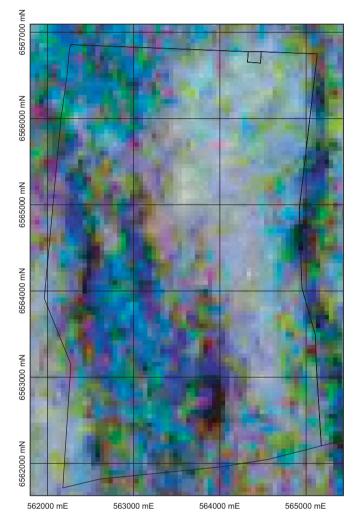


Aerial orthophoto mosaic of the South Sandstone Paddock compiled from 1:50,000 scale colour aerial photographs of the Bancannia (acquired 16.08.99) and Fowlers Gap (acquired 11.08.1999 and 03.09.1995) 1:100,000 sheets by the New South Wales Department of Lands. Photographs were orthorectified using camera parameters, the SRTM DEM and ground control points collected using hand-held GPS receivers during field work. The final ground pixel resolution of the orthophoto mosaic is approximately 3 m.



Gamma-ray spectrometric (airborne radiometric) image of the South Sandstone Paddock from the Broken Hill Exploration Initiative 2nd edition (BHEI-2) dataset of the Geological Survey, NSW Department of Primary Industries. Potassium (K), Thorium (eTh) and Uranium (eU) are displayed as red, green and blue respectively. This image highlights the Neoproterozoic rocks that dominate the map sheet and indurated Cretaceous sediments that are found within the northwest. A prominent, low-emissivity quartzite ridge of the Faraway Hills Quartzite strikes north-south in the east of the area. The central area along Homestead Creek, and the far west, display relatively high emmissivity signifying slightly to moderately weathered Sturts Meadows Siltstone at surface or buried under thin, discontinuous colluvial cover. Rocks in the lower and central western portion comprise variably to highly weathered and ferruginised Sturts Meadows Siltstone with thin, discontinuous colluvial cover, displaying a range of emissions from K-rich (pinks) to eTh- (greens) and eU-rich (blues) where heavily ferruginised. Indurated Cretaceous sediments in the northwest are moderately ferruginised and have moderate eTh emissivity.

## South Sandstone Paddock 1:12,500 regolith-landform map

Regolith-landform units compiled by I.C. Roach (CRC LEME/Australian National University) and S.M. Hill (CRC LEME, University of Adelaide), cartography and images compiled by I.C.Roach.

It is recommended that this map be referred to as:

Roach I.C. & Hill S.M. 2007. South Sandstone Paddock 1:12,500 Regolith-Landform map. Cooperative Research Centre for Landscape Environments and Mineral Exploration, Perth, WA.

The regolith-landform polygons on this map are based on an interpretation of 1:10,000 scale aerial photographs, airborne geophysical imagery (gamma-ray spectrometrics and magnetics) and extensive field mapping. The intent is to identify and characterise surface materials and landforms for the purposes of landscape evolution studies, natural resource management and mineral exploration.

CRC LEME acknowledges the support of Dr David Croft, Director, University of New South Wales' Fowlers Gap Arid Zone Research Station, in the production of this map. Shuttle Radar Topography Mission Digital Elevation Model (SRTM DEM) courtesy of NASA. Geophysical images courtesy of the Geological Survey, NSW Department of Primary Industries.

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The Business Manager CRC LEME c/o CSIRO Division of Exploration and Mining PO Box 1130 Bentley WA 6102

## Disclaime

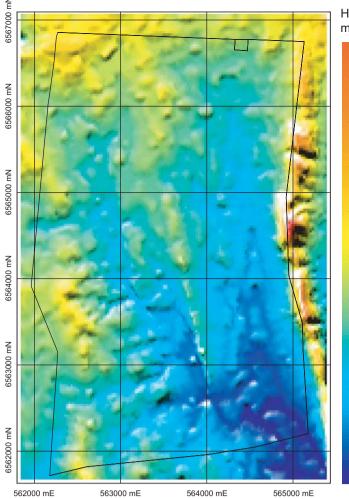
The user accepts all risks and responsibility for losses, damages, costs and other consequences resulting directly or indirectly from using any information or material contained in this map. To the maximum permitted by law, CRC LEME excludes all liability to any person arising directly or indirectly from using any information or material contained in this map.

Most information is digitised from 1:10,000 scale aerial photographs or is taken directly from digital track logs of hand-held GPS devices. A small proportion of information is taken from the New South Wales Department of Primary Industry's BHEI-2 Geophysical Dataset.

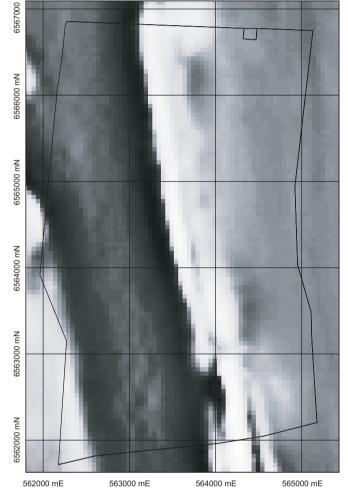
- CRC LEME is an unincorporated joint venture between the Australian National University, The University of Adelaide, The Curtin University of Technology, CSIRO Exploration and Mining, CSIRO Land and Water, Primary Industries and Resources South Australia, The New South Wales Department of Primary Industry and the Minerals Council of Australia, established and supported under the **CRC** Australian Government's Cooperative Research Centres Program.

Copies of this map may be obtained from: CRC LEME

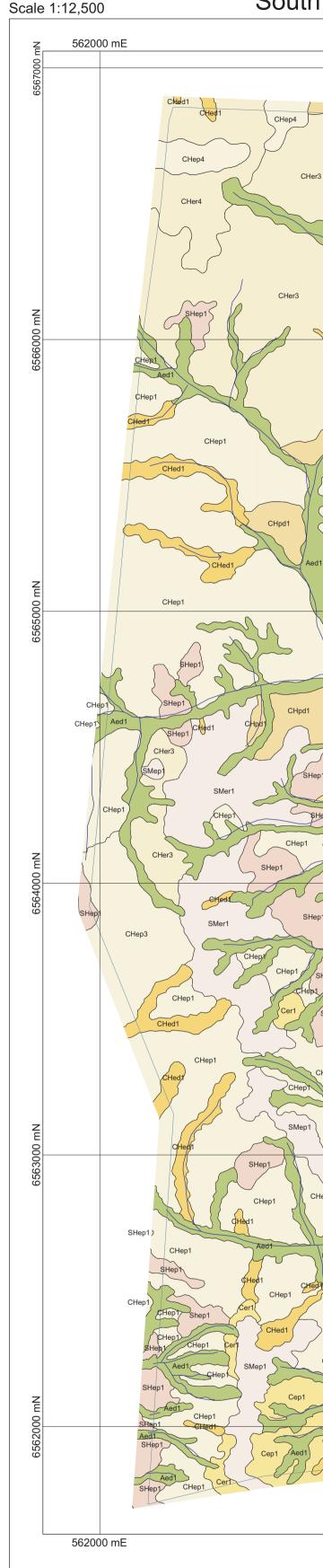
c/o CSIRO Division of Exploration and Mining PO Box 1130 Bentley WA 6102 http://crcleme.org.au/.



Digital Elevation Model (DEM) of the South Sandstone Paddock derived from hand-digitised Fowlers Gap Field Station 1:25.000 scale topographic contours at 5 m vertical contour interval and the Shuttle Radar Topography Mission (SRTM) 90 m ground resolution pixel DEM. SRTM heights were used to fill in the topographic contours where gaps of more than 50 m existed horizontally between adjacent contours. The image is sunshaded from the northeast with a sun elevation of 30 degrees. The speckled appearance on areas of low relief is due to digital noise and levelling errors in the SRTM data and 'steps' in the model are artefacts introduced by the modeling process along topographic contours in low-relief areas.



First Vertical Derivative (1VD) aeromagnetics of the South Sandstone Paddock from the Broken Hill Exploration Initiative 2nd edition (BHEI-2) dataset from the Geological Survey, NSW Department of Primary Industries. The 1VD image highlights a highly ferruginised band of Adelaidean (Sturts Meadows Siltstone) bedrocks as a large, linear magnetic anomaly striking roughly north-south through the centre of the map sheet. The image is sunshaded from the northeast, resulting in the anomaly casting a "shadow" across rocks to the west, however, rocks either side of this anomaly are similarly magnetised.



Publications related to the this map: Pain C., Chan R., Craig M., Gibson D., Kilgour P. & Wilford J. 2007. RTMAP regolith database field book and users guide.

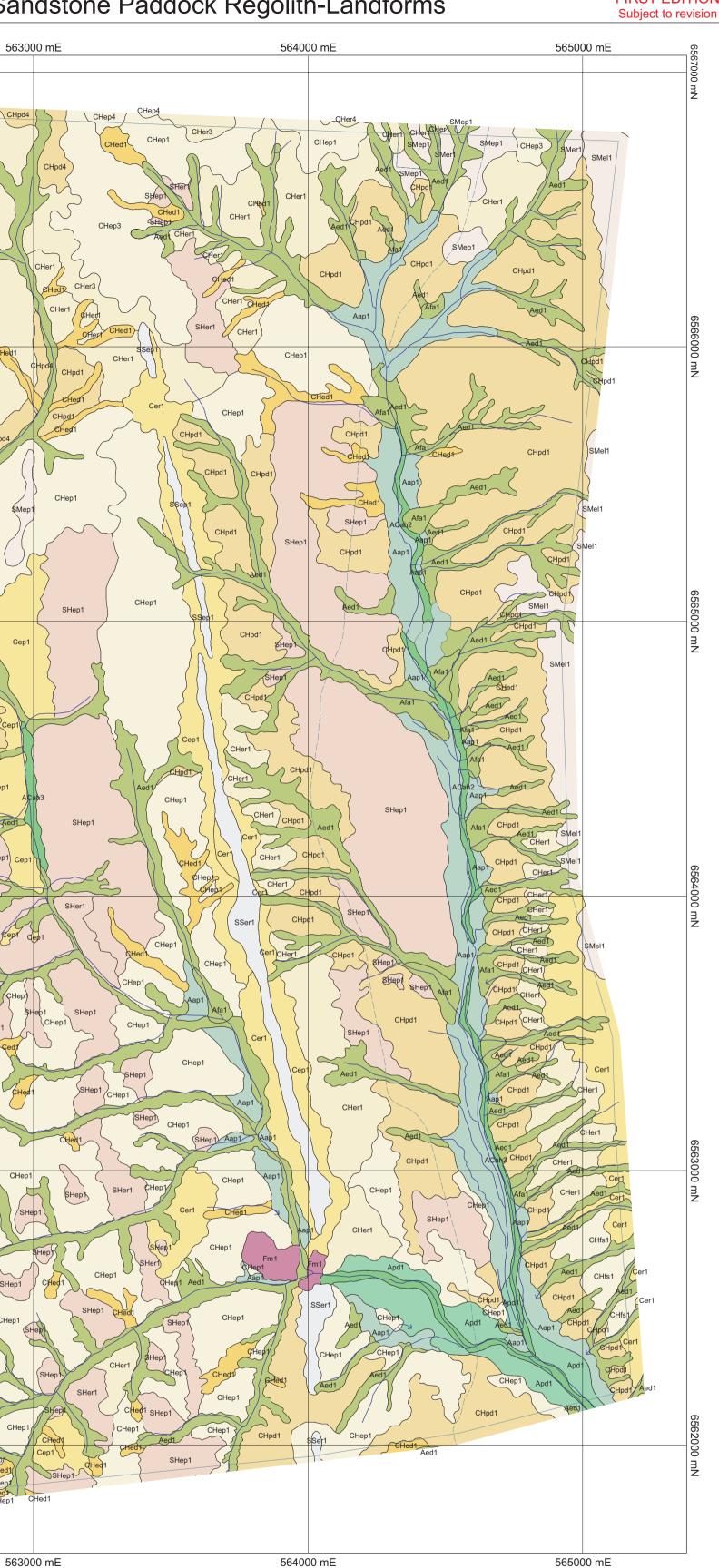
Canberra. CRC LEME Report No. 231, 101 p. Hill S.M. & Roach I. C. 2003. The regolith-landforms of Sandstone Paddock, Fowlers Gap, western NSW. In: Roach I.C. ed. Advances in Regolith. CRC LEME, pp. 193-200. Hill S.M. & Roach I.C. 2005. Regolith-landforms of northern Lake Paddock, Fowlers Gap Arid Zone Research Station, Western NSW. In: Roach I.C. ed. Regolith 2005 - Ten Years of CRC LEME. CRC LEME, pp. 139-145.





# **FOWLERS GAP** South Sandstone Paddock Regolith-Landforms

## **FIRST EDITION**

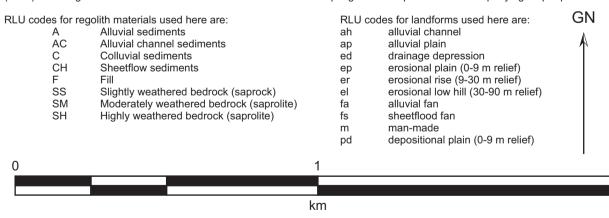


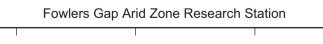
TRAN	SPORTED REGOLITH	
Alluvial	sediments	
Aap1	Red-brown, rounded to angular lithic and quartzose sand, gravel and silt. Low reli of incised channels and overbank deposits, typically associated with local depocent drainage depressions. Chenopod shrubland dominated by <i>Atriplex vesicaria</i> and <i>M</i>	
Aed1	Rounded to minor angular gravel, sand and silt composed of vein quartz and lithic clasts and some weathered bedrock exposures. Incised channels and gullies and fl dominated by <i>Atriplex spp.</i> and <i>Maireana spp.</i> with riparian shrubland of <i>Acacia leucoptera</i> , <i>Xanthium spp.</i> and grasses including <i>Cymbopogon ambiguus</i> .	
ACah2	Rounded and angular lithic and quartzose sand, gravel and minor silt. Sandy me woodland dominated by <i>Acacia victoriae</i> and <i>Myoporum montanum</i> small trees and	
ACah3	Rounded and angular lithic and quartzose sand, gravel and minor silt. Sandy me woodland dominated by <i>Casuarina pauper</i> trees.	
Afa1	Rounded to minor angular gravel, sand and silt composed of vein quartz and lithic clasts and some weathered bedrock exposures. Low to slight topographic relief (- and sheetflow outwash downstream of intersection points. Chenopod shrublands d <i>Sclerolaena spp.</i> and <i>Xanthium spp.</i>	
Apd1	Red-brown sub-rounded to sub-angular quartzose and lithic sand, gravel and s typically associated with intersection point floodouts of alluvial channels and drain dominated by <i>Maireana spp.</i> , <i>Atriplex spp.</i> , <i>Sclerolaena spp.</i> and <i>Xanthium spp.</i>	
Colluvia	al sediments	
Ced1	Angular gravel of highly ferruginised bedrock clasts with red-brown quartzose sat exposures. Incised channels and gullies and flanking valley-sides. Chenopod st <i>Maireana spp.</i> with riparian shrubland of <i>Acacia victoriae</i> , <i>Myoporum montanum a</i> <i>Cymbopogon ambiguus</i> .	
Cep1	Angular gravel of variably kaolinitic and ferruginised weathered bedrock clasts, n with red-brown quartzose sand and silt. Highly friable when not indurated. Low to shedding sediment into flanking channels and drainage depressions. Sparse ch vesicaria and Sclerolaena spp.	
Cer1	Angular, lithic (mostly quartzite clasts but also variably kaolinised and ferruginised red-brown quartzose sand and silt. Slight topographic relief (9-30 m). Chenopod s and <i>Sclerolaena spp.</i>	
CHed1	Angular lithic (dominantly quartzite clasts) and quartzose gravel and red-brown of subcrop. Moderate relief (9-30 m), locally shedding sediment. Chenopod shru <i>Maireana spp.</i> and <i>Sclerolaena spp.</i>	
CHep1	Angular lithic (dominantly quartzite clasts) and quartzose gravel and red-brown of subcrop. Low-relief (< 9 m), low gradient, locally shedding sediment. Chenopod st <i>Maireana spp.</i> and grasses.	
CHep3	Rounded to sub-angular gravel and sand of quartzose and silicified sediment clasts ose sand and silt. Low-relief (< 9 m), low gradient, locally shedding sediment. Ch vesicaria, Maireana spp. and scattered Casuarina pauper trees.	
CHep4	Rounded and angular gravel and sand of quartzose, silicified sediment and ferrug muscovite. Minor red-brown quartzose sand and silt. Low-relief (< 9 m), low gradie shrubland dominated by <i>Atriplex vesicaria</i> and <i>Maireana spp</i> .	
CHer1	Angular lithic (dominantly quartzite clasts) and quartzose gravel and red-brown of subcrop. Moderate relief (9-30 m), locally shedding sediment. Chenopod shru <i>Maireana spp.</i> and <i>Sclerolaena spp</i> .	
CHer3	Rounded to sub-angular gravel and sand of quartzose and silicified sediment clas quartzose sand and silt. Moderate relief (9-30 m), locally shedding sediment. Ch <i>vesicaria, Maireana spp.</i> and scattered <i>Casuarina pauper</i> trees.	
CHer4	Rounded and angular gravel and sand of quartzose, silicified sediment and ferrug with muscovite. Minor red-brown quartzose sand and silt. Moderate relief (9-30 r shrubland dominated by <i>Atriplex vesicaria</i> and <i>Maireana spp</i> .	
CHfs1	Angular lithic (dominantly quartzite clasts) and quartzose gravel and red-brown que broad fan with 'contour band' surface lag pattern. Chenopod shrubland dominated <i>Sclerolaena spp</i> .	
CHpd1	Angular lithic (dominantly quartzite clasts) and quartzose gravel and red-brown qu subcrop. Low-relief (< 9 m), with surficial contour band patterns and receiving sedies by <i>Atriplex vesicaria</i> , <i>Maireana spp.</i> and <i>Sclerolaena spp.</i>	
CHpd4	Rounded and angular, quartzose, silicified sediment and ferruginised sediment muscovite. Minor red-brown quartzose sand and silt. Low-relief (< 9 m), with surf sediment. Chenopod shrubland dominated by <i>Atriplex vesicaria</i> , <i>Maireana spp</i> . and	
Fill		
Fm1	Regolith disturbed by machinery and construction. Irregular landforms. Sparse veg barren.	
IN-SITU REGOLITH		
Saprolit	e	
SSep1	Hard, quartzose, slightly weathered bedrock. Prominent conchoidal fractures an gradient, locally shedding sediment. Chenopod shrublands dominated by <i>Atriplex Acacia aneura</i> trees.	
	Hard, guartzose, slightly weathered bedrock. Prominent conchoidal fractures and	

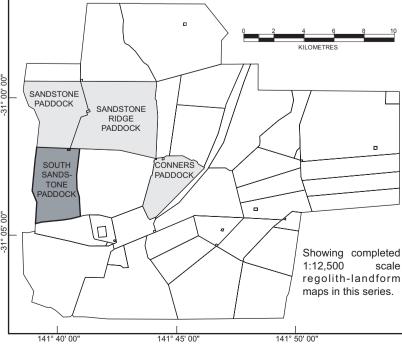
SSep1	Hard, quartzose, slightly weathered bedrock. Prominent co gradient, locally shedding sediment. Chenopod shrublands d <i>Acacia aneura</i> trees.
SSer1	Hard, quartzose, slightly weathered bedrock. Prominent con locally shedding sediment. Chenopod shrublands dominated aneura trees.
SMel1	Variably kaolinitic and ferruginised weathered bedrock with quartz veins. Highly friable when not indurated. Moderate-rel chenopod shrubland dominated by <i>Atriplex vesicaria</i> , <i>Mairea</i> trees.
SMep1	Kaolinitic and micaceous weathered bedrock with prominent of sation. Low-relief (< 9 m), low gradient, locally shedding sedin <i>Sclerolaena spp.</i> with scattered <i>Casuarina pauper</i> trees.
SMer1	Kaolinitic and micaceous weathered bedrock with prominent m), locally shedding sediment. Chenopod shrublands domin <i>Casuarina pauper</i> trees.
SHep1	Variably kaolinitic and ferruginised weathered bedrock with or indurated. Minor regolith carbonates and quartz veins. Low- chenopod shrubland dominated by <i>Atriplex vesicaria</i> and <i>Sci</i>
SHer1	Variably kaolinitic and ferruginised weathered bedrock with a indurated. Minor regolith carbonates and quartz veins. Moder shrubland dominated by <i>Atriplex vesicaria</i> and <i>Sclerolaena</i> s
$\leftarrow$ —	Drainage line from 1:25,000 topographic sheet
	Track
	Fence

RLU key descriptions for the South Sandstone Regolith-Landform map

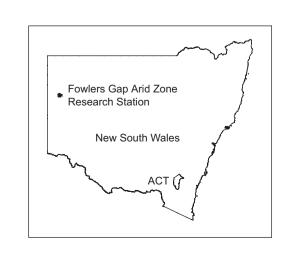
The Regolith-Landform Unit (RLU) polygon codes provide a framework to present the regolith materials and associated landforms on the map sheet across the area. They are designed to first list the regolith lithology in capital letter codes, then landform in lower case codes. The modifier number following each RLU code allows for discrimination of variations within broader regolith-landform assemblages (typically due to differences in composition, vegetation assemblages or other attributes). The RLU codes are largely based upon interpretation of the dominant regolith-landform process responsible for their formation (i.e., genetic process), following the scheme of Pain et al. (2000). Lithological and other RLU attributes are described in the map legend descriptions and accompanying map report.







## South Sandstone Paddock Regolith-Landforms map. Grid coordinates shown are of the Australian Map Grid (AMG) using a Universal Transverse Mercator (UTM) projection Zone 54 and the Australian Geodetic Datum 1966 (AGD66). Ground control is based on the Fowlers Gap Field Station 1:25,000 topographic sheets published by the Central Mapping Authority, Department of Lands, New South Wales, 1971.





ravel and silt. Low relief (< 9 m) landforms containing a mixture ated with local depocentres and floodouts of alluvial channels and Atriplex vesicaria and Myoporum montanum.

of vein quartz and lithic fragments with minor silicified sediment nnels and gullies and flanking valley-sides. Chenopod shrubland an shrubland of Acacia victoriae, Myoporum montanum, Hakea ogon ambiguus. I minor silt. Sandy meandering and braided channels. Riparian ontanum small trees and shrubs.

I minor silt. Sandy meandering and braided channels. Riparian

of vein quartz and lithic fragments with minor silicified sediment ght topographic relief (< 9 m) fan including distributary channels Chenopod shrublands dominated by Maireana spp., Atriplex spp., hic sand, gravel and silt. Smooth, low relief (< 9 m) landforms ivial channels and drainage depressions. Chenopod shrublands

d-brown quartzose sand and silt and some weathered bedrock ey-sides. Chenopod shrubland dominated by Atriplex spp. and Myoporum montanum and Xanthium spp. and grasses including ered bedrock clasts, minor regolith carbonates and vein quartz n not indurated. Low to slight topographic relief (< 9 m), locally pressions. Sparse chenopod shrubland dominated by Atriplex ised and ferruginised bedrock clasts) and quartzose gravel with f (9-30 m). Chenopod shrubland dominated by Atriplex vesicaria gravel and red-brown quartzose sand and silt. Shallow bedrock diment. Chenopod shrubland dominated by Atriplex vesicaria, ravel and red-brown quartzose sand and silt. Shallow bedrock sediment. Chenopod shrubland dominated by Atriplex vesicaria, ilicified sediment clasts with muscovite. Minor red-brown quartz-

hedding sediment. Chenopod shrubland dominated by Atriplex ed sediment and ferruginised sediment and saprolite clasts with elief (< 9 m), low gradient, locally shedding sediment. Chenopod gravel and red-brown quartzose sand and silt. Shallow bedrock liment. Chenopod shrubland dominated by Atriplex vesicaria,

silicified sediment clast gravel with muscovite. Minor red-brown hedding sediment. Chenopod shrubland dominated by Atriplex

ed sediment and ferruginised sediment and saprolite clast gravel Moderate relief (9-30 m), locally shedding sediment. Chenopod

gravel and red-brown quartzose sand and silt. Low relief (< 9 m) I shrubland dominated by Atriplex vesicaria, Maireana spp. and

avel and red-brown quartzose sand and silt. Shallow bedrock erns and receiving sediment. Chenopod shrubland dominated

ferruginised sediment and saprolite clast gravel and sand with relief (< 9 m), with surficial contour band patterns and receiving caria, Maireana spp. and Sclerolaena spp.

andforms. Sparse vegetation, often introduced weed species, to

onchoidal fractures and tight joint sets. Low-relief (< 9 m), low dominated by Atriplex vesicaria, Sclerolaena spp, with scattered

onchoidal fractures and tight joint sets. Moderate relief (9-30 m), ed by Atriplex vesicaria and Sclerolaena spp. with sparse Acacia

prominent bedding planes and minor regolith carbonates and relief (30-90 m), high gradient, locally shedding sediment. Sparse reana spp. and Sclerolaena spp. with scattered Casuarina pauper

cleavage planes and minor quartz veins. Slight surficial ferrugini-

nt cleavage planes and minor quartz veins. Moderate relief (9-30 ninated by Atriplex vesicaria and Sclerolaena spp. with scattered

h or without prominent cleavage planes. Highly friable where not *w*-relief (< 9 m), low gradient, locally shedding sediment. Sparse Sclerolaena spp. with scattered Casuarina pauper trees. h or without prominent cleavage planes. Highly friable where not erate relief (9-30 m), locally shedding sediment. Sparse chenopod a spp. and scattered Casuarina pauper trees.

