



# Ord Victoria Plain bioregion

## Description

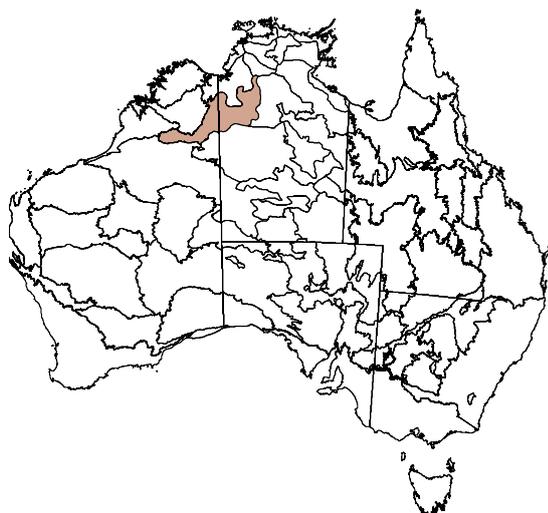
Area: 125 410 km<sup>2</sup>

The Ord Victoria Plain bioregion is found in northern Western Australia (WA) and the Northern Territory (NT) and includes ridges, plateaus and undulating plains, with scattered mesas and buttes. Vegetation comprises mainly eucalypt woodlands over spinifex and annual grasslands. Extensive cattle grazing is the main industry. Other land uses include Aboriginal land, nature reserves and tourism. Major population centres are Kalkarinji, Daguragu and Yarralin.

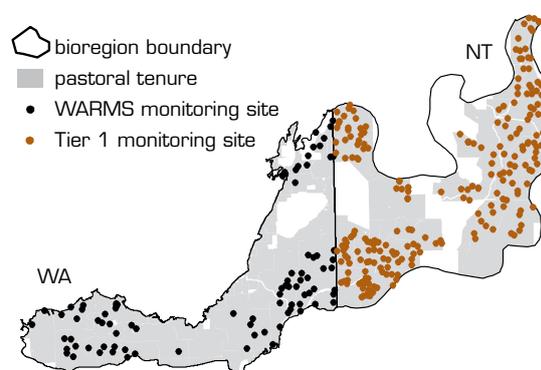
## Location

The Ord Victoria Plain bioregion is located in northern WA (44% of bioregion area) and the NT (56% of area; see Figures 1 and 2).

**Figure 1 Location of the Ord Victoria Plain bioregion**



**Figure 2 Western Australian Rangeland Monitoring System (WA) and Tier 1 (NT) monitoring sites shown on the pastoral tenure of both jurisdictions**



## Data sources available

Data sources include:

- Western Australian Rangeland Monitoring System (WARMS), which provides moderate reliability for reporting change, with a moderate number of reasonably well-distributed sites, quantitative data, and a focus on perennial plant species (which helps to filter short-term seasonal variability)
- NT Tier 1, which provides moderate reliability, with a large number of reasonably well-distributed sites, estimated data, and a focus on perennial pasture species
- domestic stocking density, which provides moderate reliability
- fire extent, intensity and frequency, which provides high reliability
- dust
- distance from water

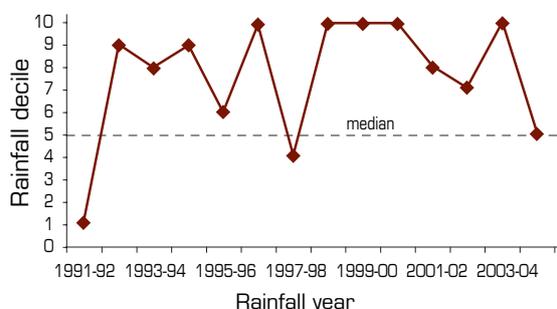


- distribution and relative abundance of invasive animals and weeds
- land use
- conservation estate
- land values.

## Climate

The Ord Victoria Plain bioregion is semi-arid with a dry, warm monsoonal climate. Spatially averaged median (1890–2005) rainfall is 504 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.

*Seasonal quality* based on decile rainfall was generally above average. It improved from a particularly poor year in 1991–1992 to experience some of the wettest years since records began (10 of the 14 years had decile rainfall  $\geq 7$ ).

Note that regional averaging of rainfall conceals spatial variability. Some parts of the Ord Victoria Plain bioregion may have experienced better *seasonal quality* and others worse during the 1992–2005 period.

## Landscape function

### Western Australia

#### WARMS, perennial grass frequency

When *seasonal quality* was above average, 7% of sites showed a decline in perennial grass frequency, while 25% of sites showed an increase when *seasonal quality* was below average.

<i>Seasonal quality</i>	Number of site-by-year combinations	Decline: frequency < 0.90	No change: $0.90 \leq$ frequency < 1.10	Increase: frequency $\geq 1.10$
Above average	186	7%	66%	27%
Average	29	17%	52%	31%
Below average	16	19%	56%	25%

## Northern Territory

### Tier 1, index based on composition (by biomass) and cover of perennial herbage species

When *seasonal quality* was above average, 12% of sites showed a decline in the index of landscape function. It is not possible to report change following below-average *seasonal quality*.

<i>Seasonal quality</i>	Number of site-by-year combinations	Percentage of reassessed sites showing:		
		Decline: > 3 decrease in index	No change	Increase: > 3 increase in index
Above average	154	12%	66%	22%
Average	70	0%	81%	19%
Below average	5	n/a	n/a	n/a

## Sustainable management

### Critical stock forage

#### Western Australia

#### WARMS, frequency of decreaser perennial grass species

When *seasonal quality* was above average, 26% of sites showed a decline in the frequency of decreaser perennial grass species, while 38% of sites showed an increase when *seasonal quality* was below average.

Seasonal quality	Species group	Number of site-by-year combinations	Percentage of reassessed sites showing:		
			Decline: frequency < 0.90	No change: 0.90 ≤ frequency < 1.10	Increase: frequency ≥ 1.10
Above average	Decreaser	178	26%	44%	30%
	Intermediate	96	27%	15%	57%
	Increaser	116	48%	15%	37%
Average	Decreaser	28	18%	43%	39%
	Intermediate	12	75%	8%	17%
	Increaser	n/a	n/a	n/a	n/a
Below average	Decreaser	16	25%	38%	38%
	Intermediate	n/a	n/a	n/a	n/a
	Increaser	14	36%	36%	29%

### Northern Territory

#### Tier I, composition (by biomass) of palatable perennial herbage species

When *seasonal quality* was above average, 15% of sites showed a decline in the composition of palatable perennial (2P) herbage species. It is not possible to report change following below-average *seasonal quality*.

Seasonal quality	Number of site-by-year combinations	Percentage of reassessed sites showing:		
		Decline: > 20% decrease in 2P grasses	No change	Increase: > 20% increase in 2P grasses
Above average	171	15%	57%	28%
Average	75	11%	69%	20%
Below average	5	n/a	n/a	n/a

### Plant species richness

Plant species richness data relate to the WA part of the bioregion only. When *seasonal quality* was above average, 12% of WARMS sites showed a decline in species richness of native perennial plants, while 38% of sites showed an increase when *seasonal quality* was below average.

Seasonal quality	Number of site-by-year combinations	Decline: richness index < 0.80	No change: 0.80 ≤ richness index < 1.20	
			Increase: richness index ≥ 1.20	Increase: richness index ≥ 1.20
Above average	187	12%	55%	33%
Average	29	14%	48%	38%
Below average	16	13%	50%	38%

### Change in woody cover

#### Western Australia

Crown cover of woody species increased by 18% on average, and remained the same or increased on 62% of WARMS sites. On 10% of sites, cover dropped below 50% of the initially recorded value.

#### Northern Territory

There is negligible forest cover in the NT part of the Ord Victoria Plain bioregion based on the Australian Greenhouse Office definition and mapping of forest extent (approximately 0.8% of NT bioregion area in 1991 and 2004).<sup>1</sup> There was only partial coverage of Landsat data before 1991 (approximately 33% of bioregion was covered, with complete coverage in 2004).

### Distance from stock water

The percentage of sub-Interim Biogeographic Regionalisation for Australia (IBRA) area within three kilometres of permanent and semipermanent sources of stock water is summarised in the following table. Note that for WA, the locations of stock waterpoints were sourced from state mapping of lease infrastructure, and watered area is reported as the percentage of pastoral tenure within each sub-IBRA. Data for the NT were obtained from Geoscience Australia's GEODATA TOPO 250K vector product (Series 3, June 2006), and watered area is the percentage of sub-IBRA area. These differences mean that the percentage watered area reported by each data type is not directly comparable.

<sup>1</sup> See <http://www.greenhouse.gov.au/ncas/reports/tech09.html>

Sub-IBRA	Western Australia		Northern Territory	
	% sub-IBRA within 3 km of water	% sub-IBRA area analysed	% sub-IBRA within 3 km of water	% sub-IBRA area analysed
Ord Victoria Plain P1 (OVP1)	13.3	74.9	5.4	100
South Kimberley Interzone (OVP2)	17.5	97.6	14.5	100
Ord Victoria Plain P3 (OVP3)			2.6	100
Ord Victoria Plain P4 (OVP4)			15.6	100

IBRA = Interim Biogeographic Regionalisation for Australia;  
OVP = Ord Victoria Plain

Note that this analysis does not include the locations of natural waters, which in this bioregion can provide additional sources of water for stock, particularly in the early dry season. It is not possible to report change in watered area for the 1992–2005 period for either jurisdiction.

## Weeds

Weeds known to occur in the Ord Victoria Plain bioregion include:

Common name	Scientific name
Parkinsonia	<i>Parkinsonia aculeata</i>
Calotrope	<i>Calotropis procera</i>
<i>Sida</i> spp.	<i>Sida</i> spp.
Hyptis	<i>Hyptis suaveolens</i>
Sicklepod	<i>Senna obtusifolia</i>
Noogoora burr	<i>Xanthium occidentale</i>
Bellyache bush	<i>Jatropha gossypifolia</i>
Mesquite	<i>Prosopis</i> spp.
Chinee apple	<i>Zizyphus mauritiana</i>
<i>Salvinia molesta</i>	<i>Salvinia molesta</i>
Grader grass	<i>Themeda quadrivalvis</i>
Athel pine	<i>Tamarix aphylla</i>
Prickly acacia	<i>Acacia nilotica</i> subsp. <i>indica</i>
Rubber vine	<i>Cryptostegia grandiflora</i>
Mission grass	<i>Pennisetum polystachion</i>

See [www.anra.gov.au](http://www.anra.gov.au) for distribution maps

## Components of total grazing pressure

### Domestic stocking density

The data for domestic stocking density report for pastoral tenure of both WA and the NT. Approximately 82% of the Ord Victoria Plain bioregion area is grazed. Data from the Australian Bureau of Statistics showed that domestic stocking density remained between 84 and 96% of the 1983–1991 average throughout (ie 1992–2004). The highest stocking density occurred between 2000 and 2002 (approximately 95% of the 1983–1991 baseline). This period of more moderate stocking occurred during above-average *seasonal quality* (see Figure 3, above), probably as part of improving herd quality to meet live export requirements. Improved herd control under the national Brucellosis and Tuberculosis Eradication Campaign probably contributed to destocking in the early part of the 1992–2005 reporting period. Additionally, approximately 25% of pastoral leases in the WA part of the bioregion are under Indigenous ownership and many are either destocked, or running low numbers of cattle. Mistake Creek is the largest Aboriginal-owned pastoral lease in the NT part of the bioregion and in the past 10 years has invested heavily in infrastructure development and continuing to build herd numbers.

Note that spatial averaging conceals likely variation in stocking density trends across the bioregion.

### Kangaroos

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

## Invasive animals

Invasive animal species known to occur in the Ord Victoria Plain bioregion include:

Common name	Scientific name
Feral pig	<i>Sus scrofa</i>
Feral goat	<i>Capri hircus</i>
Fox	<i>Vulpes vulpes</i>
Rabbit	<i>Dryctolagus cuniculus</i>
Wild dog	<i>Canis spp.</i>
Feral cat	<i>Felis cattus</i>
Cane toad	<i>Bufo marinus</i>
Camel	<i>Camelus dromedaries</i>
Donkey	<i>Equus asinus</i>
Horse	<i>Equus caballus</i>

See [www.anra.gov.au](http://www.anra.gov.au) for distribution maps

## Products that support reporting of landscape function and sustainable management

### Fire

Fire data apply to the whole bioregion. Considerable parts of the bioregion were burnt in 1997, between 2000 and 2002 and in 2004. These periods of more extensive fire were related to fuel buildup following wetter years.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005
% area burnt	22.3	6.3	13.4	25.0	27.5	25.4	4.9	28.9	3.8

Hot fires (in the late dry-season months of August to December) were more extensive than cooler fires (occurring between January and July).

Fire frequency between 1997 and 2005 was moderate, compared with all rangeland bioregions, with a mean frequency ( $\log_{10}$  transformed) of 0.35.

### Dust

Dust data apply to the whole bioregion. The mean Dust Storm Index value (1992–2005) was 0.99, which is among the lowest values for rangeland bioregions. Dust levels were negligible in the far east of the bioregion and low elsewhere.

## Biodiversity

A case study (see **Habitat condition affects biodiversity in Chapter 3**) has looked at how habitat condition affects biodiversity (Biodiversity Working Group indicator: Habitat condition; see **Section 7 of Chapter 3** of *Rangelands 2008 — Taking the Pulse*).

In the Ord Victoria Plain bioregion, there are (Biodiversity Working Group indicator: Threatened species):

- 1 threatened plant species
- 3 threatened mammal species
- 4 threatened bird species.

## Socioeconomic characteristics

### Land use and value

Approximately 82% of the Ord Victoria Plain bioregion area is pastoral land. This area has not changed appreciably over the 1992–2005 reporting period.

In WA, average 'lease and improvement' values for pastoral leases in the Kimberley increased over five-fold between 1992 and 2005.

In the NT, the unimproved land value of pastoral leases increased marginally (by about 6%) between 1991 and 2003.

## Key management issues and features

Key features and issues of the Ord Victoria Plain bioregion include the following:

- WA:
  - Perennial grass frequency on WARMS sites remained stable (2003 to 2005), after a period of increase from the mid-1990s.
  - The cover of woody species on WARMS sites increased slightly during the 2003 to 2005 period. The threat of woody thickening will continue to be monitored.

- Grazing-sensitive perennial grasses on WARMS sites were not adversely affected during the 2003 to 2005 period.
  - Native perennial species richness on WARMS sites was stable during the 2003 to 2005 period.
  - About 25% of the pastoral leases are under Indigenous ownership and many are either destocked or running low numbers of livestock.
  - There is a trend for a number of leases to be operated as a single management unit, with consequent declines in staffing levels and permanent habitation. Some Indigenous leases are being sub-let to commercial operators.
  - Market demand for live cattle at specified weights has encouraged managers to turn off young cattle and better match animal numbers to feed supply. Combined with good seasons, pastoralists have an excellent operating environment in which to show improved land management.
  - Most commercial enterprises (of viable size) are profitable.
  - Infrastructure development has made more pastoral land accessible to livestock and raised the potential for increased livestock numbers.
  - A number of noxious weed species have established populations but have not yet become widespread. They are the subject of ongoing surveillance.
  - Cane toads threaten the bioregion.
  - Feral donkey numbers are still relatively high in this bioregion. An eradication program has been in place in WA for a number of years and numbers have been greatly reduced; however, numbers in the NT remain high.
  - Fire management is being seen as increasingly important. Late dry-season fires tend to homogenise the vegetation structure, with mid-storey vegetation particularly at risk. They also contribute significantly to greenhouse gas emissions.
  - About 5.9% of the WA part of the bioregion is within the conservation estate.
  - A long run of generally good to very good rainfall years have produced probably the best sequence of rainfall on record, better even than the mid-1970s.
- NT:
- The number of feral donkeys is an issue in the NT. Large numbers have been removed from selected properties (Kirrimbe, Mistake Creek, Limbunyah and Bunda pastoral leases) and fencing has been erected to control populations. A control program started in the NT in 2006.