## Itali Itali Land System ITA

Area: 141.6 km<sup>2</sup>

Landscape: Arable and non-arable rises and low hills with clayey and calcareous soils over

siltstone, shales, sandstone and calc-siltstones, mostly of the Willochra Subgroup.

Named from Itali Itali historic site.

**Annual rainfall:** 285 – 465 mm average

Geology: Willochra Subgroup fine grained rocks, viz. siltstones, shales and calc-siltstones of the

Wilmington Formation, Nhw (upper) and the Angepina Formation, Nha (lower).

Moderately gentle to steep slopes on rises with mostly rounded crests and narrow **Topography:** 

drainage lines. Rises with linear quartzite ridges are common.

**Elevation:** Elevations of the rises range from around 300m asl near the eastern edge where the

land system meets the pediments and plains of the Yapoona land system, to 450m on

the western side.

Relief: Up to 50m on the western side, but mostly around 30m or less, along the eastern edge.

Typical soils: - Shallow friable, strongly structured red clay over fine grained rock (Dermosols) occur on slopes and broad crests of rises, especially in the northern part.

Shallow calcareous clay loam to loam over calc-siltstone (Tenosols/Rudosols) are

common on rises on calc-siltstone.

- Calcareous clay loam to loam over calcareous clay over calc-siltstone

(Calcarosols/Tenosols) occur on more gently undulating rises.

- Loam over red clay on fine grained rock. (Chromosols/Dermosols) occur on pediments and gently undulating rises, mostly in the south and western parts of the

land system.

Silcrete gravelly loam over red clay on Tertiary clayey alluvium.

Calcareous clay loam to loam over calcareous clay over calcareous clayey

alluvium associated with Tertiary silcreted fan remnants.

- Thin loam/clay loam over red friable clay on fine calcareous alluvium.

Main soils: L1 (36%) Shallow soil on rock (Rocky Rudosol-Tenosol) A2 (20%) Calcareous loam on rock (Paralithic Calcarosol)

RR (13%) Bare rock

Minor soils: **D1** (9%) Loam over clay on rock (Shallow Calcic-Hypercalcic Red Chromosol)

> **D2** (6%) Loam over red clay (Calcic-Hypercalcic Red Chromosol-Sodosol)

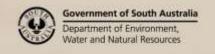
> C2 (4%) Gradational loam on rock (Shallow Red Dermosol-Kandosol-Calcarosol)

**Summary:** The Itali Itali Land System is a low range with associated rises, elongated along its

North-South axis. The greater elevations occur on the western side and relief grades lower to the east where the landscape is dominated by pediments and outwash deposits. Soils are mostly shallow, but commonly have clay subsoils overlying

weathered siltstones and shales. They are commonly calcareous as well. Some deep

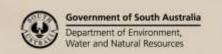
weathering effects are evident in places with silcrete gravels as surface lags.





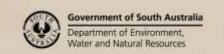
## Soil Landscape Unit summary: Itali Itali Land System (ITA)

SLU	% of area	Component	Main soils	Prop#	Notes
AAD		Ctoop lovy	L1	D	Disas and hills with shallow ready agle are our sails formed on
AAD	4.4	Steep low hills	LI		Rises and hills with shallow rocky calcareous soils formed on Tapley Hill Formation calc-siltstones.
AAI	5.6	Rolling low	L1	D	AAD Steep low hills. Relief: 30-90m, slopes: 30-50%.
1 1 1 1	0.0	hills			AAI Rolling low hills with eroded watercourses; over 20% of
					land affected by gullying.
					Relief is 30-90m, slopes are 3-10%.
					Main soils: calcareous loamy, <u>Shallow stony soils on rock</u> - L1.
ABB	3.5	Rolling rises	L1RR	D	Rises with linear rocky quartzite outcrops and shallow rocky
ABD	4.8	Steep low	L1RR	D	soils on interbedded fine-grained rocks. <b>ABB</b> Rolling rises. Relief is 9-30m, slopes are 10-30%.
ABH	12.0	hills Rolling rises	L1RR	D	ABD Steep low hills. Relief: 30-90m, slopes: 30-50%.
ABI	0.9	Rolling low	LIRR	D	ABH Rolling rises with eroded watercourses.
ADI	0.7	hills	LIKK		Relief is 9-30m, slopes are 10-30%.
ABJ	4.0	Steep low	L1RR	D	ABI Rolling low hills with eroded watercourses. Relief is 30-
		hills			90m, slopes are 3-10%.
					ABJ Steep low hills with eroded watercourses.
					Relief is 30-90m, slopes are 30-50%.
					Main soils: <u>Shallow stony soils on rock</u> - L1. <u>Rock outcrop</u> - <b>RR</b> is
ADj	2.6	Steep low	L1RR	D	common. Steep low hills with very shallow stony calcareous soils formed
ADJ	2.0	hills	LIKK		on Skillagollee Dolomite and calcareous fine-grained rock,
		11113			with eroded watercourses and sheet erosion.
					Relief is 30-90m, slopes are 30-50%.
					Main soils: Shallow stony soils on rock - L1 and Calcareous
					<u>clay loam on rock</u> – <b>A2</b> . <u>Bare rock</u> – <b>RR</b> is common. Non-
					arable.
AKB	1.0	Rolling rises	L1	D	Hills and rises with very shallow rocky calcareous soils formed
AKC	0.9	Rolling low	L1	D	on coarse-grained rocks of the Pre-Cambrian Burra Group
		hills			including the Rhynie Sandstone and Skillagollee Dolomite.
					AKB Rolling rises. Relief is 9-30m, slopes are 10-30%.  AKC Rolling low hills. Relief >30m, slopes: 10-30%.
					Main soils: Shallow stony soils on rock - L1.
					Minor soils: <u>Gradational loam on rock</u> - <b>C2</b> and <u>Loam over</u>
					clay on rock - D1.
API	1.5	Rolling low	L1D1	D	Rolling low hills with shallow red texture contrast and rocky
		hills			soils formed on coarse-grained basement rocks particularly
					Appilla Tillite Formation. Watercourses are eroded. Gullying
					affects more than 20% of land. Non arable.
					Relief is 30-90m, slopes are 10-30%.
					Main soils: <u>Shallow stony soils on rock</u> - <b>L1</b> and <u>Loam over</u> <u>pedaric red clay on rock</u> - <b>D1</b> .
DGC	2.3	Undulating	D2D1	D	Rises and pediments with shallow red duplex soils over
	2.0	pediments			Brachina formation shale. The soils have sandy clay loam
DGI	2.6	Rolling rises	D2D1	D	surface textures.
					DGC Undulating pediments. Relief: < 9m, slopes: 3-10%.
					<b>DGI</b> Rolling rises with 10-20% of land gullied.
			1		Relief is 9-30m, slopes are 10-30%.
					DGn Rolling rises with 5-10% of land gullied and 5-10%
DGn	0.7	Rolling rises	D2D1	D	scalded. Relief is 9-30m, slopes are 10-30%.
			1		Main soils: Sandy Clay Loam over red clay - <b>D2</b> and Sandy
DHH	2.4	Undulating	D1	D	Clay loam over pedaric red clay on rock - D1.  Undulating rises with shallow red texture contrast soils over
חחח	∠.4	rises	וטו		Cambrian limestone. Relief is 9-30m, slopes are 10-30%.
		11303	1		Main soils: <u>Loam over clay on rock</u> - <b>D1</b> , with associated <u>Loam</u>
			1		over poorly structured clay on rock - <b>D7</b> and <u>Shallow stony</u>
					soils on rock - L1.
DJD	0.4	Rolling rises	D4D6	D	Rises with shallow red duplex soils associated with deeply





			L C2		Lucathara di castinia di seri di forme di castinia di castini
DI	0.0	Hodulartin	C3	_	weathered kaolinised and ferruginised rocks.
DJm	0.9	Undulating rises	D4D6 C3	D	<b>DJD</b> Rolling rises. Relief is 9-30m, slopes are 10-30%. <b>DJm</b> Undulating rises. 5-10% of land is scalded and 10-20% is
DJZ	0.5	Plateau	D4D6	D	gullied. Relief is 9-30m, slopes are 3-10%.
DJZ	0.5	surface	C3		DJZ Plateau surface with surface lag of iron-stone and
		3011400			silcrete or quartz rocks.
					Main soils: Loam over pedaric red clay - <b>D4</b> , Ironstone-
					gravelly sandy loam over red clay- <b>D6</b> and <u>Friable</u>
					gradational sandy clay loam - C3.
DXC	7.0	Undulating	D1L1	V	Undulating rises and pediment slopes with red duplex soils
		rises	D.0- :		over basement rock or saprolite within one metre of the
		Pediments	D2D4	С	surface. More than 20% of soils are formed on outwash
			C3		sediments. Soils formed on basement rock in complex with soils formed in outwash materials. Surface textures are loamy.
					Relief is 9-30m, slopes are 3-10%.
					Rises: Rocky rises have shallow red duplex soils on rock.
					Pediments: Pediment slopes have red duplex and
					gradational soils.
					Main soils: Clay loam over pedaric red clay on rock - D1,
					Loam over red clay - D2, Loam over pedaric red clay - D4
					and <u>Friable gradational clay loam</u> - <b>C3</b> .
EAH	1.1	Undulating	A2C2	D	Undulating rises with gradational calcareous soils over hard
		rises	D1		rock with more than 20% red texture contrast and/or non-
					calcareous red gradational soils. More than 20% of land is
					gullied. Relief is 9-30m, slopes are 3-10%.  Main soils: Calcareous loam on rock -A2, Gradational loam
					on rock -C2 and Clay loam over pedaric red clay on rock -
					D1.
EFC	2.6	Undulating	A2D7	D	Rises with shallow, mainly calcareous loamy soils formed on
		rises	L1		calc-siltstones of the Wonoka or Tapley Hill Formations
EFH	5.9	Undulating	A2D7	D	typically.
		rises	L1		EFC Undulating rises. Relief: < 30m, slopes: <10%.
					<b>EFH</b> Undulating rises with gullies affecting 5-10% of land.
					Relief is 9-30m, slopes are 3-10%. <b>EFI</b> Rolling rises. Gully erosion affects 5-20% of land, reflecting
					the erodible nature of the silty, calcareous soils. Slopes: 10-
EFI	8.1	Rolling rises	A2L1	D	30%, relief: <30m.
		•			Main soils: Calcareous loam on rock – <b>A2</b> , Loam over poorly
					structured clay on rock - D7, Shallow stony soils on rock - L1.
EHI	1.3	Gently	A2	٧	Gently undulating pediments with rocky rises on calcareous
		undulating			siltstones and limestones such as those of the Tapley Hill
		pediments			Formation, Wonoka Formation and the ABC Range Quartzite
		Rocky rises	A2L1	С	of the Wilpena Group. The soil-landscape units are also
					associated with Bunyeroo Formation shales with some
					outwash contribution from calcareous Wonoka Formation calc-siltstones.
					Severely scalded (40-50% of land affected) and gullied (20% of
					Main soils:
					Plains and Pediments: Calcareous loam on rock – A2 with
					minor <u>Shallow calcareous loam on calcrete</u> - <b>B2</b> .
					Rocky rises: Shallow stony soils on rock - L1 and Bare rock -
Ex E			1205	_	RR.
ELD	2.1	Rolling rises		D	· ·
EII	4.0	Polling rises		D	
ELI	4.0	kolling rises		טן	
			DZ		
					·
					clay-loam over clay (Red clayey pedaric Dermosols - C2)
					and <u>Shallow calcareous loam on calcrete</u> - <b>B2</b> .
ELD ELI	2.1	Rolling rises Rolling rises	L1C2 B2 L1C2 B2	D D	land affected). Slopes are 1-3%, relief is less than 30m. Main soils:  Plains and Pediments: Calcareous loam on rock – A2 with minor Shallow calcareous loam on calcrete - B2.  Rocky rises: Shallow stony soils on rock - L1 and Bare rock RR.  Rises with shallow soils formed on Appila Tillite Formation of alluvium.  ELD Rolling rises. Slopes: 10-30%, relief: <30m.  ELI Rolling rises; gullying affects 5-10% of land, scalding affect around 5%.  Slopes are 10-30%, relief is less than 30m.  Main soils: Shallow stony soils on rock - L1, gradational red clay-loam over clay (Red clayey pedaric Dermosols - C2)





					<u> </u>
ERB	0.2	Gently	A2L1	D	Rises with shallow dark brown clay loamy calcareous soils on
		undulating	RR		calc-siltstones and shales typically Willochra Formation.
		rises			<b>ERB</b> Gently undulating rises. Slopes: 1-3%, relief: 9-30m.
ERC	2.6	Undulating	A2L1	D	ERC Undulating rises. Relief: 9-30m, slopes: 3-10%.
		rises	RR		ERH Undulating rises with more than 20% of land gullied.
ERH	3.3	Undulating	A2L1	D	Relief is 9-30m, slopes are 3-10%.
		rises	RR		ERI Rolling rises with more than 20% of land gullied.
ERI	1.2	Rolling rises	A2L1	D	Slopes are 10-30%, relief is less than 30m.
			RR		<b>ERj</b> Drainage line with 10-20% of land gullied, and 10-50% of
ERj	2.7	Drainage	A2L1	D	land is saline.
		line	RR		Main soils: <u>Calcareous clay loam on rock</u> – <b>A2</b> and <u>Shallow</u>
TATT	0.7		D 450	_	stony soils on rock - L1. Bare rock - RR is common.
JAH	0.7	Undulating	D4E2	D	Undulating pediments and outwash plains with clay loam
		pediments	C3		surface textures on texture contrast and gradational soils.
					Red clays are also common.
					Slopes are 3-10%. Gullying affects 5-10% of land.
					Main soils: Loam over pedaric red clay - <b>D4</b> , Red cracking
					clay - E2 and Friable gradational clay loam - C3. D4 and C3
					soils have surfaces which are highly susceptible to water
	1 (	0 "	D0D /	-	erosion
JFl	1.6	Gently	D2D4	D	Pediments with mostly red texture contrast soils with clay
		undulating	C1		loam surfaces, calcareous soils occupy more than 20% and
IE	1.4	pediments	D0D4	_	other gradational soils occupy more than 10%.
JFm	1.4	Undulating	D2D4	D	JFI Gently undulating pediments. Slopes: 1-3%, relief: < 9m.
TE	0.4	pediments	C1	_	JFm Undulating pediments; 5-10% of land is gullied, 5-10% is
JFo	0.4	Undulating	D2D4	D	scalded. Slopes are 3-10%, relief is less than 9m.
		pediments	C1		JFo Creek flat with more than 20% with unstable gullies and 5-
					10% is scalded.
					Main soils: <u>Loam over red clay</u> - <b>D2</b> , <u>Loam over pedaric red</u> <u>clay</u> - <b>D4</b> and <u>Gradational sandy loam</u> - <b>C1</b> .
JXl	0.8	Gently	D2	V	Pediments with texture contrast soils in complex with rocky
JAI	0.0	undulating	DZ	V	rises. Most soils have clay loam surfaces.
		pediments			JXI Gently undulating pediments in complex with rocky rises.
			DI	_	Gullying affects 10-20% of land on pediments, and less than
JXm	0.3	Rocky rises	D1 D2	C	5% on rises. Scalding affects around 10% of pediments and
JAIII	0.3	Undulating pediments	U2	\ \ \	up to 50% in places. Rocky rises have less than 5% scalded
			DI	_	land. Slopes are 1-3%.
JXW	0.0	Rocky rises	D1 D2	C	JXm Undulating pediments in complex with rocky rises.
JAW	0.9	Undulating pediments	D2	\ \ \	Gullying affects over 20% of land on pediments, and 5-10%
			D1	С	on rises. Scalding affects around 10% of pediments and up to
		Rocky rises	וטן		50% in places. Rocky rises have less than 5% scalded land.
					Slopes are 3-10%.
					JXW Undulating pediments in complex with rocky rises,
					scalding affects 10-50% of land, around 10% is gullied. Slopes
					are 3-10%, relief is less than 9m on pediments and 9-30m on
					rises.
					Main soils on pediments: <u>Loam over red clay</u> - <b>D2</b> ; with <u>Loam</u>
					over clay on rock- <b>D1</b> soils associated with rocky rises.
KLG	0.7	Gently	A5	D	Gently undulating pediments with predominantly calcareous
	· · ·	undulating		-	gradational soils.
		pediment			10-20% of land is gullied and less than 5% scalded.
					Slopes are 1-3%, relief is less than 9m.
				1	Main soils: <u>Rubbly calcareous loam on clay</u> - <b>A5</b> .

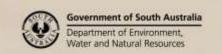
# PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

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)
- 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.
- Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)
  Shallow, grey to reddish calcareous sandy to clay loamy soil on calcrete. This includes calcareous Petrocalcic Rudosols.
- C1 <u>Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)</u>
  Friable sandy to loamy topsoil grading into massive red-brown alkaline loamy to clay loamy subsoil.
- C2 <u>Gradational loam on rock (Calcic / Hypercalcic Red Dermosol)</u>
  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.
- 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.
- 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.
- 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.
- <u>Ironstone gravelly sandy loam over red clay (Ferric (?) Red Chromosol)</u>
  Loamy texture contrast soil with some ironstone gravel and a red alkaline clayey subsoil.
- D7 Loam over red clay on rock (Hypercalcic / Calcic, Red Chromosol / Sodosol)
  Medium thickness hard gravelly loam over a red clay, friable and finely structured (D1), to hard, coarsely structured and dispersive (D7), calcareous with depth, grading to weathering basement rock within 100 cm.
- Red cracking clay (Epicalcareous, Epipedal, Red Vertosol)
   Dark strongly structured clay grading to a well structured red calcareous medium to heavy clay continuing below 100 cm. Often containing gypsum segregations in subsoil.
- 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

