

OAK Oak Downs Land System

Area:	38.9 km ²	
Landscape:	Sandy pediments flanking the northern edge of the Black Rock Range and the eastern edge of the Peaked Hill Range. Named from Oak Downs property in the area.	
Annual rainfall:	260 – 325 mm average	
Geology:	Sandy, gravelly and calcareous, Quaternary slope deposits.	
Topography:	Gently sloping pediments with occasional hard rock rises. North facing pediments have long straight slopes, which are often gullied.	
Elevation:	440 m asl on the upper slopes grading to 390m asl on foot-slopes of pediments.	
Relief:	Moderately sloping to gently sloping pediments with 40 m relief over 1.5 km.	
Typical soils:	<p>Gravelly, red, non-calcareous sand grading to calcareous sandy loam (Tenosols) occur on gently sloping pediments.</p> <p>Calcareous sandy clay loam grading to clay with soft carbonate segregations at depth (Calcarosols) occur on low rises and dissected pediment/fan remnants.</p> <p>Clay loam over red friable clay (Chromosols/Sodosols) occurs as a minor component on lower slopes of pediments and plains.</p>	
Main soils:	<p>C3 (26%) Friable gradational clay loam</p> <p>C1 (25%) Gradational sandy loam</p>	<p>(Calcic-Hypercalcic Red Dermosol-Calcarosol)</p> <p>(Calcic-Hypercalcic Kandosol-Calcarosol)</p>
Minor soils:	<p>D4 (8%) Loam over pedaric red clay</p> <p>A4 (8%) Deep (rubbly) calcareous loam</p> <p>A2 (6%) Calcareous loam on rock</p> <p>A6 (5%) Gradational calcareous clay loam (clayey subsoil)</p> <p>L1 (5%) Shallow soil on rock</p> <p>C4 (4%) Hard gradational clay loam</p> <p>A5 (4%) Rubbly calcareous loam on clay</p>	<p>(Pedaric Red Sodosol-Dermosol)</p> <p>(Hypercalcic-Lithocalcic Calcarosol)</p> <p>(Paralithic Calcarosol)</p> <p>(Pedal Hypercalcic-Lithocalcic Calcarosol on clay)</p> <p>(Rocky Rudosol-Tenosol)</p> <p>(Calcic-Hypercalcic Sodic Red Dermosol-Calcarosol)</p> <p>(Supracalcic-Lithocalcic Calcarosol on clay)</p>
Summary:	The Oak Downs Land System consists of sandy pediments flanking the northern edge of the Black Rock Range and the eastern edge of the Peaked Hill range. Soils are mostly gravelly, red, sandy, gradational soils with calcareous sandy clay loam surfaced gradational soils and clay loam surfaced gradational soils on lower slopes.	



Soil Landscape Unit summary: Oak Downs Land System (OAK)

SLU	% of area	Component	Main soils	Prop#	Notes
ABB	0.4	Rolling rises	L1RR	D	Rolling rises with linear rocky quartzite outcrops and shallow rocky soils on interbedded fine-grained rocks. Relief is < 30m, slopes are 10-30%. Bare rock outcrop is common. Main soils: <u>Shallow stony soils on rock - L1</u> .
EFB	2.2	Gently undulating rises	L1C2	D	Gently undulating rises with shallow, mainly calcareous loamy soils formed on calc-siltstones of the Wonoka or Tapley Hill Formations typically. Minor gullying. Slopes are 1-3%, relief is less than 30m. Main soils: <u>Calcareous loam on rock - A2</u> , <u>Loam over poorly structured clay on rock - D7</u> and <u>Shallow stony soils on rock - L1</u> .
EPB	9.2	Gently undulating rises	A2L1	D	Gently undulating rises, dissected remnants of calcareous pediments and basement rocks with predominantly calcareous gradational soils. Relief < 30m, slopes 1-3%. Main soils: <u>Calcareous loam on rock - A2</u> and <u>Shallow stony soils on rock - L1</u> .
ESC	0.5	Undulating rises	A2A5	V	Undulating rises with more than 20% of rocky outcrops with shallow loamy surface soils on quartzitic rocks. Soils are not texture-contrast. 5-10% of land is affected by gullying and 0-5% is scalded. Slopes: 3-10%, relief: 9-30m. <i>Undulating rises:</i> More than 20% of land within this component is gullied. Slopes are 3-10%, relief is 9-30m. <i>Rocky outcrops:</i> The rocky outcrops have no gullying. Main soils: <u>Calcareous loam on rock - A2</u> and <u>Rubby calcareous loam on clay - A5</u> .
		Rocky outcrops	RR	C	
JFI	3.4	Gently undulating pediments	D2D4C1	D	Gently undulating pediments with mostly red texture contrast soils with clay loam surfaces, calcareous soils occupy more than 20% and other gradational soils occupy more than 10%. Slopes are 1-3%, relief is less than 9m. 10-20% gullied land and 10-50% scalded. Subsoils are moderately saline. Main soils: <u>Loam over red clay - D2</u> , <u>Loam over pedaric red clay - D4</u> and <u>Gradational sandy loam - C1</u> .
JKV	2.3	Pediments	D1A3A5	D	Pediments with mostly sandy loam surfaced red duplex soils and calcareous gradational soils. 10-20% of land is gullied and 0-5% is scalded. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Loam over clay on rock - D1</u> , <u>Deep moderately calcareous sandy loam - A3</u> and <u>Rubby calcareous loam on clay - A5</u> .
JXB	0.5	Gently undulating pediments	D2	V	Gently undulating pediment with texture contrast soils in complex with rocky rises with shallow red texture contrast soils. Most soils have clay-loam surfaces. Slopes: 1-3%, relief: <9m on pediments and 9-30m on rises. The main soils on the pediments are: <u>Loam over red clay - D2</u> . <u>Loam over clay on rock - D1</u> soils are associated with rocky rises.
		Rocky rises	D1	C	
KGB	10.8	Gently	C3C1	D	Pediments and plains with sandy surface-textured red



		undulating pediments			gradational soils with calcareous subsoils.
KGG	1.6	Gently undulating pediments	C3C1	D	KGB Gently undulating pediments, with minor scalding and gullyng. Slopes are 1-3%, relief is less than 9m. KGG Gently undulating pediments, with 10-20% of land affected by gullyng and 10-50% scalded.
KGH	3.8	Undulating pediments	C3C1	D	Slopes are 1-3%, relief is less than 9m. KGH Undulating pediments, with 10-20% of land affected by gullyng and 10-50% scalded.
KGJ	3.1	Creek flat	C3C1	D	KGJ Creek flat with over 20% of unstable gullied banks.
KGI	17.4	Gently undulating pediments	C3C1	D	KGI Gently undulating pediments with slight scalding (less than 5%) and minor gullyng which is locally more severe along drainage lines. Slopes are 1-3%, relief is less than 9m.
KGY	1.3	Creek flat	C3C1	D	KGY Creek flat with 0-5% gullied banks and 5-10% scalded. Main soils: <u>Friable gradational sandy clay loam - C3</u> and <u>Gradational sandy loam - C1</u> .
KHG	6.2	Gently undulating pediments	A4D4C1	D	Pediments formed on outwash with red gradational sandy soils, calcareous at depth. KHG Gently undulating pediments. Gullyng affects 5-10% of land. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m.
KHI	17.6	Gently undulating pediments	A4D4C1	D	KHI Gently undulating pediments. Gullyng affects 5-10% of land and 10-50% is scalded. Subsoils are moderately saline. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Deep (rubby) calcareous sandy loam -A4</u> , <u>Loam over pedaric red clay - D4</u> ; <u>Gradational sandy loam - C1</u>
KJH	14.9	Undulating pediments	C4C3A6	D	Undulating pediments with clay loam surface-textured red gradational soils with calcareous subsoils and gradational calcareous soils. 10-20% gullyng and 0-5% scalding. Subsoils are moderately saline. Slopes: 3-10%, relief: < 9m. Main soils: <u>Hard gradational clay loam - C4</u> , <u>Friable gradational sandy clay loam - C3</u> and <u>Gradational calcareous clay - A6</u> .
KKB	2.6	Gently undulating pediments	A6A5	D	Gently undulating pediments formed on outwash sediments with mostly gradational calcareous soils (Calcarosols) and more than 10% of associated soils have clayey surfaces. Slopes are 1-3%, relief is less than 9m. Main soils: <u>Gradational calcareous clay - A6</u> and <u>Rubby calcareous loam on clay - A5</u> .
KLE	2.1	Drainage line	A5	D	Drainage line on pediment with clay loamy calcareous soils. Main soils: <u>Rubby calcareous clay loam on clay - A5</u> . Minor soils: <u>Calcareous clay loam on rock - A2</u> , <u>Gradational red-brown clay loam over rock-C2</u> and <u>Shallow calcareous loam on calcrete - B2</u> .

PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

D	Dominant in extent (>90% of SLU)	C	Common in extent (20–30% of SLU)
V	Very extensive in extent (60–90% of SLU)	L	Limited in extent (10–20% of SLU)
E	Extensive in extent (30–60% of SLU)	M	Minor in extent (<10% of SLU)



Detailed soil profile descriptions:

- A2/L1** Shallow calcareous loam (Paralithic, Hypercalcic / Lithocalcic Calcarosol)(A2) OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)
- A3** Deep moderately calcareous (sandy) loam (Calcic Calcarosol)
Calcareous (sandy) loam topsoil grading into loamy-clay loamy subsoil without a significant CO₃ buildup in the subsoil (<20% CO₃ in subsoil). Pediment type Calcarosols.
- A4** Deep (rubbly) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)
Calcareous sandy-clay loamy topsoil grading into loamy-clay loamy subsoil with a significant CO₃ buildup in the subsoil. Often rubbly. Soil usually >120 cm in depth
- A5** Rubbly calcareous loamy sand on clay (Supracalcic-Lithocalcic Calcarosol on clay)
Calcareous loamy sand topsoil grading into loamy-clay loamy subsoil on a clayey substrate. Usually rubbly. Clayey substrate occurs at >60 cm and <120 cm.
- A6** Gradational calcareous clay loam (Pedal Hypercalcic-Lithocalcic Calcarosol on clayey subsoil)
Calcareous loams to clay loams grading into brown-red clay. Often rubbly.
- C1** Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)
Friable sandy to loamy topsoil grading into massive red-brown alkaline loamy to clay loamy subsoil.
- C2** Gradational loam on rock (Calcic / Hypercalcic Red Dermosol)
Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to weathering rock within 100 cm.
- C3** Gradational clay loam (Calcic / Hypercalcic Red Dermosol)
Loam to clay loam grading to a friable red clay with soft Class I carbonate within 50 cm, grading to alluvium within 100 cm.
- C4** Hard gradational clay loam (Calcic-Hypercalcic Sodic Red Dermosol-Calcarosol)
Topsoil <30 cm over a poorly structured subsoil. Often hard setting clay loam to loam grading into prismatic/poorly structured/sodic red (-brown) alkaline clayey to clay loamy subsoil. Includes eroded former texture contrast soils.
- D1** Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)
Medium thickness hard gravelly loam over red clay, friable and finely structured, calcareous with depth, grading to weathering basement rock within 100 cm.
- D2** Hard loam over red clay (Calcic / Hypercalcic, Red Chromosol)
Hard setting sandy loam to clay loam (with variable quartzite stones) abruptly overlying a well structured red clay with soft Class I carbonate at depth.
- D4** Loam over red friable clay (Calcic, Pedaric, Red Sodosol)
Thin to medium thickness fine sandy loam to loam over a finely structured friable red clay, calcareous from about 50 cm, grading to fine or medium grained alluvium.
- L1** Shallow stony loam (Paralithic, Leptic Tenosol)
Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.
- RR** Bare rock.

Further information: [DEWNR Soil and Land Program](#)

