

# 817251

## DE WITT RANGE

This land system covers extensive tracts of land in the far south west and west of the study area. It is characterised by prominent mountain ranges and long steep slopes composed of Precambrian quartzite, schist and sandstone. The region has been affected by numerous fires which have resulted in the development of severe soil erosion problems.

Considerable areas of the land system are covered by sedgeland/heath, especially slopes with westerly aspects which contrast dramatically with more protected easterly aspects where rainforest occurs. The rainforest understorey is often reasonably clear. Rainforest is also found in gullies where mineral soils have accumulated. These sites are more likely to remain wet during hot, dry periods and so protect the forest from fire. Fires encroaching from surrounding sedgeland/heath burn the edges of the forest and as a result sclerophyllous vegetation typically forms belts around rainforest pockets with *Leptospermum* spp., *Eucalypt* spp. and *Banksia marginata* common. The sedgeland/heath vegetation is often taller and thicker at the boundary with this sclerophyllous vegetation, together with a tangled mass of *Bauera rubioides* and *Empodisma minus* which reach up to about 2m.

The sedgeland/heath components of this land system are dominated by *Gymnoschoenus sphaerocephalus*, *Sprengelia incarnata*, *Lepidosperma filiforme*, and various *Restio* and *Epacris* spp. *Agastachys odorata* and *Banksia marginata* often protrude above surrounding vegetation reaching heights of up to 2m. Although *Hakea epiglottis* was not recorded at any of the sites it does occur locally as an emergent above surrounding sedgeland heath. Organic soils are typical of most components, but differ in depth and sometimes colour between the various vegetation types. On more exposed slopes dominated by sedgeland/heath 0.60m deep peat with both fibrous and muck horizons overlie quartzitic gravels. In contrast rainforest soils have clay loam and loam mineral horizons with a shallow (0.10m) surface horizon of fibrous peat and no muck peat. The rainforest is dominated by *Nothofagus cunninghamii* with *Atherosperma moschatum*, *Eucryphia lucida* and *Phyllocladus*

*aspleniifolius* common. In the far north of the study area (King Billy Range) *Lagarostrobos franklinii* and *Athrotaxis selaginoides* (Davies 1983) occur. *Anodopetalum biglandulosum* is also found and although usually in the understorey it may reach heights of up to 15 metres. *Blechnum watsii* and *Prionotes cerinthoides* also characterise the understorey, while moss is common and extends up tree trunks to 15 metres. Higher exposed locations usually have heath or low open shrubland vegetation growing on organic soils. Ridges and crests above about 650 m can have feldmark areas where surface soil is continually blown away exposing gravels or bedrock.

In the last twenty years this land system has been subjected to fourteen major fires which have burnt different parts of the region. There are likely to have been many burns prior to this. These events have been particularly destructive, as peat horizons have been burnt and subsequently eroded by wind and rain. The De Witt Range Land System displays the most severe peat erosion in the South West. The main reason for this is that the well drained steep slopes dry out rapidly making them extremely vulnerable to fire and subsequent erosive processes. Firing during dry conditions encourages sheet erosion by removing vegetation that binds the soil, but more importantly, by burning peat. The ash which is produced is easily removed by the strong winds and high rainfall the area experiences. Vegetation on peat eroded areas is often sparse and stunted as soils are shallow and drought prone. This in turn limits the accumulation of new peat deposits. On the slopes of the De Witt Range up to 0.50m of peat has been removed (see photograph Firing and Soil Erosion section). Sand, from underlying horizons, and peat build-up on lower slopes and flats provides evidence for active erosion. Rainforest areas appear to be little affected by peat erosion as firing is generally restricted to sedgeland/heath. Areas in this land system which have been severely eroded include the: Charles Range, Lawson Range, areas around North Broken Hills, De Witt Range, Propsting Range, Lost World Plateau, Bakers Ridge, Rugby Range, Erskine Range, Red Point Hills and areas around Melaleuca Inlet.

The De Witt Range land system occurs within the South West National Park and South West Conservation Area. Bush walking is the main activity in the area although large parts are only accessible from the sea or air.

LAND SYSTEM DE  
WITT RANGE

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Area (ha): 215364



ALTIUDINAL	300-600 (Down to 0 and up to 1000 m)		APPROXIMATE ANNUAL RAINFALL (mm)		2000-2500	
SITE No.	(12/250/NH)(17/80	(84/560/HE) (	(186/160/E)	83/320/NE	185/640/S	184/700/W
(m) /ASPECT	(18/200/SE)(	(189/400/NE)				
TOPOGRAPHY	Mountainous area with prominent ranges, ridges and gullies					
Position	Exposed lower	Exposed mid to upper	Protected gullies	Ridges and	Exposed upper	Crests
Typical Slope(	15-40	5-40	15-40	10-20	10-30	0-5
Proportion (%)	30	30	20	10	5	5
GEOLOGY	Precambrian quartzite and schist					
NATIVE	Open to closed-	Open to closed-				low open shrubland
Structure	sedgeland/heath	sedgeland/heath	Closed forest	Woodland to open-	Closed-heath	(feldmark)
	Gymnoschoenus	s Gymnoschoenus	Nothofagus	Eucalyptus nitida	Nothofagus	Eucalyptus
Floristic:	Lepidosperma	Sprengelia incamata	Atherosperma	Leptospermum	Agastachys odorata	Isophysis tasmanica
Association	Banksia marginata	Melaleuca squamea	Eucryphia lucida	Banksia marginata	Baeckea	Parsoonia cunningii
(See Appendix	Agastachys	Baeckea leptocaulis	Phyllocladus	Phebalium squareum	Gahnia grandis	Oreobolus pumilio
for common	Sprengelia	Agastachys odorata	Anodopetalum	Melaleuca squarrosa	Eucryphia	Astelia alpina
names)	Baeckea	Leptospermum nitidum	Prionoxystus	Cenarrhenes nitida	Richea	EPACRIS serpyllifolia
	Boronia pilosa	Leptosperma	Rlechnum wattsi	Bauera rubioides	Astelia alpina	Euchrasia sp
	Drosera binata	Euphrasia sp	Occasionally	Empodisma minus	Isochysis	Dracophyllum
	Isophysis	Banksia marginata	Eucalyptus nitida	Monotoca glauca	Cornia curvata	Rubus gunnianus
	Empodisma minus	Bauera rubioides	and various	Acacia mucronata	Helichrysum	Anemone crassifolia
	Leucopogon	Empodisma minus	Leptospermum spp	Anodopetalum	Gleichenia dicarpa	Monotoca subrutica
	Epacris	Boronia pilosa	especially around	Gahnia grandis	Empodisma minus	Abrotanella
	E lanuginosa	Epacris corymbif	of rainforest		Monotoca subrutica	Actinotus moorei
	Restio	Isophysis tasmanica			Epacris heteronema	Helichrysum
	Lepyrodia	Restio complanatus			Bauera rubioides	
	Stylidium	Xyns sp.				
SOIL	Dark reddish	Very dark brown	Dark reddish	Dark reddish	Sandy, very dark	Dark reddish
Surface(A or	brown (5 YR 2.	(10 YR 2/2) to	brown (5 YR 2.	brown (5 YR 2.	grey (5 YR 3/1)	brown (5 YR 2.
P horizon	5/2) fibrous	reddish black (10	5/2) fibrous peat	5/2) fibrous peat	fibrous peat	5/2) fibrous peat
)Colour	peat over a very	YR 2. 5/1) fibrous				
Subsoil (or B	Greyish brown	Occasionally white	Dark reddish brown	Grey/light grey (10	Gravelly peat	Gravelly peat
horizon) colour	(10 YR 5/2)	(10 YR 8/1) sand	(5 YR 3/2) loam	YR 6/1) Loamy sand		
(moist) and	Loamy sand in	but more often	over a dark grey			
texture	places or P1 and	peaty quartzitic	(10 YR 4/1) or dark			
	P2 over	gravels	reddish grey (5 YR			
Primary Profile	Organic	Organic	Gradational	Uniform	Organic	Organic
Depth surface	0. 20-0. 65	0. 25-0. 40	0. 10	0. 10	0. 35	0. 20
Typical total	0. 30-0. 90	0. 40-0. 60	1. 00	0. 5b	0. 40	0. 20
depth (m)		(occasionally				
Permeability	High	High	High	High	High	High
LAND USE	Nature conservation					
HAZARD	High sheet erosion				High sheet erosion	

Photo 52



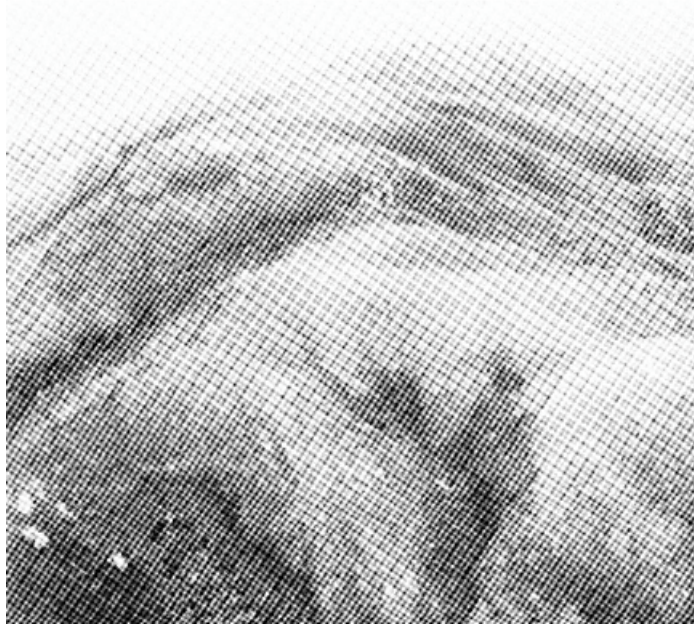
The DeWitt Range Land System covers the lower slopes of the Arthur Range. Large quartzite boulders scattered over these slopes may result from periglacial processes in Pleistocene times. Location: Western Arthur Range.

Photo 53



Peat eroded to bedrock on the DeWitt Range. At least 30 cm of peat has been lost from these slopes.

Photo 54



The geology, soil and vegetation of this part of the DeWitt Range is very similar to the area shown in the lower photograph on page 122. It has not been burnt as often, because it is further inland and is protected by forested river valleys from areas to the west where fires are typically initiated