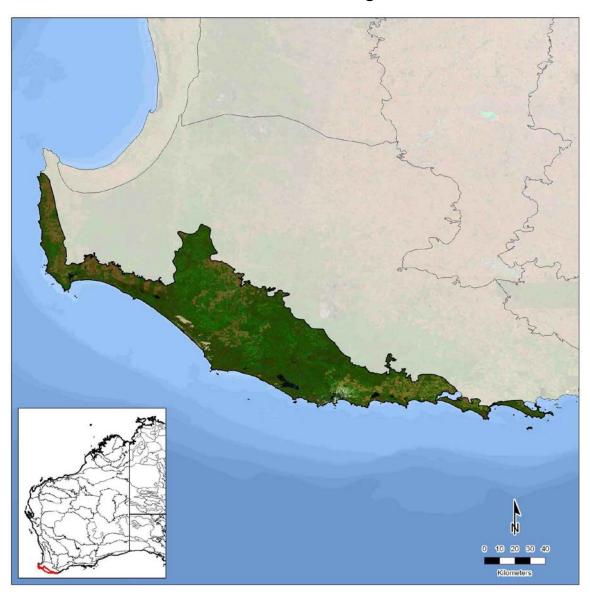
Warren 1 Sub-region



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) (%)
844,771	0.33	100	80.33	46.92

^{*}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:

• <u>DPaW-Managed and Other IUCN Terrestrial Lands by IBRA Sub-Regions Report</u>. Statistic: Percentage of sub-region within DEC-managed conservation reserves (IUCN Ia – IV).

Remnant vegetation

		Extent of vegeta				Total e	xtent
		(ha)	(%)	(ha)	(%)	(ha)	(%)
Native vegetation on DEC-managed lands	Conservation reserves (IUCN Ia - IV)	388,642	46.01	3,194	0.38	391,836	46.38
	DEC-managed lands proposed for conservation	517	0.06	0	0.00	517	0.06
	Conservation reserves (IUCN V & VI)	590	0.07	0	0.00	590	0.07
	Other DEC-managed lands	170,752	20.21	3	0.00	170,755	20.21
Native vegetation on other public lands		30,864	3.65	5,963	0.71	36,827	4.36
Native vegetation on leasehold lands		4,592	0.54	7	0.00	4,599	0.54
Native vegetation on freehold lands		71,817	8.50	413	0.05	72,230	8.55
Native vegetation with no tenure category assigned		92	0.01	1,184	0.14	1,276	0.15
Cleared areas		-	-	-	-	166,045	19.66
Unmapped islands*		-	-	-	-	98	0.01
Total		667,866	79	10,764	1	844,773	100

NB: some rounding errors may occur.

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

• <u>Statewide Vegetation Statistics (Full report).</u> Statistic: Extent of Remnant Vegetation including on DEC-managed lands.

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

Tenure

				Extent (ha)			Extent (%)		Number of reserves		
			2002	2012	Change	2002	2012	Change	2002	2012	Change
DEC-managed	Conservation reserves (IUCN Ia - IV)		258,815	396,375	137,560	30.64	46.92	16.28	57	70	13
lands	DEC-managed lands proposed for										
	conservation		0	554	554	0.00	0.07	0.07	0	3	3
	Conservation reserves (IUCN V & VI) ¹		0	623	623	0.00	0.07	0.07	0	10	10
	State forest / timber reserves		290,249	171,883	-118,366	34.36	20.35	-14.01	43	38	-5
	Other DEC-managed lands		6,035	5,041	-994	0.71	0.60	-0.11	82	73	-9
Other lands	Unallocated crown lands		15,147	8,054	-7,093	1.79	0.95	-0.84	1	-	-
	Other crown reserves		26,257	18,332	-7,925	3.11	2.17	-0.94	1	-	-
		Crown reserves vested in									
		Aboriginal Lands Trust*	-	0	-	-	0.00	-	-	-	-
	Pastoral leases^		4,429	4,463	34	0.52	0.53	0.01	-	ı	-
		Pastoral leases held by									
		Aboriginal Lands Trust*	-	0	-	-	0.00	-	-	-	-
	Other leasehold lands [^]		0	752	752	0.00	0.09	0.09	-	-	-
		General purpose leases held by Aboriginal Lands Trust*		0	_		0.00	_	_	_	_
	Freehold lands	by Aboriginal Lands Trust	221,899	218,789	-3,110	26.27	25.90	-0.37			
	Treenoid lands	Freehold lands held by	221,033	210,703	3,110	20.27	23.30	0.57			
		Aboriginal Lands Trust*	-	0	-	-	0.00	-	-	-	_
	Commonwealth lands (defence)	Ü	0	0	0	0.00	0.00	0.00	-	-	-
	Other public lands (roads and water										
	bodies)		1,020	17,851	16,831	0.12	2.11	1.99	-	-	-
	No tenure category assigned [†]		20,920	2,054	-18,866	2.48	0.24	-2.24	-	-	-
Total			844,771	844,771	-	100	100	-	182	194	-

NB: some rounding errors may occur.

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).

¹ 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.

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	Prospecting	2	N/A	6	N/A	4	1	1	0	0	3	3	0	0	0	2	0	-2
mining (live)	Exploration	14	N/A	17	N/A	3	4	9	5	1	0	-1	2	1	-1	6	10	4
tenements	Mining	16	N/A	12	N/A	-4	1	1	0	1	0	-1	1	1	0	1	2	1
	Other	0	N/A	0	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of	Exploration	2	N/A	1	N/A	-1	2	1	-1	0	0	0	1	0	-1	2	1	-1
petroleum (active) titles	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	37,178	4.40	129,154	15.29	10.89	439	8,899	8,460	328	147	-181	400	400	0	16,184	61,844	45,660
	Petroleum (active) titles	93,760	11.10	31,230	3.70	-7.40	46,955	8,768	-38,187	0	0	0	400	0	-400	10,378	78	-10,300
	Mining (live) tenements and petroleum (active)							, -	·									
	titles*	118,871	14.07	145,735	17.25	3.18	47,304	17,515	-29,789	328	147	-181	400	400	0	25,216	61,922	36,706

^{*}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
Conservation	281,776	398,451	116,675	33.36	47.17	13.81
Native forestry	287,685	178,403	-109,282	34.05	21.12	-12.93
Agriculture (intensive use)	118,461	136,601	18,140	14.02	16.17	2.15
Miscellaneous (non-intensive use)*	64,836	57,895	-6,941	7.67	6.85	-0.82
Pastoralism	67,907	30,842	-37,065	8.04	3.65	-4.39
Plantation forestry	8,260	21,607	13,347	0.98	2.56	1.58
Water (not classified)	4,731	4,867	136	0.56	0.58	0.02
Urban	702	4,308	3,606	0.08	0.51	0.43
Mining	102	400	298	0.01	0.05	0.04
Traditional indigenous use	0	0	0	0.00	0.00	0.00
Water (man-made/man modified)	0	0	0	0.00	0.00	0.00
No data	10,310	11,398	1,088	1.22	1.35	0.13
Total	844,770	844,772	1	100	100	-

NB: some rounding errors may occur.

See the methods document available $\underline{\text{here}}$ for definitions of the categories.

Linear infrastructure

	Length (km)	Area of reporting region (ha)	Length per hectare (km/ha)
Roads (sub-region)	3,290	844,771	0.0039
Roads (Strategic Survey Roads in national parks,			
conservation parks and nature reserves)	1,276	394,921	0.0032
Railways (sub-region)	69	844,771	0.0001

^{*} Largely unmodified natural systems under various land uses. See detailed descriptions.

Complementary conservation initiatives to the formal conservation reserve system

		Extent (ha)		Extent (%)				
	2002	2012	Change	2002	2012	Change		
Private conservation organisations' land	0	0	0	0.00	0.00	0.00		
Nature Conservation covenants	737	1,345	608	0.09	0.16	0.07		
Land for Wildlife properties	1,792	4,329	2,537	0.21	0.51	0.30		
Combined total*	2,496	5,532	3,036	0.30	0.65	0.35		

^{*} 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	0	0	0.00	0.00	0.00	
	On all other lands	0	0	0	0.00	0.00	0.00	
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	Pro	jected (Avera	ge)	Change from	n Base Climate	* (Average)	Chan	ge from Base Climate*	(range)					
	2030	2050	2070	2030	2050	2070	2030	2050	2070					
	High impact	High impact scenario												
Minimum Temperature (degrees C)	11.65	12.79	14.13	1.05	2.19	3.53	1.00 - 1.11	2.08 - 2.30	3.36 - 3.71					
Maximum Temperature (degrees C)	21.92	23.15	24.59	1.14	2.36	3.81	1.04 - 1.22	2.19 - 2.54	3.52 - 4.08					
Precipitation (mm)	910.95	850.57	795.48	-69.59	-129.97	-185.06	-88.7044.00	-165.9080.60	-240.40111.90					
	Medium imp	act scenario												
Minimum Temperature (degrees C)	11.44	12.03	12.60	0.84	1.43	2.00	0.80 - 0.88	1.36 - 1.50	1.90 - 2.09					
Maximum Temperature (degrees C)	21.69	22.32	22.94	0.91	1.54	2.15	0.84 - 0.97	1.42 - 1.65	1.99 - 2.31					
Precipitation (mm)	923.95	889.61	860.00	-56.59	-90.92	-120.54	-72.1035.90	-116.0057.10	-153.8075.00					

^{*} Base Climate is 1990

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

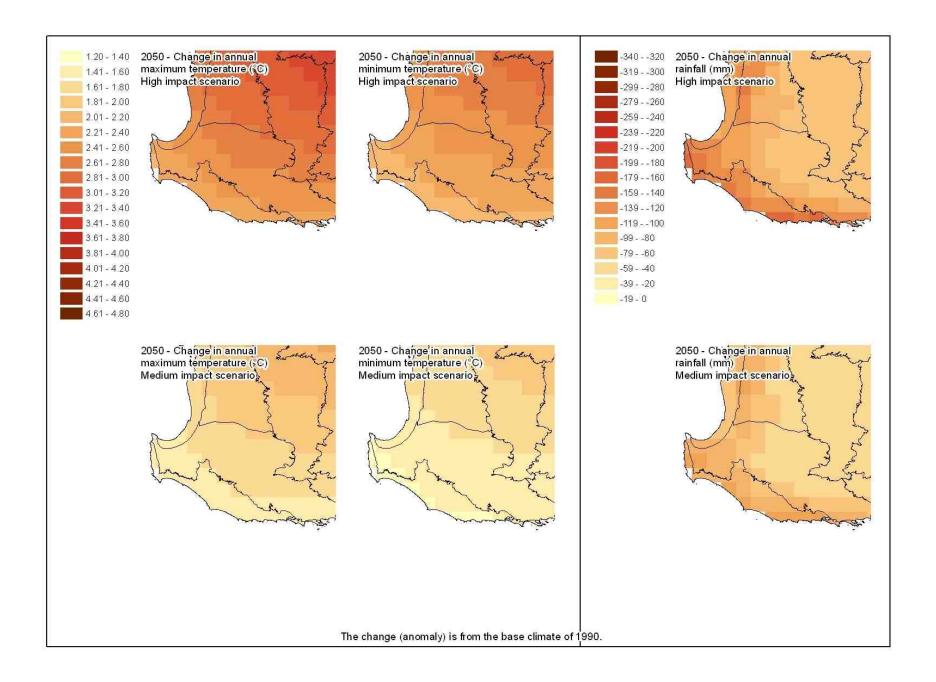
For more information see https://wiki.csiro.au/confluence/display/ozclim/Science#Science-CSIRO35

Medium Impact Scenario:

- Emission Scenario: Medium CO₂ 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 CO2 from 280 ppm to 560 ppm.

High Impact Scenario:

- Emission Scenario: High CO2 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 CO2 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).

	Percentage of	Pre-	Command autant		Curre	ntly remaining on DE	C-managed land	ds (ha)	Currently remaining on other lands (ha)			
Beard's veg assoc no.	veg assoc within sub- region (%)	European extent (ha)	Current extent (ha)	Percentage remaining (%)	IUCN Ia-IV	Proposed for conservation	IUCN V-VI	Non-IUCN	Public lands	Leasehold lands	Freehold lands	
3	9.40	250,263	196,774	78.63	99,852	64	132	69,842	5,723	1,397	19,764	
1144	99.60	159,668	128,224	80.31	54,578	0	0	63,576	2,897	46	7,126	
27	53.84	70,203	52,410	74.65	43,672	15	1	2,860	1,471	8	4,380	
1	95.45	69,118	54,548	78.92	24,805	7	5	20,325	2,503	10	6,892	
23	91.90	37,736	27,255	72.23	18,397	0	110	1,866	2,445	8	4,429	
51	60.70	35,867	24,235	67.57	19,448	0	273	973	1,114	26	2,395	
1109	97.20	33,365	32,225	96.58	26,067	27	0	0	715	2,203	3,213	
969	69.14	19,159	8,379	43.73	598	0	0	126	2,495	8	5,152	
1139	100.00	15,254	14,022	91.92	12,662	0	0	569	107	2	681	
423	55.55	15,176	12,428	81.89	4,500	0	0	1	3,496	53	4,366	
990	80.37	15,022	13,834	92.09	10,381	42	0	1	532	653	2,225	

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. ≥ 85% of the vegetation association falls within one sub-region).

	Percentage of	Pre-			Currer	ntly remaining on DE	C-managed land	ls (ha)	Currently remaining on other lands (ha)				
Beard's veg assoc no.	veg assoc within sub- region (%)	European extent (ha)	Current extent (ha)	Percentage remaining (%)	IUCN Ia-IV	Proposed for conservation	IUCN V-VI	Non-IUCN	Public lands	Leasehold lands	Freehold lands		
1139	100.00	15,254	14,022	91.92	12,662	0	0	569	107	2	681		
1150	100.00	5,394	5,005	92.79	4,469	0	0	108	47	0	381		
1115	100.00	1,269	1,216	95.82	1,216	0	0	0	0	0	0		
1130	100.00	1,096	982	89.60	836	0	0	0	17	0	130		
1137	100.00	1,080	336	31.11	165	97	0	0	26	0	48		
1138	100.00	646	405	62.69	25	0	0	0	22	0	357		
1131	100.00	282	282	100.00	282	0	0	0	0	0	0		
1158	100.00	95	90	94.74	88	0	0	0	3	0	0		
1152	99.72	7,358	7,133	96.94	6,604	0	67	358	11	0	93		
1144	99.60	159,668	128,224	80.31	54,578	0	0	63,576	2,897	46	7,126		
1112	99.06	11,085	10,517	94.88	5,150	0	0	5,139	142	0	86		
1109	97.20	33,365	32,225	96.58	26,067	27	0	0	715	2,203	3,213		
1108	96.79	8,769	8,061	91.93	5,712	43	0	0	735	0	1,570		
1113	96.33	7,193	6,990	97.18	6,282	0	0	0	157	0	546		
1	95.45	69,118	54,548	78.92	24,805	7	5	20,325	2,503	10	6,892		
1116	94.15	4,362	3,905	89.52	15	112	0	3,406	77	0	295		
23	91.90	37,736	27,255	72.23	18,397	0	110	1,866	2,445	8	4,429		
1151	90.25	2,019	1,830	90.64	1,385	0	0	310	40	0	94		
1140	87.39	686	686	100.00	686	0	0	0	0	0	0		

Rare vegetation associations

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

	Percentage of	Pre-			Currer	ntly remaining on DE	C-managed land	ls (ha)	Currently re	maining on othe	er lands (ha)
Beard's veg assoc no.	veg assoc within sub- region (%)	European extent (ha)	Current extent (ha)	Percentage remaining (%)	IUCN la-IV	Proposed for conservation	IUCN V-VI	Non-IUCN	Public lands	Leasehold lands	Freehold lands
977	0.37	1	0	0.00	0	0	0	0	0	0	0
2	0.22	7	2	28.57	0	0	0	0	0	0	2
1009	0.13	23	22	95.65	0	0	0	0	1	0	21
973	0.58	29	9	31.03	1	0	0	0	0	0	8
38	1.21	30	27	90.00	0	0	0	26	1	0	0
1008	0.68	31	7	22.58	0	0	0	0	7	0	0
965	0.63	59	59	100.00	59	0	0	0	0	0	0
1158	100.00	95	90	94.74	88	0	0	0	3	0	0
1132	50.81	156	108	69.23	3	0	0	41	54	0	10
1131	100.00	282	282	100.00	282	0	0	0	0	0	0
1111	80.02	641	632	98.60	632	0	0	0	0	0	0
1138	100.00	646	405	62.69	25	0	0	0	22	0	357
1140	87.39	686	686	100.00	686	0	0	0	0	0	0
1180	24.42	713	589	82.61	496	0	0	0	3	0	90
1153	79.42	934	785	84.05	702	0	0	0	7	0	76
1157	81.86	1,029	952	92.52	427	0	0	370	128	0	27
1137	100.00	1,080	336	31.11	165	97	0	0	26	0	48
1130	100.00	1,096	982	89.60	836	0	0	0	17	0	130
1115	100.00	1,269	1,216	95.82	1,216	0	0	0	0	0	0
1151	90.25	2,019	1,830	90.64	1,385	0	0	310	40	0	94
126	10.73	2,523	821	32.54	731	0	1	0	36	0	51
975	16.44	2,840	2,224	78.31	1,661	0	0	0	54	0	509
1002	19.28	3,074	2,589	84.22	1,832	0	0	208	115	0	435
22	82.67	3,334	2,921	87.61	1,377	107	0	0	400	0	1,035
1116	94.15	4,362	3,905	89.52	15	112	0	3,406	77	0	295
1150	100.00	5,394	5,005	92.79	4,469	0	0	108	47	0	381
1113	96.33	7,193	6,990	97.18	6,282	0	0	0	157	0	546
1152	99.72	7,358	7,133	96.94	6,604	0	67	358	11	0	93
1108	96.79	8,769	8,061	91.93	5,712	43	0	0	735	0	1,570
1112	99.06	11,085	10,517	94.88	5,150	0	0	5,139	142	0	86
990	80.37	15,022	13,834	92.09	10,381	42	0	1	532	653	2,225
1139	100.00	15,254	14,022	91.92	12,662	0	0	569	107	2	681