YAP Yapoona Land System

Area: 182 km^2

Landscape: Gentle pediment slopes and plains west of the Willochra Creek floodplain. Named after Yapoona Creek, an intermittently flowing drainage line which occurs in the land system.

Annual rainfall: Varies between 440 mm average near Wilmington to around 260 mm near Bruce

Geology: Quaternary slope deposits

Topography: Level to gently sloping plains with slopes of less than 2.5% mostly. There are a number of creeks which cut across the pediment to join the Willochra Creek. They are often incised 1 - 2m into the pediment surface. There are broad, gentle, undulations associated with the interfluves.

Elevation: 270 – 280 m asl on upper slopes down to 240 – 250 m asl at the foot of the pediment plain

Relief: Relief is of the order of 20m over 2.4km on upper slopes and almost nil on the lower slopes

Typical soils: Hard red clay loam over friable red clay (Chromosols/Sodosols) often with gypsum and carbonate in the deep subsoils which are also gravelly. These are found on the upper to mid slopes of pediments.

Thin crusty loam over very friable red clay (Sodosols) occur on lower slopes of pediments and adjacent to the alluvial soils of the floodplain. They are gravelly at depth where gypsum is often present below the carbonate layer.

Main soils:

D4 (18%) Loam over pedaric red clay (Pedaric Red Sodosol-Dermosol)
D5 (16%) Hard loamy sand over red clay (sandy Calcic-Hypercalcic Red Chromosol-Sodosol)
D2 (14%) Loam over red clay (Calcic-Hypercalcic Red Chromosol-Sodosol)
A5 (12%) Rubbly calcareous loam on clay (Supracalcic-Lithocalcic Calcarosol on clay)

Minor soils:

C3 (6%) Friable gradational clay loam (Calcic-Hypercalcic Red Dermosol-Calcarosol)
D3 (5%) Loam over poorly structured red clay (Calcic-Hypercalcic Red Sodosol-Chromosol)
C1 (5%) Gradational sandy loam (Calcic-Hypercalcic Kandosol-Calcarosol)
F2 (4%) Sandy loam over poorly structured brown or dark clay (Brown-Dark Sodosol-Chromosol)

Summary: The Yapoona Land System lies between the Willochra Creek floodplain and the Flinders ranges near Wilmington. It mostly consists of gently sloping pediment plains with creeks crossing them. Red duplex soils are common, with thin erodible surface horizons and sodic subsoils. Scalding is prevalent on lower slopes.

Soil Landscape Unit summary: Yapoona Land System (YAP)

SLU	% of area	Component	Main soils	Prop#	Notes
JBB	20.4	Gently sloping pediments	D5	D	Gently sloping pediments formed on outwash sediments with sandy-surfaced texture contrast soils containing carbonate somewhere in the profile. Slopes are 1-3%, relief is less than 9m. Main soils: Hard loamy sand over red clay – **D5**.
JFA	0.7	Plains	D2D4 C1	D	Plains 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 less than 1%; relief is less than 9m. Main soils: Loam over red clay - **D2**, Loam over pedaric red clay - **D4** and Gradational sandy loam - **C1**.
JGB	1.6	Gently sloping plains	D3D4 D2	D	Gently sloping plains and pediments with sandy clay loam surfaced red duplex soils formed in alluvium. **JGB** Gently sloping plains. Slopes are 1-3%, relief is less than 9m **JGl** Gently sloping plains with 10-50% of land scalded and 10-20% gullied. Slopes are 1-3%, relief is less than 9m Main soils: Loam over poorly structured red clay - **D3,** Loam over pedaric red clay - **D4** and Loam over red clay - **D2**.
JGl	1.4	Gently sloping plains	D3D4 D2	D	
JHA	2.3	Plains	F2D3	D	Plains and watercourses with sandy clay loam surfaced texture contrast soils with dark subsoils, formed in outwash sediments. **JHA** Level plains. Slopes are less than 1%, relief is less than 9m. **JHB** Gently sloping plains. Slopes: 1-3%, relief: < 9m **JHE** Watercourse with no recent erosion. **JHJ** Watercourse with now-stable, eroded banks. **JHP** Plains with dry saline land (non-watertable) throughout and 0-5% scalding. Main soils: Sandy clay loam over poorly structured brown or dark clay - **F2** and Loam over poorly structured red clay - **D3**.
JHB	3.9	Gently sloping plains	F2D3	D	
JHE	5.0	Watercourse	F2D3	D	
JHJ	0.6	Watercourse	F2D3	D	
JHP	0.5	Watercourse	F2D3	D	
JMA	7.8	Plains	D2D4 A6	D	Pediment plains with stony, pedaric, red, texture contrast soils with quartz gravel on the surface. **JMA** Level plains. Slopes are less than 1%, relief is less than 9m. **JMV** Gently sloping plains with 10-50% scalded. Slopes are 1-3%, relief is less than 9m. Main soils: Loam over red clay - **D2**, Loam over pedaric red clay - **D4** and Gradational calcareous clay - **A6**.
JMV	0.3	Gently sloping plain	D2D4 A6	D	
JNA	1.6	Plains	D4D2 A5	D	Pediments with non-stony pedaric, texture contrast soils with calcareous subsoils. Surface textures are clay loamy most commonly. **JNA** Plains. Slopes: less than 1%, relief: less than 9m. **JNE** Drainage line with stable banks. **JNk** Plain; 10-20% affected by gullying and 40-50% scalded. Scalding may be more than 50% locally. **JNo** Creek flat 10-20% affected by gullying and 40-50% scalded. Scalding may be more than 50% locally. **JNU** Level plain; 5-10% scalded. Slopes are less than 1%, relief is less than 9m. **JNV** Gently sloping pediments. Scalding affects 10-50% of land. Slopes are 1-3%, relief is less than 9m. **JNY** Drainage line with eroded banks, stable now. Main soils: Loam over red clay - **D2**, Loam over pedaric red clay - **D4** and Rubbly calcareous loam on clay - **A5**. Red clay soils occur in minor association.
JNE	2.3	Drainage line	D4D2 A5	D	
JNk	3.2	Plain	D4D2 A5	D	
JNo	0.2	Creek flat	D4D2 A5	D	
JNU	18.5	Plain	D4D2 A5	D	
JNV	4.2	Gently sloping pediments	D4D2 A5	D	
JNY	4.0	Drainage line	D4D2 A5	D	
KCj	2.5	Flood-out plain	C3A3 A4	D	Plains and pediments of outwash sediments with gradational soils with sandy clay loam surface textures. Soils are mostly not

KCl	2.2	Gently undulating pediments	C3A3	D	calcareous throughout. **KCj** Flood-out plain., severely gullied, with > 50% of land affected. Scalding is minor, less than 5% is scalded. Salinity affects 10-50% of land. **KCl** Gently undulating pediments, 10% is gullied and up to 50% is scalded. Slopes are 1-3%, relief is less than 9m. Main soils: Friable gradational sandy clay loam - **C3**, Deep moderately calcareous sandy loam - **A3** and Deep (rubbly) calcareous sandy loam **-A4**. Additionally, Deep gravelly soil -**M3** is found associated with creek flats.
KGE	7.6	Creek flat	C3C1	D	Creek flat with sandy surface textured red gradational soils with calcareous subsoils. Main soils: Friable gradational sandy clay loam - **C3** and Gradational sandy loam - **C1**.
KIC	1.1	Pediment	C1A2 D3	V	Pediment-basement rock complex with mostly gradational soils. Soils which have carbonate free surfaces are dominant. Soils which are calcareous throughout are common but not dominant. Gently to undulating basement rises have shallow rocky soils. **KIC** Undulating pediments and rises. Pediment slopes are 3-10%, relief is less than 9m. Relief on rises is 9-30m, slopes are 3-10%. Main soils: ***Pediments***: Gradational sandy loam - **C1**, Calcareous loam on rock – **A2** and Loam over poorly structured red clay - **D3**. ***Rises:*** Shallow stony soils on rock - **L1**, Calcareous loam on rock – **A2** and Loam over clay on rock - **D1**.
		Undulating rises	L1A2 D1	L	
KIl	0.2	Pediment	C1A2	V	**KIl** Gently undulating pediments and rises with 10-20% of land gullied and 10-50% scalded. Pediment slopes are 1-3%, relief is less than 9m. Relief on rises is 9-30m, slopes are 1-3%. Main soils: ***Pediments***: Gradational sandy loam - **C1** and Calcareous loam on rock – **A2**. ***Rises:*** Shallow stony soils on rock - **L1**, Gradational sandy loam - **C1** and Calcareous loam on rock – **A2**.
		Gently undulating rises	L1C1 A2	L	
KLB	0.3	Gently undulating pediment	A5	D	Pediments with clay loamy calcareous soils. **KLB** Gently undulating pediment. Slopes are 1-3%, relief is less than 9m.
KLP	2.4	Plains	A5	D	**KLP** Plains with less than 1% slope. 5-10% of land is scalded and 10-50% is dry saline land affected. Main soils: Rubbly calcareous clay loam on clay - **A5**. Minor soils include: Calcareous clay loam on rock – **A2**, Gradational red-brown clay loam over rock-**C2**, Shallow calcareous loam on calcrete – **B2**.
XGS	0.4	Drainage depression	M3M1	D	Drainage depressions and watercourses with gravelly loamy alluvial soils. **XGS** Drainage depression with stable banks. Main soils: Deep gravelly soil -**M3**, Deep alluvial loam - **M1**.
XIA	2.5	Flood plains	M3G2 C1	D	Flood-out plains of Mt. Brown Creek with red, uniform-textured sandy and gravelly soils over sandy and gravelly alluvial substrates. Main soils: Deep gravelly soil -**M3**, Bleached sand over sandy clay loam – **G2** and Gradational sandy loam - **C1**.
XKA	2.5	Watercourse	M1	D	Watercourse with stable banks and gully walls with deep silty calcareous clay loamy soils. Main soils: Deep alluvial loam - **M1**.

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

- D Dominant in extent (>90% of SLU)
- V Very extensive in extent (60–90% of SLU)
- E Extensive in extent (30–60% of SLU)
- C Common in extent (20–30% of SLU)
- L Limited in extent (10–20% 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 CO_3 buildup in the subsoil (<20% CO_3 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 CO_3 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.

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 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.

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.

D3 Hard clay loam over dispersive red clay (Calcic, Red Sodosol / Sodic, Calcic, Red Chromosol)
Medium thickness hard clay loam with up to 50% quartzite stones over a coarsely prismatic dispersive red clay, calcareous with depth over stony and clayey alluvium.

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.

D5 Hard loamy sand over red clay (sandy Calcic-Hypercalcic Red Chromosol-Sodosol)
Hard setting loamy sand to light sandy loam with a poorly structured red alkaline clayey to clay loamy subsoil.

F2 Sandy loam over poorly structured brown or dark clay (Brown-Dark Sodosol-Chromosol)
Topsoil <30 cm usually with a bleached horizon over a poorly structured subsoil. Sandy loam texture contrast soil with a sodic/dispersive/poorly structured brown clayey subsoil

G2 Bleached sand over sandy clay loam (Sandy Brown-Red Chromosol)
Sandy texture contrast soil with a bleached A2 and brown-red sandy clay subsoil.

L1 Shallow stony loam (Paralithic, Leptic Tenosol)
Shallow stony loam, often calcareous throughout or with depth, overlying weathering rock shallower than 50 cm.

M1 Alluvial loam (Orthic Tenosol)
Very thick loam with variable gritty or more-clayey lenses, formed over recent alluvium.

M3 Deep gravelly soil (Gravelly Kandosol-Tenosol)
Deep uniform loamy alluvial soils with at least 50% gravel in the major part of the profile.

Further information: DEWNR Soil and Land Program