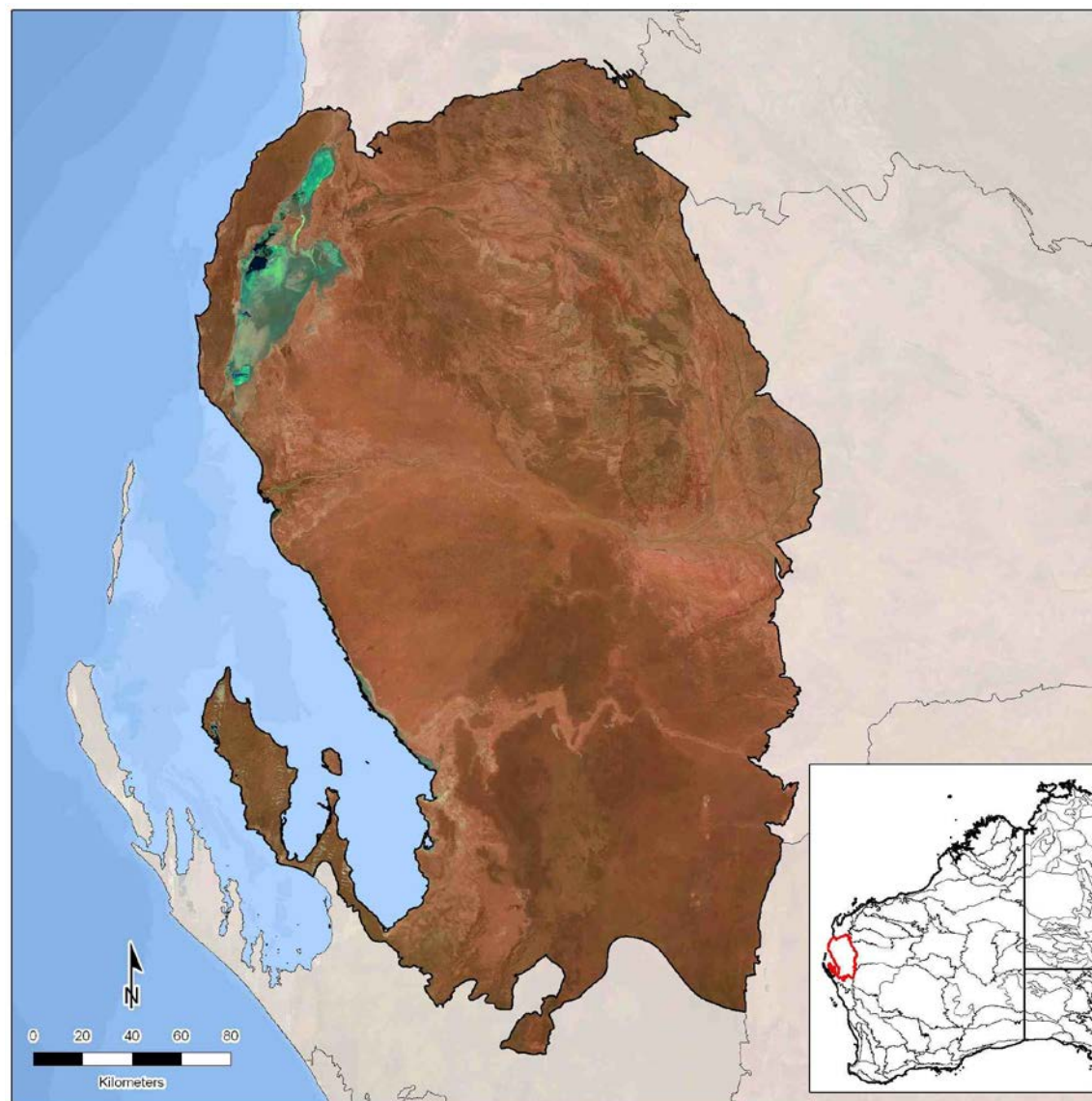


## Carnarvon 2 Sub-region



*Statistics and maps produced by GIS Branch, Department of Parks and Wildlife (2014)*

Information on the methods used to generate the statistics is available [here](#).

Note: the analysis was undertaken in 2012 under the auspices of the Department of Environment and Conservation. Therefore the acronym of “DEC” is used in this document.

## PROFILE OF SUB-REGION

### Total area of sub-region (ha)

Size of sub-region in WA (ha)	Percentage of WA covered by sub-region (%)	Percentage of sub-region within WA (%)	Percentage of sub-region covered by intact habitat* (%)	Percentage of sub-region within DEC-managed conservation reserves (IUCN Ia - IV) (%)
6,049,674	2.39	100	99.85	3.83

\*Intact habitat includes remnant vegetation and additional intact habitats (wetlands) not mapped in the remnant vegetation dataset.

Please see the GIS Branch intranet site for the latest annual statistics in the following report:

- [DPaW-Managed and Other IUCN Terrestrial Lands by IBRA Sub-Regions Report](#). Statistic: Percentage of sub-region within DEC-managed conservation reserves (IUCN Ia – IV).

## Remnant vegetation

		Extent of remnant vegetation		Extent of additional intact habitats (wetlands) not mapped in the remnant vegetation dataset		Total extent	
		(ha)	(%)	(ha)	(%)	(ha)	(%)
Native vegetation on DEC-managed lands	Conservation reserves (IUCN Ia - IV)	231,580	3.83	360	0.01	231,940	3.83
	DEC-managed lands proposed for conservation	378,129	6.25	30	0.00	378,159	6.25
	Conservation reserves (IUCN V & VI)	13,796	0.23	2,236	0.04	16,032	0.27
	Other DEC-managed lands	0	0.00	0	0.00	0	0.00
Native vegetation on other public lands		330,936	5.47	776	0.01	331,712	5.48
Native vegetation on leasehold lands		5,068,326	83.78	54	0.00	5,068,380	83.78
Native vegetation on freehold lands		13,757	0.23	6	0.00	13,763	0.23
Native vegetation with no tenure category assigned		467	0.01	1	0.00	468	0.01
Cleared areas		-	-	-	-	9,214	0.15
Unmapped islands*		-	-	-	-	4	0.00
<b>Total</b>		<b>6,036,991</b>	<b>100</b>	<b>3,463</b>	<b>0</b>	<b>6,049,672</b>	<b>100</b>

NB: some rounding errors may occur.

\* DEC regions may advise if these are to be included under additional intact habitat.

Please see the GIS Branch intranet site for the latest annual statistics in the following report:

- [Statewide Vegetation Statistics \(Full report\)](#). Statistic: Extent of Remnant Vegetation including on DEC-managed lands.

## Tenure

		Extent (ha)			Extent (%)			Number of reserves		
		2002	2012	Change	2002	2012	Change	2002	2012	Change
DEC-managed lands	Conservation reserves (IUCN Ia - IV) <sup>1</sup>	232,007	231,953	-54	3.84	3.83	-0.01	9	10	1
	DEC-managed lands proposed for conservation	309,105	378,199	69,094	5.11	6.25	1.14	10	15	5
	Conservation reserves (IUCN V & VI) <sup>1</sup>	16,129	16,069	-60	0.27	0.27	0.00	0	1	1
	State forest / timber reserves	0	0	0	0.00	0.00	0.00	0	0	0
	Other DEC-managed lands	1	< 1	-1	0.00	0.00	0.00	1	1	0
Other lands	Unallocated crown lands	193,659	71,449	-122,210	3.20	1.18	-2.02	-	-	-
	Other crown reserves	63,811	69,995	6,184	1.05	1.16	0.11	-	-	-
			Crown reserves vested in Aboriginal Lands Trust*							
		-	20	-	-	0.00	-	-	-	-
	Pastoral leases^	5,101,243	5,064,604	-36,639	84.32	83.72	-0.60	-	-	-
			Pastoral leases held by Aboriginal Lands Trust*							
		-	0	-	-	0.00	-	-	-	-
	Other leasehold lands^	0	4,976	4,976	0.00	0.08	0.08	-	-	-
			General purpose leases held by Aboriginal Lands Trust*							
		-	0	-	-	0.00	-	-	-	-
	Freehold lands	25,256	16,413	-8,843	0.42	0.27	-0.15	-	-	-
			Freehold lands held by Aboriginal Lands Trust*							
		-	1	-	-	0.00	-	-	-	-
	Commonwealth lands (defence)	0	0	0	0.00	0.00	0.00	-	-	-
	Other public lands (roads and water bodies)	98,754	195,479	96,725	1.63	3.23	1.60	-	-	-
	No tenure category assigned <sup>†</sup>	9,707	535	-9,172	0.16	0.01	-0.15	-	-	-
<b>Total</b>		<b>6,049,672</b>	<b>6,049,672</b>	<b>-</b>	<b>100</b>	<b>100</b>	<b>-</b>	<b>20</b>	<b>27</b>	<b>-</b>

NB: some rounding errors may occur.

<sup>1</sup> The extents shown in this category include parts of marine reserves. This is due to misalignments of coastal boundaries between tenure and IBRA datasets.

\* Aboriginal Lands Trust data are only available for 2012. The extents shown are a subset of the category they sit below. These values should therefore not be summed since they are not mutually exclusive.

^ In 2002, there is not data to differentiate other leasehold lands. Therefore it is likely that the total extent shown for pastoral leases in 2002 includes both pastoral leases and other leasehold lands.

† The attributing of the state cadastral database has improved considerably over time. Therefore much of the land which had no tenure category assigned in 2002 will have been attributed and consequently distributed between other reporting categories in 2012. Much of this is expected to be distributed to the "Other public lands (roads and water bodies)" category, as road casings are progressively digitised and attributed, though increases in other categories is also possible as attributing improves.

Please see the GIS Branch intranet site for the latest annual statistics in the following report:

- [DPaW-Managed and Other IUCN Terrestrial Lands by IBRA Sub-Regions Report](#). Statistic: DEC-managed lands (extent only).

## Mining and petroleum

		IBRA sub-region					DEC-managed conservation reserves (IUCN Ia - IV)			DEC-managed lands proposed for conservation			DEC-managed conservation reserves (IUCN V & VI)			Other DEC-managed lands		
		2001/02	2001/02 % of IBRA sub-region	2012	2012 % of IBRA sub-region	Change^	2001/02	2012	Change	2001/02	2012	Change	2001/02	2012	Change	2001/02	2012	Change
Number of mining (live) tenements	Prospecting	5	N/A	1	N/A	-4	0	0	0	1	0	-1	0	0	0	0	0	0
	Exploration	10	N/A	42	N/A	32	0	1	1	2	7	5	0	0	0	0	0	0
	Mining	17	N/A	26	N/A	9	0	0	0	5	6	1	1	1	0	0	0	0
	Other	0	N/A	0	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of petroleum (active) titles	Exploration	4	N/A	8	N/A	4	2	3	1	1	3	2	1	3	2	0	0	0
	Production	0	N/A	0	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0
Land area (ha)	Mining (live) tenements	281,114	4.65	711,557	11.76	7.11	0	104	104	910	13,395	12,485	1	1	0	0	0	0
	Petroleum (active) titles	1,315,356	21.74	1,731,955	28.63	6.89	138,786	124,201	-14,585	179,947	94,814	-85,133	2,838	15	-2,823	0	0	0
	Mining (live) tenements and petroleum (active) titles*	1,560,348	25.79	2,189,239	36.19	10.40	138,786	124,304	-14,482	180,808	102,657	-78,151	2,839	15	-2,824	0	0	0

\*An area of land can have over it both a mining tenement and petroleum title. The combined total represents the land area which is covered by a mining tenement or petroleum title or both.

^For the Land Area "Change" is calculated as the difference in % coverage at the IBRA sub-region scale of the two year dates.

## Current dominant land uses

	Extent (ha)			Extent (%)		
	1996/97	2005/06	Change	1996/97	2005/06	Change
Pastoralism	5,493,900	5,201,540	-292,360	90.81	85.98	-4.83
Conservation	411,802	519,531	107,729	6.81	8.59	1.78
Miscellaneous (non-intensive use)*	78,982	281,388	202,406	1.31	4.65	3.34
Water (not classified)	48,873	23,871	-25,002	0.81	0.39	-0.42
Water (man-made/man modified)	0	2,900	2,900	0.00	0.05	0.05
Agriculture (intensive use)	224	2,800	2,576	0.00	0.05	0.05
Native forestry	1,458	1,600	142	0.02	0.03	0.01
Urban	896	600	-296	0.01	0.01	0.00
Traditional indigenous use	0	0	0	0.00	0.00	0.00
Plantation forestry	0	0	0	0.00	0.00	0.00
Mining	0	0	0	0.00	0.00	0.00
No data	13,539	15,443	1,904	0.22	0.26	0.04
<b>Total</b>	<b>6,049,674</b>	<b>6,049,673</b>	<b>-</b>	<b>100</b>	<b>100</b>	<b>-</b>

NB: some rounding errors may occur.

\* Largely unmodified natural systems under various land uses. See detailed descriptions.

See the methods document available [here](#) for definitions of the categories.

## Linear infrastructure

	Length (km)	Area of reporting region (ha)	Length per hectare (km/ha)
Roads (sub-region)	12,271	6,049,674	0.0020
Roads (Strategic Survey Roads in national parks, conservation parks and nature reserves)	290	223,156	0.0013
Railways (sub-region)	3	6,049,674	< 0.0001

## Complementary conservation initiatives to the formal conservation reserve system

	Extent (ha)			Extent (%)		
	2002	2012	Change	2002	2012	Change
Private conservation organisations' land	4,551	4,551	0	0.08	0.08	0.00
Nature Conservation covenants	0	0	0	0.00	0.00	0.00
Land for Wildlife properties	0	0	0	0.00	0.00	0.00
Combined total*	4,551	4,551	0	0.08	0.08	0.00

\* These conservation initiatives are not mutually exclusive. For example freehold land owned by a private conservation organisation may have a formal nature conservation covenant on its title. Therefore its area will be included in both category totals. The combined total represents the total extent of land which is covered by one or more initiative.

Please see the GIS Branch intranet site for the latest annual statistics in the following report:

- [\*DPaW-Managed and Other IUCN Terrestrial Lands by IBRA Sub-Regions Report\*](#). Statistic: Nature conservation covenants.

## Indigenous

		Extent (ha)			Extent (%)		
		2002	2012	Change	2002	2012	Change
Native Title determinations	On DEC-managed lands	0	1,223	1,223	0.00	0.02	0.02
	On all other lands	0	153,851	153,851	0.00	2.54	2.54
Commonwealth Indigenous Protected Areas		0	0	0	0.00	0.00	0.00

Please see the GIS Branch intranet site for the latest annual statistics in the following report:

- [\*DPaW-Managed and Other IUCN Terrestrial Lands by IBRA Sub-Regions Report\*](#). Statistic: Commonwealth Indigenous Protected Areas.

## Climate projection 2030, 2050 and 2070

### *Projected climate change scenarios (OzClim)*

ANNUAL	Projected (Average)			Change from Base Climate* (Average)			Change from Base Climate* (range)		
	2030	2050	2070	2030	2050	2070	2030	2050	2070
	High impact scenario								
Minimum Temperature (degrees C)	18.07	19.57	21.34	1.40	2.90	4.66	1.19 - 1.60	2.47 - 3.33	3.98 - 5.35
Maximum Temperature (degrees C)	31.92	33.62	35.61	1.57	3.27	5.26	1.30 - 1.83	2.69 - 3.81	4.33 - 6.13
Precipitation (mm)	172.06	136.74	109.10	-50.29	-85.60	-113.25	-64.90 - -36.70	-110.80 - -64.10	-147.20 - -85.90
	Medium impact scenario								
Minimum Temperature (degrees C)	17.78	18.56	19.31	1.11	1.89	2.64	0.95 - 1.27	1.61 - 2.17	2.25 - 3.03
Maximum Temperature (degrees C)	31.60	32.48	33.33	1.25	2.13	2.98	1.03 - 1.46	1.75 - 2.48	2.45 - 3.47
Precipitation (mm)	180.54	158.86	141.87	-41.80	-63.48	-80.48	-54.00 - -30.30	-82.00 - -46.80	-104.10 - -60.10

\* Base Climate is 1990

The Global Climate Change Model (GCM) used in both scenarios is CSIRO Mk3.5 (CSIRO: CSIRO Mk3.5 on OzClim).

For more information see <https://wiki.csiro.au/confluence/display/ozclim/Science#Science-CSIRO35>

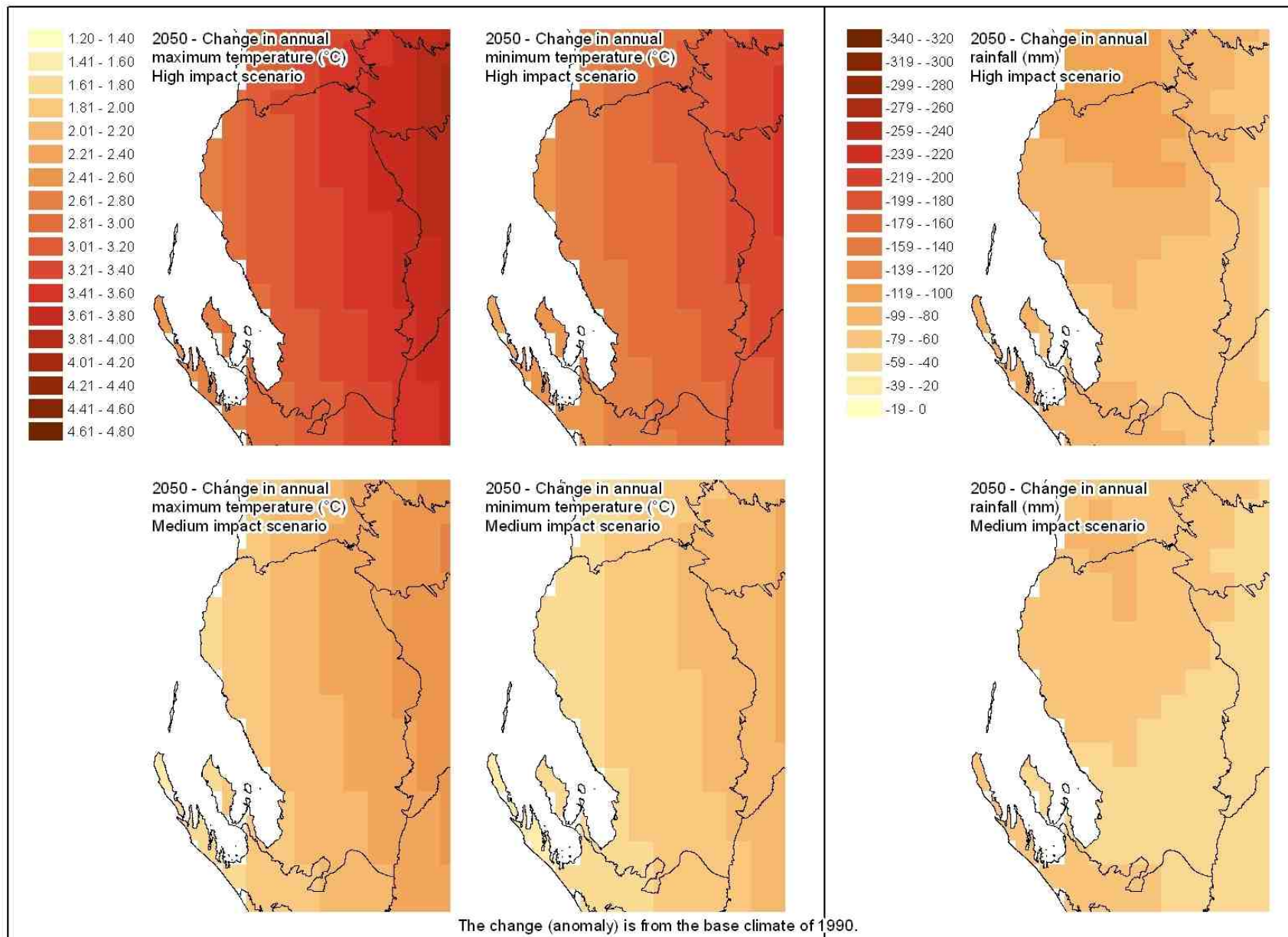
#### Medium Impact Scenario:

- *Emission Scenario:* Medium CO<sub>2</sub> emissions, peaking around 2030 (SRES Marker Scenario A1B)
- *Climate Sensitivity (Rate of Global Warming):* Moderate rate of global warming corresponds to a global warming of 2.6°C for a doubling of CO<sub>2</sub> from 280 ppm to 560 ppm.

#### High Impact Scenario:

- *Emission Scenario:* High CO<sub>2</sub> emissions, increasing throughout the 21st century (SRES Marker Scenario A1FI)
- *Climate Sensitivity (Rate of Global Warming):* High rate of global warming corresponds to a global warming of 4.2°C for a doubling of CO<sub>2</sub> from 280 ppm to 560 ppm.





# BIODIVERSITY ASSETS

## Native vegetation

Please see the GIS Branch intranet site for the latest annual statistics in the following report:

- [Statewide Vegetation Statistics \(Full report\)](#). Statistic: All statistics except 'Currently remaining on other lands'.

Vegetation Association descriptions can be viewed [here](#) (worksheet "Veg Assoc Descriptions").

### *Dominant vegetation associations*

Dominant vegetation associations are those which together occupied 85% of the sub-region at the time of European settlement (when sorted from largest to smallest).

Beard's veg assoc no.	Percentage of veg assoc within sub-region (%)	Pre-European extent (ha)	Current extent (ha)	Percentage remaining (%)	Currently remaining on DEC-managed lands (ha)				Currently remaining on other lands (ha)		
					IUCN Ia-IV	Proposed for conservation	IUCN V-VI	Non-IUCN	Public lands	Leasehold lands	Freehold lands
2081	65.99	878,829	878,733	99.99	49,746	60,734	539	0	30,446	736,778	348
264	81.90	475,949	475,944	100.00	959	16,543	0	0	18,106	439,387	948
307	95.64	455,878	455,878	100.00	0	61,356	0	0	1,316	392,357	849
308	99.98	446,977	443,484	99.22	438	3,342	50	0	18,048	419,578	2,010
95	27.13	332,277	332,140	99.96	0	0	1	0	1,035	330,501	561
342	100.00	295,239	295,239	100.00	0	59,990	0	0	1,451	233,799	0
205	95.30	280,844	280,733	99.96	25	26,467	0	0	1,540	252,178	523
160	20.17	224,195	224,195	100.00	0	2,584	0	0	2,485	219,042	84
344	100.00	223,684	223,679	100.00	0	0	1	0	378	222,453	848
125	5.77	201,172	196,735	97.79	0	148	0	0	171,512	25,075	0
162	35.02	191,649	191,649	100.00	62,187	80,455	0	0	276	48,731	0
3432	100.00	164,230	164,230	100.00	0	0	0	0	340	163,890	0
321	99.09	148,254	148,254	100.00	0	169	0	0	4,576	143,502	0
349	100.00	129,313	129,313	100.00	0	440	0	0	1	128,872	0
301	100.00	115,061	115,061	100.00	79,055	22,673	0	0	0	13,333	0
243	72.62	107,786	107,786	100.00	67	183	0	0	362	106,154	1,019
303	100.00	104,791	104,791	100.00	0	460	0	0	167	104,165	0
244	99.88	88,868	88,868	100.00	3	4	0	0	4,229	84,166	467
1322	34.88	85,559	85,559	100.00	0	0	0	0	1,022	83,313	1,224
224	99.67	82,368	82,368	100.00	11	702	0	0	516	80,161	978
347	100.00	69,795	69,795	100.00	168	0	84	0	660	68,355	528

658	33.46	67,015	67,015	100.00	0	0	0	0	41	66,974	0
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### Unique vegetation associations

Unique vegetation associations are those which were largely restricted to only one sub-region at the time of European settlement (i.e.  $\geq 85\%$  of the vegetation association falls within one sub-region).

Beard's veg assoc no.	Percentage of veg assoc within sub-region (%)	Pre-European extent (ha)	Current extent (ha)	Percentage remaining (%)	Currently remaining on DEC-managed lands (ha)				Currently remaining on other lands (ha)		
					IUCN Ia-IV	Proposed for conservation	IUCN V-VI	Non-IUCN	Public lands	Leasehold lands	Freehold lands
342	100.00	295,239	295,239	100.00	0	59,990	0	0	1,451	233,799	0
344	100.00	223,684	223,679	100.00	0	0	1	0	378	222,453	848
3432	100.00	164,230	164,230	100.00	0	0	0	0	340	163,890	0
349	100.00	129,313	129,313	100.00	0	440	0	0	1	128,872	0
301	100.00	115,061	115,061	100.00	79,055	22,673	0	0	0	13,333	0
303	100.00	104,791	104,791	100.00	0	460	0	0	167	104,165	0
347	100.00	69,795	69,795	100.00	168	0	84	0	660	68,355	528
283	100.00	64,866	64,866	100.00	0	9,220	0	0	2,560	53,086	0
284	100.00	50,276	50,276	100.00	0	0	0	0	84	50,192	0
208	100.00	28,498	28,498	100.00	0	0	0	0	21	28,477	0
168	100.00	18,225	18,225	100.00	0	0	0	0	20	18,205	0
304	100.00	12,499	12,499	100.00	0	0	0	0	35	12,463	0
282	100.00	12,031	12,031	100.00	0	0	0	0	987	10,736	308
328	100.00	10,237	9,955	97.25	0	0	0	0	1,154	8,801	0
320	100.00	7,517	7,517	100.00	0	57	0	0	1,570	5,890	0
323	100.00	5,689	5,689	100.00	0	0	0	0	0	5,689	0
200	100.00	2,331	2,331	100.00	0	0	0	0	0	2,331	0
245	100.00	2,157	2,157	100.00	0	0	0	0	66	2,025	67
281	100.00	798	798	100.00	0	0	0	0	23	775	0
1105	100.00	426	426	100.00	426	0	0	0	0	0	0
226	99.98	6,074	6,074	100.00	0	0	0	0	12	6,062	0
308	99.98	446,977	443,484	99.22	438	3,342	50	0	18,048	419,578	2,010
229	99.90	8,046	8,046	100.00	0	360	0	0	0	7,686	0
244	99.88	88,868	88,868	100.00	3	4	0	0	4,229	84,166	467
346	99.84	61,516	61,516	100.00	0	0	409	0	15	60,145	947
224	99.67	82,368	82,368	100.00	11	702	0	0	516	80,161	978
246	99.23	14,378	14,378	100.00	0	0	0	0	0	14,378	0
1103	99.18	16,949	16,949	100.00	16,617	0	332	0	0	0	0
321	99.09	148,254	148,254	100.00	0	169	0	0	4,576	143,502	0
242	98.91	2,370	2,370	100.00	0	0	0	0	32	2,203	135
1325	98.38	9,835	9,835	100.00	0	0	0	0	662	9,173	0
209	97.15	14,076	14,076	100.00	41	1,152	0	0	44	12,838	0
307	95.64	455,878	455,878	100.00	0	61,356	0	0	1,316	392,357	849

205	95.30	280,844	280,733	99.96	25	26,467	0	0	1,540	252,178	523
329	91.71	25,113	25,101	99.95	0	0	5	0	2,817	22,226	0

### *Rare vegetation associations*

Rare vegetation associations are those which together occupied ≤ 1% of the state at the time of European settlement. The table below lists any rare vegetation associations which fall within this sub-region.

Beard's veg assoc no.	Percentage of veg assoc within sub- region (%)	Pre- European extent (ha)	Current extent (ha)	Percentage remaining (%)	Currently remaining on DEC-managed lands (ha)				Currently remaining on other lands (ha)		
					IUCN Ia-IV	Proposed for conservation	IUCN V-VI	Non-IUCN	Public lands	Leasehold lands	Freehold lands
360	65.42	157	157	100.00	0	0	0	0	0	157	0
1105	100.00	426	426	100.00	426	0	0	0	0	0	0
281	100.00	798	798	100.00	0	0	0	0	23	775	0
245	100.00	2,157	2,157	100.00	0	0	0	0	66	2,025	67
200	100.00	2,331	2,331	100.00	0	0	0	0	0	2,331	0
242	98.91	2,370	2,370	100.00	0	0	0	0	32	2,203	135
323	100.00	5,689	5,689	100.00	0	0	0	0	0	5,689	0
226	99.98	6,074	6,074	100.00	0	0	0	0	12	6,062	0
186	34.91	7,330	7,330	100.00	0	0	0	0	8	7,322	0
320	100.00	7,517	7,517	100.00	0	57	0	0	1,570	5,890	0
229	99.90	8,046	8,046	100.00	0	360	0	0	0	7,686	0
1325	98.38	9,835	9,835	100.00	0	0	0	0	662	9,173	0
328	100.00	10,237	9,955	97.25	0	0	0	0	1,154	8,801	0
206	47.00	10,272	10,272	100.00	0	926	0	0	0	9,346	0
282	100.00	12,031	12,031	100.00	0	0	0	0	987	10,736	308
304	100.00	12,499	12,499	100.00	0	0	0	0	35	12,463	0
209	97.15	14,076	14,076	100.00	41	1,152	0	0	44	12,838	0
246	99.23	14,378	14,378	100.00	0	0	0	0	0	14,378	0
1101	77.17	15,232	15,232	100.00	9,369	1,022	315	0	3,159	1,207	162
1103	99.18	16,949	16,949	100.00	16,617	0	332	0	0	0	0
168	100.00	18,225	18,225	100.00	0	0	0	0	20	18,205	0
112	75.99	20,102	20,011	99.55	284	0	68	0	19,610	30	19