King Leopold Ranges in WA (**eL1tG**) and, in the past, was probably kept in this state by Aboriginal burning.

Domestic stock or feral animals (Graham and others 1982) have significantly changed several areas of **eL1yG** in the grazed lands of the north-west. Much of the native vegetation of the upper Ord River catchment, for example, has been eliminated though the area is now being rehabilitated with sown exotic grasses (**yG2**).

*Eucalyptus microtheca* is the characteristic tree on floodplain country right across the north and inland, while *E. largiflorens* is present in the south-east. There is often a range of grasses (**eL1yG**, **ewL1yG**) but *Astrelba* or *Dichanthium* may be dominant (**eL1aG**, **eL1dG**).

There are examples of *Eucalyptus* grassy low open woodlands in south-eastern Australia on both maps. The present areas result from changes to more dense natural vegetation; while the naturally occurring areas have now been replaced by pastures and crops.

The major natural occurrences dominated by *Acacia* are in western Qld and the NT, generally on clay and calcareous soils within the 100–400 mm annual rainfall range. Principal species are the closely related *A. cambagei* and *A. georginae*, the latter being more prominent in the west. *A. tephрина* is often asso-

ciated with *A. cambagei* in the east. Grasses include *Astrelba* (**wL1aG**) or *Dichanthium* (**wL1dG**), or a range of genera such as *Aristida* and *Erneapogon* (**wL1yG**).

The *Acacia* low woodlands of inland Qld and the Barrier Range in western NSW have been reduced to open woodlands (**wL1yG**, **weL1yG**). The recent spread of the exotic *A. nilotica* over *Astrelba* grasslands in Qld has created a large additional area of **wL1aG**.

Alluvial plains on Cape York Peninsula support *Melaleuca viridiflora* low open woodlands over a range of grasses including *Eriachne*, *Sorghum* and *Panicum* (**mL1yG**, **meL1yG**). Former low open woodlands of *M. lanceolata* over *Stipa* and *Danthonia* in coastal areas of SA have been replaced by pastures and crops.

The area dominated by *Casuarina* open woodland in western NSW has increased in the present vegetation through changes to natural woodlands or shrubby open woodlands (**crL2G**, **clL1kZ**). The dominant species is *C. cristata* (**clL1yG**), sometimes with *Heterodendrum oleifolium* as a co-dominant (**crL1yG**), over *Eragrostis* and *Stipa*. In SA and Vic., former areas of **clL1yG** dominated by *Allocasuarina verticillata* or *A. luehmannii* over *Stipa* and *Danthonia* now carry pastures or crops.

Across northern Australia the characteristic trees of low open woodlands with several tree genera (**xlL1yG**) include *Terminalia*, *Lysiphyllum* and *Eucalyptus*, with the distinctive *Adansonia gregoria* in the Kimberley region. The grasses include *Sorghum*, *Chrysopogon*, *Astrelba*, *Dichanthium* and *Eriachne*. Further south, these trees are replaced by such species as *Atalaya hemiglauca*, *Ventilago viminalis* and various acacias. The ground layer also differs, with a variable cover of grasses, such as *Aristida* and *Erneapogon*, and forbs, including *Chenopodiaceae* and *Asteraceae*. Isolated examples of **xlL1yG** in SA have *Callitris glaucophylla*, *Casuarina cristata* and *Eucalyptus* species over such grasses as *Stipa*, *Danthonia* and *Aristida*.

## Low open woodland with other herbaceous plants

L1F

The natural occurrences of this subform (e.g. **eL1kF**, **wL1kF**) are on inland floodplains in Qld and NSW. The main species are *Eucalyptus ochrophloia*, *E. microtheca*, *E. largiflorens* and *Acacia cambagei*. The persistent forbs include *Sclerolaena*, *Atriplex* and *Maireana*.

On the Present Vegetation map the additional areas dominated by *Eucalyptus* in SA and Vic. (**eL1yff**)

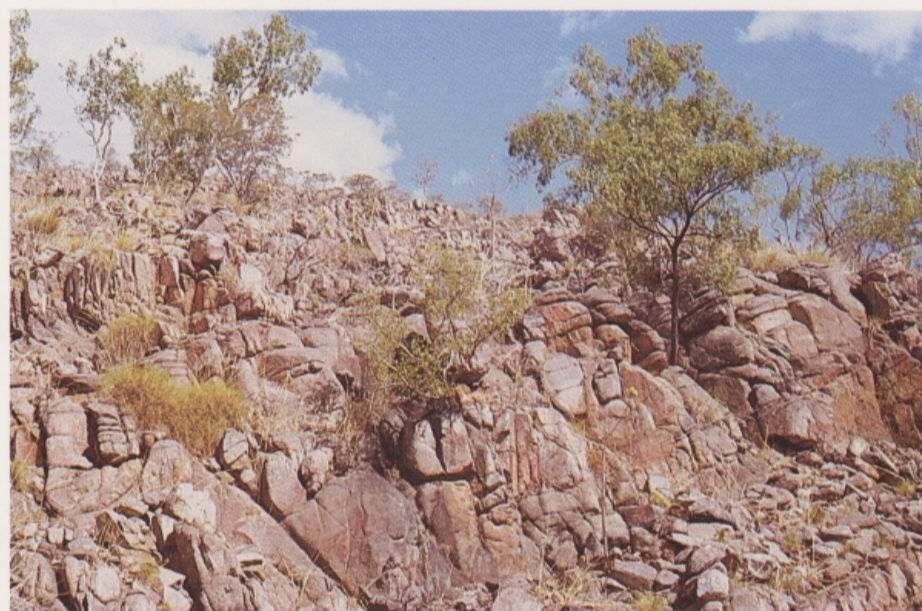
result from the partial clearing of low woodlands (**eL2Z**, **eL2G**) for sown pasture. Some natural treeless plains are generalised within the largest area of **eL1yff** (mainly *E. fasciculosa*) in south-eastern SA. There is some cropping within this type and the pastures contain such grasses as *Phalaris aquatica* and *Dactylis glomerata*, along with the legumes *Trifolium subterraneum* and *Medicago sativa*.

## Low open woodland with no significant lower stratum

L1

Natural occurrences of this subform on broken sandstone country in Arnhem Land have a very sparse cover of small trees, shrubs and hummock grasses fragmented by areas of bare rock. Typical trees are *Eucalyptus miniata*, *E. dichromophloia*, *E. phoenicea*, *E. bleeseri* and *E. papuana*. These areas are therefore coded as **eL1**.

Two areas of **eL1yG** in northern WA on the Natural Vegetation map are now shown with less than 10% ground cover (**eL1**). They are indicative of more widespread changes due to grazing. In central Qld patchy areas of *Acacia catenulata*, *A. petraea* and *A. shirleyi* low woodland (**wL2**) on rocky outcrops are generalised as **wL1**.



**Low eucalypts on the Arnhem Land plateau**  
The rugged sandstone and quartzite country of Arnhem Land (NT) supports a variety of vegetation, from stunted open woodland on rock outcrops to patches of rainforest in the sheltered gorges. On the rocky tops of the dissected plateau there is a sparse low open woodland of such species as *Eucalyptus dichromophloia*, *E. bleeseri*, *E. miniata* and *E. phoenicea* (**eL1**) with scattered shrubs and a patchy cover of the hummock grass *Triodia microstachya*.



**Desert sheoak over spinifex in central Australia**  
Wide areas of desert sand country in the south-west of the NT and extending into WA and SA, carry a patchy low open woodland of the distinctive desert sheoak (*Allocasuarina decalaneana*) with scattered shrubs and a ground cover of lobed spinifex (*Triodia basedowii*). Most hummock grasses are highly flammable and these landscapes are subject to frequent fires. Some are started by lightning and others by landholders, both Aboriginal and European.



**Fire in tropical low open woodland**  
Low intensity fires are a regular dry season occurrence throughout the grassy woodlands and open woodlands of northern Australia. This photo shows a ground layer fire creeping through the grass understorey of a mixed low open woodland (**xlL1yG**) photographed near Georgetown in inland northern Qld. The grassy low open woodlands of northern Australia are similar to the tree savanna vegetation of Africa and South America.