



Yalgoo bioregion

Description

Area: 50 575 km²

The Yalgoo bioregion is characterised by sand and alluvial plains, low ranges and lakes. Mulga or bowgada shrublands dominate in the east. Western parts include sand plains, heathlands and some eucalypt shrublands. Tenure is pastoral leasehold and sheep grazing is the main enterprise type. Mining is also important in the bioregion. Major population centres are Yalgoo and Paynes Find.

Location

The Yalgoo bioregion is located in the southern rangelands of Western Australia (WA; see Figures 1 and 2).

Figure 1 Location of the Yalgoo bioregion

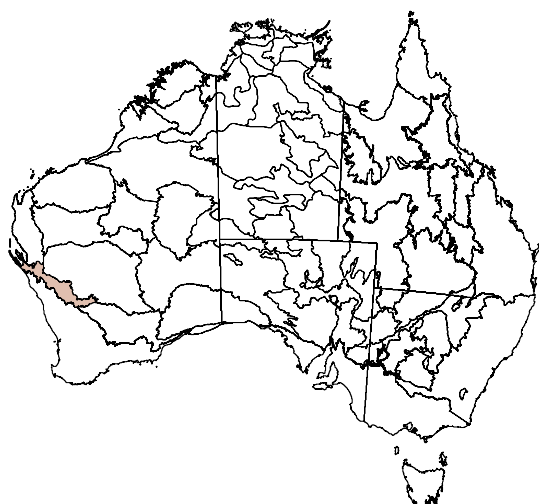
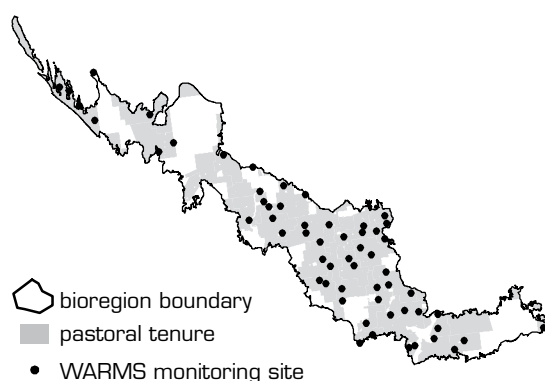


Figure 2 Monitoring sites and pastoral tenure



Data sources available

Data sources include:

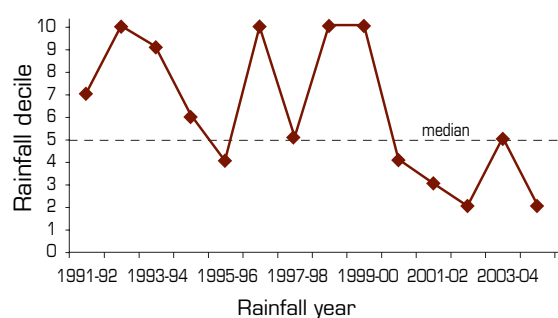
- Western Australian Rangeland Monitoring System (WARMS), which provides high reliability for reporting change, with a moderate number of well-distributed sites, quantitative data, and a focus on longer-lived plant species (which helps to filter short-term seasonal variability)
- domestic stocking density, which provides moderate reliability
- fire extent, intensity and frequency, which provides high reliability
- dust
- distance from water
- distribution and relative abundance of invasive animals and weeds
- land use
- conservation estate
- land values.



Climate

The climate of the Yalgoo bioregion varies from semiarid to Mediterranean. Spatially averaged median (1890–2005) rainfall is 248 mm (April to March rainfall year; see Figure 3).

Figure 3 Decile rainfall for the period 1991–1992 to 2004–2005



Annual rainfall is for the 12-month period 1 April to 31 March.

The first half of the 1992–2005 reporting period experienced variable, but generally above-median, *seasonal quality* based on decile rainfall. *Seasonal quality* then declined after 1999–2000 and stayed below the median until the end of the reporting period.

Note that regional averaging of rainfall conceals spatial variability. Some parts of the Yalgoo bioregion probably experienced better *seasonal quality* and others worse during the 1992–2005 period. The entire bioregion was declared for exceptional circumstances (for drought) in 2003 and this declaration was extended for most of the area in 2006.

Landscape function

Change in landscape function can be reported in a number of ways using WARMS data. Data in the following sections are based on the resource capture index and population growth rate (for consistency with reporting by other jurisdictions).

Resource capture index

It is not possible to report change following above-average *seasonal quality* as no sites were assessed at this time. When *seasonal quality* was below average, 33% of sites showed an increase in the resource capture index.

<i>Seasonal quality</i>	Number of sites	Decline: RCI < 0.90	No change: 0.90 ≤ RCI < 1.10	Increase: RCI ≥ 1.10
Above average	0	n/a	n/a	n/a
Average	41	41%	20%	39%
Below average	18	33%	33%	33%

RCI = resource capture index

Population growth rate

As for change in the resource capture index, it is not possible to report change following above-average *seasonal quality*. When *seasonal quality* was below average, 37% of sites showed an increase in density of long-lived shrubs.

<i>Seasonal quality</i>	Number of sites	Decline: density < 95%	No change: density between 95% and 105%	Increase: density ≥ 105%
Above average	0	n/a	n/a	n/a
Average	41	59%	27%	15%
Below average	19	47%	16%	37%

Sustainable management

Critical stock forage

Decreaser shrubs increased in density at 32% of sites following below-average *seasonal quality*. It is not possible to report change following above-average *seasonal quality*.

<i>Seasonal quality</i>	Species group	Number of sites	Decline: density < 0.95	No change: 0.95 ≤ density < 1.05	Increase: density ≥ 1.05
Above average	Decreaser	0	n/a	n/a	n/a
	Intermediate	0	n/a	n/a	n/a
	Increaser	0	n/a	n/a	n/a
Average	Decreaser	41	66%	22%	12%
	Intermediate	35	34%	43%	23%
	Increaser	17	24%	35%	41%
Below average	Decreaser	19	42%	26%	32%
	Intermediate	17	35%	24%	41%
	Increaser	6	n/a	n/a	n/a

Plant species richness

Approximately 16% of WARMS sites showed an increase in species richness of native perennial plants following below-average *seasonal quality*. It is not possible to report change following above-average *seasonal quality*.

<i>Seasonal quality</i>	Number of sites	Decline: richness index < 0.80	No change: 0.80 ≤ richness index < 1.20	Increase: richness index ≥ 1.20
Above average	0	n/a	n/a	n/a
Average	41	7%	76%	17%
Below average	19	21%	63%	16%

Change in woody cover

Based on WARMS data, cover of woody species decreased on average by 7% and on most sites (60%). However, on only 5% of sites did cover drop below 50% of the initially recorded value.

Distance from stock water

The percentage area of pastoral lease country within three kilometres of permanent and semipermanent sources of stock water for each sub-**Interim**

Biogeographic Regionalisation for Australia (IBRA) is:

Edel (YAL1)	27.6% (53.9% of sub-IBRA analysed)
Tallering (YAL2)	51.0% (75.1% of sub-IBRA analysed)

IBRA = Interim Biogeographic Regionalisation for Australia;
YAL = Yalgoo

Note that this analysis does not include the locations of natural waters. These may provide additional sources of water for stock, particularly after substantial rainfall. It is not possible to report change in watered area for the 1992–2005 period.

Weeds

Weeds known to occur in the Yalgoo bioregion include:

Common name	Scientific name
Patersons curse	<i>Echium plantagineum</i>

See www.anra.gov.au for distribution maps

Components of total grazing pressure

Domestic stocking density

Data relating to domestic stocking density are based on the grazed area of the Yalgoo bioregion, of which 72% was grazed in the 1992 to 2000 period. This area reduced to 68% in 2001 and 61% in 2005. Based on data from the Australian Bureau of Statistics and taking account of the reduced area grazed, domestic stocking density was above the 1983–1991 average in 1992 (by 11%) and then progressively declined through most of the period to 2002 (when it was 71% of the 1983–1991 average). At the end of available data (2004), stocking density was 76% of the baseline (ie the 1983–1991 average). Some of this consistent decrease was related to declining *seasonal quality* (see Figure 3, above) but other (unexplained) factors also contributed. Spatial averaging of stocking density across the Yalgoo bioregion conceals variation in actual stocking density within parts of the bioregion.

Kangaroos

There are no suitable data for reporting change in kangaroo populations.

Invasive animals

Invasive animal species known to occur in the Yalgoo bioregion include:

Common name	Scientific name
Feral goat	<i>Capri hircus</i>
Fox	<i>Vulpes vulpes</i>
Wild dog	<i>Canis</i> spp.
Feral cat	<i>Felis cattus</i>
Camel	<i>Camelus dromedaries</i>

See www.anra.gov.au for distribution maps

Products that support reporting of landscape function and sustainable management

Fire

Fire was insignificant during the 1997–2005 period, with a maximum of 0.4% of the bioregion area burnt in 2001.

Fires that were recorded were usually in the hotter, drier months of the year (summer).

Dust

The mean Dust Storm Index value (1992–2005) was 1.08, which is considered low. Dust levels were low and relatively uniform across most of the inland parts of the bioregion, with negligible levels of dust observed closer to the west coast.

Biodiversity

Seven plant species are listed as threatened for the Yalgoo bioregion. There are also 6 mammal species, 7 bird species and 3 species of reptile listed as threatened (Biodiversity Working Group indicator: Threatened species; see **Section 7 of Chapter 3** of *Rangelands 2008 — Taking the Pulse*).

Socioeconomic characteristics

Land use and value

In the 1992–2000 period, 72% of the Yalgoo bioregion was grazed, although this area reduced to 68% in 2001 and 61% in 2005.

The average 'lease and improvement' value of pastoral land in the Carnarvon–Gascoyne–Murchison region (which includes the Yalgoo IBRA) increased by 230% over the period 1992 to 2005.

Key management issues and features

Key features and issues of the Yalgoo bioregion include the following:

- The mid- to late 1990s included three very good rainfall years. Rainfall was below the mean from 2000 on and the region was declared for exceptional circumstances (drought) in 2003. Much of this was extended in 2006.
- There was a strong trend in enterprise type away from merino sheep to meat sheep and rangeland goats. This was due to low wool prices, high meat prices, difficulty in finding labour for wool enterprises and wild-dog predation on sheep. Infrastructure on many stations, especially fencing, is not being maintained. This is partly the result of the move away from merino sheep.
- Unmanaged goats contribute a large proportion of the total grazing pressure and their contribution to station income can be high. A large number of trap yards have been built in the past 10 years, as a way of lowering the cost of mustering and for better controlling total grazing pressure.
- The cover and density of shrubs and trees on WARMS sites decreased over approximately the past decade.
- In general, grazing-sensitive species were adversely affected, in comparison to species that are not grazing sensitive, on WARMS sites over approximately the past decade.
- Native shrub species richness on WARMS sites remained stable over approximately the past decade.
- About 22.8% of the bioregion is within the conservation estate.