

WGH Wingoone Hill Land System

Area: 120 km²

Landscape: Range consisting of rolling to undulating rises and gently sloping pediments. Soils are shallow on the hills with frequent rocky outcrops especially where steep. Pediments are minor landscape components with mostly shallow soils.

Annual rainfall: 250 – 275 mm average

Geology: Mostly Proterozoic age tillites, sandstones, quartzites and siltstones of the Umberatana and Wilpena Groups of the Adelaide Geosyncline. Pleistocene alluvial/colluvial sediments occur on pediments.

Main soils:
L1 (35%) Shallow soil on rock (Rocky Rudosol-Tenosol)
A2 (29%) Calcareous loam on rock (Paralithic Calcarosol)
A4 (14%) Deep (rubby) calcareous loam (Hypercalcic-Lithocalcic Calcarosol)

Minor soils:
D4 (5%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
A3 (5%) Deep moderately calcareous loam (Calcic Calcarosol)
RR (5%) Bare rock
M4 (3%) Deep hard gradational sandy loam (Hard Brown-Dark Kandosol- Dermosol)

Summary: The Wingoone Hill Land System consists of rocky ranges with shallow soils on tillites, sandstones and siltstone of Proterozoic age. Deeper soils occupy pediments and may have gradational calcareous or red texture-contrast profiles.

Soil Landscape Unit summary: Wingoone Hill Land System (WGH)

SLU	% of area	Component	Main soils	Prop#	Notes
ABD	2.3	Ridge	L1	D	Steep low hilly ridges with linear rocky quartzite outcrops and shallow rocky soils on interbedded fine-grained rocks. Relief is 30-90m, slopes are 30-50%. Main soils: <u>Shallow stony soils on rock - L1.</u>
AEB	9.6	Low hills	L1	D	Non-arable rocky rises and low hills formed on mostly fine-grained rocks. Soils are very shallow and more than 20% are petrocalcic (contain a calcrete layer). AEA Gently sloping rises with mostly very shallow loam on fine grained rock or bare rock, not or slightly calcareous. AEB Rolling rises. Relief is 9-30m, slopes are 10-30%. AED Steep rises with very shallow soils as above. Relief is 9-30m, slopes are 30-50%. AEG Undulating rises with moderate gully severity (10-20% affected). AEH Rolling rises, moderately gullied (10-20% affected). Relief is 9-30m, slopes are 10-30%. Main soils: <u>Shallow stony soils on rock - L1</u> and <u>Bare rock - RR.</u> Minor soils on fans: <u>Deep moderately calcareous loam - A3</u> and <u>Gradational loamy sand - M4</u> and <u>Loam over pedaric red clay - D4.</u>
AED	4.0	Steep hills	L1	D	
AEG	6.3	Rises Fans	L1 A3M4 D4	V C	
AEH	9.6	Ridge	L1	D	



AQA	0.4	Ridge	L1	D	Non-arable low hills formed on quartzite (Pound Quartzite Formation) with very shallow rocky soils and bare rocky outcrops. AQA Undulating low hilly ridges. Relief is less than 30m, slopes are 3-10%. AQC Rolling low hilly ridges. Relief is 30-90m, slopes are 3-10%. AQD Steep low hilly ridges. Relief is 30-90m, slopes are 30-60%. Main soils: <u>Shallow stony soils on rock - L1</u> .
AQC	2.6	Ridge	L1	D	
AQD	0.7	Ridge	L1	D	
A-t	0.8	Ridge	L1	D	Steep low hilly ridges on tillites with mostly bare rock outcrop. Relief is 30-90m, slopes are 30-50%. Main soils: <u>Shallow stony soils on rock - L1</u> .
AWA	2.2	Ridge	L1	D	Hills and rises with shallow rocky soils formed on quartzites with more than 50% interbedded calcareous rocks. More than 20% of soils have secondary carbonate accumulations. AWA Undulating rises. Relief is less than 30m, slopes are 3-10%. AWD Steep low hilly ridges. Relief is 30-90m, slopes are 30-50%. AWJ Steep low hilly ridges with more than 20% gullied land and potential for landslip, but none present. Relief is 30-90m, slopes are 30-50%. Main soils: <u>Shallow stony soils on rock - L1</u> .
AWD	1.9	Ridge	L1	D	
AWJ	1.1	Ridge	L1	D	
AYB	0.7	Rise	A2	D	Hills and rises on fine-grained rocks, especially siltstones of the Tapley Hill Formation. AYB Rolling rises. Relief is less than 30m, slopes are 10-30%. AYD Very steep low hills. Relief is 30-90m; slopes are 50-100%. Main soils: <u>Calcareous loam on rock - A2</u> and <u>Shallow stony soils on rock - L1</u> .
AYD	1.6	Steep hills	A2L1	D	
EaW	3.1	Rises Fans	A2A4 A3A4	V C	Undulating rises and fans formed over basement rock / saprolite within one metre of the surface. Soils are not texture contrast and are calcareous in some part of the profile. Less than 90% of soils are Calcarosols. Most soils are formed on quartzites. Less than 20% are Chromosols or Dermosols. More than 20% are Dermosols or Sodosols on kaolinised rock. Ironstone gravels may be present. Moderately scalded (5-10%). Slopes: 3-10%, relief: less than 30m. Main soils: Rises: <u>Calcareous loam on rock - A2</u> and <u>Deep (rubby) calcareous sandy loam -A4</u> . Fans: <u>Deep moderately calcareous loam - A3</u> and <u>Deep (rubby) calcareous sandy loam -A4</u> .
EEV	3.1	Rises	A2	D	Gently undulating rises with mostly gradational calcareous soils, containing carbonate concretions or hard calcrete fragments. Moderately scalded. Slopes are 1-3%, relief is less than 30m. Main soils: <u>Calcareous loam on rock - A2</u> .
EFB	2.6	Rises	A2	D	Rises and plains with moderately shallow soils overlying hard calcareous rocks, typically Hawker Group siltstones and limestones. EFB Gently undulating rises with only minor scalding. Slopes are 1-3%, relief is less than 30m. EFI Gently undulating rises, with up to 20% of land affected by gullying and with up to 50% of land scalded. Slopes are 1-3%, relief is less than 30m. EFW Undulating rises variably scalded with between 5 and 50% of land affected. Main soils: <u>Calcareous loam on rock - A2</u> .
EFI	3.3	Rises	A2	D	
EFW	2.2	Rises	A2	D	



EHH	5.6	Rises	A2	D	Rises and pediments on calcareous siltstones and limestones such as those of the Wonoka Formation and the ABC Range Quartzite of the Wilpena Group. EHH Undulating rises and pediments. Relief is less than 30m, slopes are 3-10%. Gullyng affects up to 20% of land, 0-5% is scalded and subsoils have moderate salinity. Ehk Gently sloping fans and pediments with low, gentle rocky rises in places. Severely scalded (40-50% of land affected) and gullied (20% of land affected). Main soils: Rises: <u>Calcareous loam on rock</u> – A2 and <u>Gradational loam on rock</u> – C2 . Fans: <u>Deep moderately calcareous loam</u> – A3 and <u>Gradational loamy sand</u> – M4
Ehk	2.3	Rises	A2C2	E	
		Fans	A3M4	E	
EVG	2.2	Rises	A2A4	V	Rises with rock outcrops and shallow calcareous soils formed on fine-grained calcareous rocks. EVG Gently sloping rises. Moderately gullied. Slopes are 1-3%, relief is less than 30m.
		Fans	A3A4	L	
EVh	16.1	Rises	A2A4	V	EVh Undulating rises. Moderately gullied and saline. Slopes are 3-10%, relief is less than 9-30m. EVW Undulating rises. 5-10% of land is gullied and 5-10% is scalded and. subsoils are moderately saline. Slopes are 3-10%, relief is 9-30m. Main soils: Rises: <u>Calcareous loam on rock</u> – A2 and <u>Deep (rubbly) calcareous sandy loam</u> – A4 . Fans: <u>Deep moderately calcareous loam</u> – A3 and <u>Deep (rubbly) calcareous sandy loam</u> – A4 .
		Fans	A3A4	L	
EVW	2.2	Rises	A2A4	D	
JPl	3.2	Fans	D4	D	Pediments and plains with texture contrast soils formed on outwash sediments derived from basement rocks. Calcareous in some part of the profile. More than 20% of soils are pedaric (fine crumbly structure in subsoils). JPl Gently sloping pediments with clay loam over crumbly red clay, or deep calcareous rubbly clay loam over clay. Moderately gullied (10-20%) and scalded (5-10%). Slopes: 1-3%, relief: < 9m. JPyy Drainage depression. Severely gullied (over 20%) and scalded (over 50%). Main soils: <u>Clay loam over pedaric red clay</u> – D4 .
JPyy	3.3	Drainage depression	D4	D	
KaQz	1.9	Fans	C3A4	D	Gently sloping fans with soils formed on outwash sediments derived from basement rock. Soils are not texture contrast and are calcareous in some part of the profile. Most common soils are Dermosols and more than 20% are Calcarosols. Slopes are 1-3%, relief is less than 9m. Severely scalded (over 50%), moderately saline (high salinity throughout soil profiles) and gullied (5-10%). Main soils: <u>Friable gradational clay loam</u> – C3 and <u>Deep (rubbly) calcareous sandy loam</u> – A4 .
KcB	0.6	Fans	A4	D	Gently sloping fans with mostly gradational calcareous soils, but with more than 20% <u>non</u> -calcareous gradational soils (Kandosols). Slopes are 1-3%, relief is less than 9m. Main soils: <u>Deep (rubbly) calcareous sandy loam</u> – A4 .
KQC	0.3	Fans	A3A4	D	Fans and basement-rise complexes with mostly calcareous gradational soils.
KQV	2.0	Fans	A3A4	V	



		Rises	A2A4	C	<p>KQC Undulating fans. Slopes are 3-10%, relief is less than 9m on pediments.</p> <p>KQV Gently undulating fans with shallow rises. 10-50% of pediment land is scalded, and 0-5% is gullied. Rises generally do not exhibit gullying and scalding occurs on less than 5%. Slopes are 1-3%, relief is less than 9m on pediments and 9-30m on rises.</p> <p>Main soils: Fans: <u>Deep moderately calcareous loam - A3</u> and <u>Deep (rubbly) calcareous sandy loam -A4</u>. Rises: <u>Calcareous loam on rock - A2</u> and <u>Deep (rubbly) calcareous sandy loam -A4</u>.</p>
KVH	2.1	Fans	A4A3	D	<p>Undulating fans formed on calcareous outwash sediments derived from basement rock. More than 90% of soils are calcareous throughout (Calcarosols). 5-10% is gullied, 0-5% is scalded and subsoils are moderately saline. Slopes: 3-10%, relief: less than 9m.</p> <p>Main soils: <u>Deep (rubbly) calcareous sandy loam -A4</u> and <u>Deep moderately calcareous loam - A3</u>.</p>

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

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|--|-------------------------------------|
| 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)

Gradational calcareous sandy loam over clay loam on weathered rock.

OR Shallow stony loam (Calcareous, Paralithic, Leptic Tenosol)(L1)

Shallow calcareous sandy loam on rock.

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

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.

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.

M4 Gradational loamy sand (Hypocalcic, Red / Brown Kandosol)

Medium to thick massive (often powdery) loamy sand to sandy loam grading to a red or brown sandy clay loam becoming more clayey and weakly calcareous with depth.

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

