

ALW Alford-Willamulka Land System

Plains with scattered sand dunes. The land system is in the shape of a large crescent shape which surrounds Alford on three sides. It extends from Hector Plain in the south-west, to the area just north of Alford, to Willamulka and Pat Plain in the south, and to between Bute and Ninnes in the south-east. This system is named after the town of Alford, and the locality of Willamulka on the old Kadina-Brinkworth railway.

Area: 267.1 km²

Annual rainfall: 345 – 390 mm average

Geology: The youngest sediments in this system are the wind deposited calcareous siliceous sands, forming the scattered patches of longitudinal sand dunes (Molineaux Sand formation) which were formed from the reworking of older materials. The dominant sediments covering this land system are the wind deposited calcareous loams (Woorinen formation) which are usually less than 2 metres thick. Often hard carbonate rubble occurs within these loamy sediments. Sometimes this rubble is cemented together to form a layer of calcrete. Calcrete can be in the form of the older and harder Ripon Calcrete or the younger and softer Bakara Calcrete. Underlying these younger sediments is a layer of reddish clay (Blanchetown Clay equivalent). This clay has near surface expression in small areas (usually depressions) throughout the land system. Weathered rock occurs at depth: red sandstone was found to underlie the reddish clay at a few low lying sites; and fine grained saprolitic material was found under a soil on a slight rise.

Topography: Level to very gently undulating plains with slopes typically from 0% to 1.5%. Some longitudinal sand dunes occur: these are oriented NW-SE and are from 2 - 8 m high. The system has no defined surface drainage.

Elevation: From 110 m in the south-east, to 40 m at the very western end of Pat Plain, and 40 m in the very north west and south west of this land system.

Relief: Relief is less than 10 m

Main Soils: **A5-A4** (Rubbly) calcareous loam on clay and deep (rubbly) calcareous loam (around 49% of area)

B2 Shallow calcareous loam on calcrete (around 25% of area)

H2a Calcareous siliceous sand (around 11% of area)

A6 Gradational calcareous clay loam (around 8% of area)

Minor Soils: **B3** Shallow sandy loam on calcrete (around 5% of area)

D3-D2 Loam over poorly structured red clay (around 1% of area)

H2b Siliceous sand (approximately 1% of area)

Main Features: The system is mostly arable. The main soils are calcareous loams over clay loam or loam, often with hard carbonate rubble. Calcareous soils limit the availability of certain nutrients: deficiencies of the major nutrient phosphorus and the trace element zinc are common, while deficiencies of the trace elements manganese and iron are possible. Temporary trace element deficiencies can occur in cold and wet conditions with susceptible crops. Soil with hard carbonate rubble and shallow soil on calcrete have reduced effective waterholding capacities, and hence reduced production potentials. Also surface rubble interferes with some farming operations. Toxic accumulations of boron and sodium occur in many lower subsoils, but usually only occur in upper subsoils when these are clayey. Many soils have a slight build up of



salinity in their lower subsoils. Sand dune soils need careful management due to their low fertility and potential for wind erosion: all other soils have a moderately low wind erosion potential.

Soil Landscape Unit summary: Alford-Willamulka Land System (ALW)

SLU	% of area	Main features #
ICE	0.1	<p>Depressions with slopes of 0-2%. The dominant soil is calcareous soil formed in clayey sediments, with some calcareous soil formed in medium textured wind deposited sediments.</p> <p>Main soils:</p> <p><i>Gradational calcareous clay loam A6</i> - medium to thick calcareous loamy to clay loamy topsoil over reddish clay subsoil with abundant fine carbonate: (V) flats [Argillaceous Hypercalcic Calcarosol; loamy-clay loamy/clayey].</p> <p><i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy topsoil over loamy to clay loamy subsoil with abundant fine carbonate and often with hard carbonate rubble: (C) low rises [Argillaceous Hypercalcic-Lithocalcic Calcarosol; loamy/loamy-clay loamy].</p> <p>Summary: mainly calcareous loams or clay loams over reddish clay. Subsoils and lower subsoils generally have high boron and sodium levels, limiting effective root depths. Waterlogging can occur. There are about 20-30% low rises formed with better drained medium textured calcareous soils.</p> <p>The land is arable: cropping and some grazing are the main land uses. Some seasonal waterlogging can occur, and there is usually an accumulation of toxic elements in the subsoil or lower subsoil. Slight limitations include: waterlogging, water holding capacity, surface soil structure, fertility, alkalinity, and raised subsoil salinity levels. Moderate limitations include: subsoil structure and subsoil toxicities.</p>
IEA	1.8	<p>Somewhat low lying, gently undulating plain with slopes of 1-2%. Dominant soils are calcareous soil formed in clayey sediments and calcareous soil formed in medium textured wind deposited sediments.</p> <p>Main soils:</p> <p><i>Gradational calcareous clay loam A6</i> - medium to thick calcareous loamy (with some sandy) topsoil over reddish clay with abundant fine carbonate: (E) [Haplic-Hypervescent Argillaceous Hypercalcic Calcarosol; loamy/clayey].</p> <p><i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy (with some sandy) topsoil over loamy to clay loamy subsoil with abundant fine carbonate and often with hard carbonate rubble: (E) [Haplic-Hypervescent Argillaceous Hypercalcic-Lithocalcic Calcarosol; loamy-loamy-clay loamy].</p> <p><i>Shallow calcareous loam on calcrete B2</i> or <i>shallow sandy loam on calcrete B3</i> - shallow soils on calcrete: (M) [Petrocalcic Calcarosol or Petrocalcic Orthic Tenosol].</p> <p>Summary: mainly calcareous loams over reddish clay and calcareous loams over loam or clay loam (low rises). Subsoils and/or lower subsoils generally have high levels of boron and sodium, limiting effective root depths. Surface rubble of common abundance is quite widespread, with patches of moderate abundance. Patches of waterlogging can occur. There are 2-5% longitudinal sandy rises. About 5-10% shallow soils on calcrete occur.</p> <p>The land is arable: cropping and some grazing are the main land uses. The main limitation is probably that due to the accumulation of toxic elements in the subsoil or lower subsoil. Slight limitations include: waterlogging, water holding capacity, surface soil structure, fertility, alkalinity, raised subsoil salinity levels, wind erosion potential, and surface rubble. Moderate limitations include: subsoil structure and subsoil toxicities.</p> <p><u>Soil descriptions</u></p> <p>Flat: Hypervescent Argillaceous Hypercalcic Calcarosol; medium, moderately gravelly, loamy/clayey, moderate.</p>
QAA	1.0	<p>Gently undulating plain, with slopes of 0-2%. Dominant soils are shallow calcareous soil on calcrete, and calcareous soil formed in medium textured wind deposited sediments.</p> <p>Main soils:</p> <p><i>Shallow calcareous loam on calcrete B2</i> - shallow to very shallow calcareous loamy or sandy topsoil over loamy subsoil on calcrete: (E) low rises and flats [Haplic-Hypervescent Petrocalcic Calcarosol].</p> <p><i>Deep (rubbly) calcareous loams A4-A5</i> - medium to thick calcareous loamy or sandy topsoil over loamy or clay loamy subsoil with abundant fine carbonate, and sometimes with abundant hard carbonate rubble, underlain by clay loamy sediments, reddish clay, or</p>



		<p>calcrete: (E) depressions and flats [Haplic-Hypervescent Lutaceous-Argillaceous-Petrocalcic Hypercalcic-Lithocalcic Calcarosol; loamy-sandy/loamy-clay loamy]. <i>Calcareous siliceous sand H2a</i> - medium to very thick calcareous sand over loamy subsoil with abundant fine carbonate and often with hard carbonate rubble: (M) sandy rises [Arenaceous-Lutaceous Hypercalcic-Lithocalcic Calcarosol; sandy/loamy]. Summary: mainly shallow calcareous soil on calcrete and calcareous loams over loam or clay loam. Reddish clay underlies at 1 m or more. Surface rubble of common abundance is quite widespread. High levels of boron and sodium often occur below 50 cm. There are about 5-10% longitudinal sandy rises. The land is arable: cropping and grazing are the main land uses. The main limitations are the low water holding capacities of the shallow soils, lower subsoil toxic accumulations, and the potential for wind erosion. Slight limitations include: subsoil toxicities, alkalinity, and wind erosion potential. Moderate limitations include: water holding capacity, fertility, and surface fragments. <u>Soil descriptions</u> Upper slope (3%): Hypervescent Lutaceous Petrocalcic Calcarosol; medium, gravelly, sandy/loamy, very shallow. Slope (1%): Haplic Petrocalcic Hypercalcic Calcarosol; thin, gravelly, loamy/clay loamy, moderate. Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; thin, gravelly, loamy/clay loamy, moderate.</p>
QBA	2.7	<p>A very gently inclined area with slopes of 1-3%. The dominant soils are shallow to very shallow calcareous soil on calcrete, and calcareous soil formed in rubbly medium textured wind deposited sediments. Main soils: <i>Shallow calcareous loam on calcrete B2</i> - shallow to very shallow loamy calcareous soil on calcrete: (E) [Haplic-Hypervescent Petrocalcic Calcic Calcarosol; loamy]. <i>Deep rubbly calcareous loams A4-A5</i> - medium to thick calcareous (sometimes slightly calcareous) loamy topsoil soil over clay loamy to loamy subsoil with hard carbonate rubble; underlain by reddish clay, clay loamy or loamy sediments, or calcrete: (E) [Lutaceous-Argillaceous-Arenaceous-Petrocalcic Lithocalcic-Hypercalcic Calcarosol; loamy/clay loamy-loamy]. Summary: mainly shallow loamy calcareous soil on calcrete and rubbly calcareous loams over clay loam or loam. Surface rubble of moderate abundance is widespread. High boron and sodium levels often occur below 50 cm. The area is underlain by reddish clay at 1 m or more. The land is arable: cropping and grazing are the main land uses. The main limitations are caused by shallow soils and rubble which limit water holding capacities; and by surface rubble interfering with farming operations. Slight limitations include: subsoil toxicities, alkalinity, and wind erosion potential. Moderate limitations include: water holding capacity, fertility, and surface fragments. <u>Soil descriptions</u> Flat: Haplic Lutaceous Lithocalcic Calcarosol; medium, very gravelly, loamy/clay loamy, moderate. Flat: Argillaceous Hypocalcic/Lithocalcic Calcarosol; thick, gravelly, loamy/clay loamy, moderate. Slope (2%): Haplic Petrocalcic Calcic Calcarosol; medium, moderately gravelly, loamy/-, very shallow. Slope (1%): Haplic Petrocalcic Calcic Calcarosol; thin, moderately gravelly, loamy/-, very shallow. Slope (3%): Hypervescent Petrocalcic Calcic Calcarosol; medium, moderately gravelly, loamy/loamy, shallow.</p>
QMA	0.8	<p>Level to gently undulating plains with slopes of 0-1%. The dominant soil is shallow to very shallow calcareous soil on calcrete, with some calcareous soil formed in rubbly medium textured wind deposited sediments. Main soils: <i>Shallow calcareous loam on calcrete B2</i> - shallow to very shallow calcareous loamy (with some sandy) topsoil over loamy or possibly clay loamy subsoil on calcrete: (V) [Petrocalcic Calcarosol; loamy-sandy/loamy-clay loamy]. <i>Deep rubbly calcareous loams A4-A5</i> - medium to thick calcareous loamy (with some sandy) topsoil over clay loamy or loamy subsoil with hard carbonate rubble; underlain by reddish clay, clay loamy or loamy sediments, or calcrete: (L-C) [Lutaceous-Argillaceous-Arenaceous-Petrocalcic Lithocalcic-Hypercalcic Calcarosol; loamy/clay loamy-loamy].</p>



		<p>Summary: mainly shallow loamy calcareous soil on calcrete, with some rubbly calcareous loams over clay loam or loam. Surface rubble of moderate abundance is widespread. High boron and sodium levels often occur below 50 cm. The area is underlain by reddish clay at 1m or more.</p> <p>The land is arable: cropping and grazing are the main land uses. The main limitations are caused by shallow soils and rubble which limit water holding capacities; and by surface rubble interfering with farming operations. Slight limitations include: subsoil toxicities, alkalinity, and wind erosion potential. Moderate limitations include: water holding capacity, fertility, and surface fragments.</p>
QRA QRA5	13.0 0.5	<p>Generally low lying level plains (the small unit in the south is mid-level) with slopes usually of 0-1%. Dominant soil is shallow to very shallow calcareous (with some non calcareous) soil on calcrete.</p> <p>QRA – stony plains. Minor areas of very shallow non arable soils.</p> <p>QRA5 – very stony plains. Extensive areas of very shallow non arable soils.</p> <p>Main soils:</p> <p><i>Shallow calcareous loam on calcrete B2</i> - shallow to very shallow calcareous loamy (with some sandy) topsoil over loamy subsoil on calcrete, or, shallow to very shallow clay loamy soil on calcrete: (V) [Petrocalcic-Lithocalcic Calcarosol; loamy-sandy-clay loamy/loamy-clay loamy].</p> <p><i>Shallow sandy loam on calcrete B3</i> - shallow to very shallow non calcareous to slightly calcareous sandy or loamy topsoil over loamy subsoil on calcrete: (L) depressions [Petrocalcic Hypocalcic Calcarosol and Petrocalcic Orthic Tenosol].</p> <p><i>Calcareous loam on clay A5</i>, or <i>gradational calcareous clay loam A6</i> and texture contrast soils D3-D2-G4 - medium to thick calcareous loamy to sandy topsoil over clay loamy to clayey subsoil with abundant fine carbonate: (M) depressions [Argillaceous Hypercalcic Calcarosol and Effervescent Hypercalcic Red Chromosol]</p> <p>Summary: mainly shallow calcareous soil on calcrete. The area is underlain by reddish clay generally below 1m. Surface rubble of common abundance is widespread with many patches of moderate abundance. There are about 2-5% depressions with deeper soils with clayey to clay loamy subsoils.</p> <p>All but some very shallow soils are arable (about 3% of the overall area is not cropped): cropping and grazing are the main land uses. The main limitations are the poor water holding capacities of these shallow soils and surface fragments interfering with farming operations. Patches of temporary waterlogging can occur if water perches on slight depressions on sheet calcrete. Slight limitations include: subsoil toxicities, alkalinity and wind erosion potential. Moderate limitations include: water holding capacity, fertility, and surface fragments. High limitations of water holding capacity and surface fragments occur in the non arable areas (mostly in the QRA5 land unit).</p> <p><u>Soil descriptions – south</u></p> <p>Mid slope (1%): Petrocalcic Orthic Tenosol; medium, very gravelly, sandy/sandy, shallow.</p> <p><u>Soil descriptions – north</u></p> <p>Upper slope (3%): Haplic Petrocalcic Hypocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, very shallow.</p> <p>Upper slope (3%): Haplic Lithocalcic Calcarosol; thick, non-gravelly, clay loamy/clay loamy, shallow.</p> <p>Slope (1%): Haplic Petrocalcic Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p> <p>Slope (1%): Petrocalcic Orthic Tenosol; medium, gravelly, sandy/loamy, very shallow.</p> <p>Lower slope (1%): Effervescent Hypercalcic Red Chromosol; thick, non-gravelly, sandy/clayey, moderate.</p> <p>Lower slope (1%): Haplic Petrocalcic Supracalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate-shallow.</p> <p>Flat: Haplic Lithocalcic Calcarosol; medium, non-gravelly, clay loamy/clay loamy, shallow.</p> <p>Flat: Haplic Petrocalcic Hypercalcic Calcarosol; thick, non-gravelly, clay loamy/-, shallow.</p> <p>Flat: Haplic Petrocalcic Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, shallow.</p> <p>Flat: Haplic Petrocalcic Lithocalcic Calcarosol; medium, gravelly, loamy/loamy, shallow.</p> <p>Flat: Haplic Petrocalcic Lithocalcic Calcarosol; medium, moderately gravelly, sandy/loamy, shallow.</p> <p>Flat: Haplic Petrocalcic Calcic Calcarosol; medium, moderately gravelly, loamy/loamy, very shallow.</p> <p>Flat: Haplic Petrocalcic Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, shallow.</p>



		Depression: Haplic Argillaceous Calcic Calcarosol; medium, non-gravelly, sandy/clay loamy, moderate.
QTA	9.2	<p>Gently undulating plains with slopes of 0-2%. Dominant soils are shallow to very shallow calcareous (with some non calcareous) soil on calcrete, and calcareous soil formed in medium textured wind deposited sediments.</p> <p>Main soils:</p> <p><i>Shallow calcareous loam on calcrete B2</i> with some <i>shallow sandy loam on calcrete B3</i> - shallow to very shallow calcareous (with some non to slightly calcareous) loamy topsoil (some sandy) over loamy subsoil (some clay loamy) on calcrete: (E) [mainly Haplic-Hypervescent Petrocalcic-Lithocalcic Calcarosol; loamy-sandy/loamy, with some Petrocalcic Orthic Tenosol; loamy-sandy/loamy, and some Petrocalcic Leptic Rudosol; loamy or Effervescent Petrocalcic Red Chromosol; sandy/clay loamy].</p> <p><i>Deep calcareous loams A5-A4</i> - medium to thick calcareous loamy (with some sandy) topsoil over clay loamy or loamy subsoil with abundant fine carbonate and often abundant hard carbonate rubble, underlain by reddish clay: (E) [Argillaceous-Lutaceous-Petrocalcic Hypercalcic-Lithocalcic Calcarosol; loamy/loamy-clay loamy].</p> <p><i>Gradational calcareous clay loam A6</i> - medium to thick calcareous loamy to clay loamy topsoil over reddish clay subsoil with abundant fine carbonate: (M) depressions [Argillaceous Hypercalcic Calcarosol; loamy-clay loamy/clayey].</p> <p><i>Calcareous siliceous sand H2a-A4</i> - medium to very thick calcareous sand over loamy subsoil with abundant fine carbonate and often with hard carbonate rubble: (M) sandy rises [Lutaceous Hypercalcic-Lithocalcic Calcarosol; sandy/loamy].</p> <p><i>Gradational red sandy loam C1</i> - medium to thick non calcareous to slightly calcareous loamy topsoil over loamy to clay loamy subsoil with abundant fine carbonate and maybe some hard carbonate rubble, on calcrete or possibly other sediments: (M) [Hypercalcic-Lithocalcic Orthic Tenosol; loamy/loamy-clay loamy].</p> <p>Summary: soils which are mainly shallow on calcrete or calcareous loams over loam or clay loam (often with hard carbonate rubble). Reddish clayey sediments generally occur below 1m. Surface rubble of common abundance is widespread. High boron and sodium levels often occur below 50 cm. There are about 2-10% depressions with clayey subsoils. There are 1-5% longitudinal sandy rises.</p> <p>The land is arable: cropping and grazing are the main land uses. The main limitations are the low water holding capacities of the shallow soils, lower subsoil toxic accumulations, and some interference of farming operations by surface fragments. Slight limitations include: subsoil toxicities, alkalinity, and wind erosion potential. Moderate limitations include: water holding capacity, fertility, and surface fragments.</p> <p><u>Soil descriptions – west</u></p> <p>Mid slope (1%): Hypervescent Argillaceous Hypercalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate.</p> <p>Mid slope (1%): Petrocalcic Orthic Tenosol; thin, moderately gravelly, loamy/loamy, very shallow.</p> <p>Flat: Effervescent Petrocalcic Red Chromosol; medium, non-gravelly, sandy/clay loamy, shallow.</p> <p><u>Soil descriptions - east</u></p> <p>Upper slope (2%): Haplic Lithocalcic Calcarosol; thick, slightly gravelly, loamy/loamy, moderate.</p> <p>Upper slope (2%): Haplic Petrocalcic Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, shallow.</p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, gravelly, sandy/clay loamy, moderate.</p> <p>Lower slope (1%): Haplic Argillaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate.</p> <p>Lower slope (2%): Haplic Argillaceous Supracalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Lutaceous Lithocalcic Calcarosol; medium, gravelly, loamy/clay loamy, shallow.</p> <p>Flat: Petrocalcic Leptic Rudosol; medium, moderately gravelly, loamy/-, very shallow.</p>
SaA	4.7	<p>Gently undulating plain with slopes of 0-3%, dominated by calcareous soils formed in (mainly rubbly) medium textured wind deposited sediments.</p> <p>Main soils:</p> <p><i>Deep rubbly calcareous loam A4-A5</i> - medium to thick calcareous loamy topsoil (a few are sandy) over clay loamy subsoil (some loamy) with abundant fine carbonate, and usually abundant hard carbonate rubble; under this are usually clay loamy sediments, or sometimes reddish clay: (V) [Haplic-Hypervescent Lutaceous-Argillaceous Lithocalcic-</p>



		<p>Supracalcic Calcarosol; loamy/clay loamy-loamy]. <i>Shallow calcareous loam on calcrete B2</i> - shallow calcareous soil on calcrete: (M) [Petrocalcic Calcarosol; loamy]. <i>Gradational calcareous clay loam A6</i> - medium to thick calcareous clay loamy or loamy topsoil over reddish clay subsoil with abundant fine carbonate: (M) depressions [Argillaceous Hypercalcic Calcarosol; loamy-clay loamy/clayey]. <i>Calcareous siliceous sand H2a</i> - medium to very thick calcareous sand with loamy subsoil with abundant fine carbonate and often hard carbonate rubble: (M) sandy rises [Lutaceous Hypercalcic-Lithocalcic Calcarosol; sandy/loamy]. Summary: mainly calcareous loams over clay loam or loam with hard carbonate rubble, underlain by reddish clay generally at greater than 1m. Surface rubble of common abundance is quite widespread. Soils often have high boron and sodium levels in the lower subsoil. About 2-5% of the area is depressions with reddish clayey subsoil. About 5-10% are shallow soils on calcrete. There are 1-2% longitudinal sandy rises. The land is arable: cropping and some grazing are the main land uses. The main limitations are nutrient availability problems through soils being calcareous throughout, lower subsoil toxic accumulations, and the potential for wind erosion. Slight limitations include: water holding capacity, subsoil toxicities, alkalinity, and wind erosion potential. Moderate limitations include fertility and surface rubble. <u>Soil description</u> Dune: Haplic Petrocalcic Calcic Calcarosol; thin, gravelly, sandy/loamy, shallow. Mid slope (2%): Haplic Petrocalcic Supracalcic Calcarosol; medium, gravelly, sandy/loamy, moderate. Slope (3%): Haplic Lutaceous Supracalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate. Slope (2%): Hypervescent Lutaceous Lithocalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate. Lower slope (1%): Haplic Argillaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate. Flat: Haplic Lutaceous Lithocalcic Calcarosol; thin, gravelly, loamy/clay loamy, moderate. Flat: Haplic Lutaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p>
ScA	8.3	<p>Gently undulating plain with slopes of usually 0-1%. The dominant soils are calcareous soils formed in (mainly rubbly) medium textured wind deposited sediments: also with some soils formed in clayey sediments, and some sandy rises Main soils: <i>Rubbly calcareous loam on clay A5</i> - medium to thick calcareous loamy topsoil (a few are sandy) over loamy to clay loamy subsoil with abundant hard carbonate rubble: under this is usually reddish clay, or occasionally calcrete: (E) low rises and flats [Argillaceous Lithocalcic Calcarosol; loamy/clay loamy]. <i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy topsoil (a few are sandy) over clay loamy subsoil with abundant fine carbonate: (E-C) flats and depressions [Argillaceous Hypercalcic Calcarosol; loamy/clay loamy]. <i>Gradational calcareous clay loam A6</i> (and some calcareous texture contrast variants D3-D2) - medium to thick calcareous loamy topsoil (some are clay loamy) over reddish clay subsoil with abundant fine carbonate: (L) depressions [Argillaceous Hypercalcic Calcarosol; loamy-clay loamy/clayey with some Effervescent Hypercalcic Red Chromosol]. <i>Calcareous siliceous sand H2a</i> - deep to moderate depth calcareous siliceous sand, some with abundant carbonate rubble [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy-loamy]; with some <i>siliceous sand H2b</i> with medium to very thick non calcareous sand over sand with abundant fine carbonate [Calcareous Arenic-Arenaceous Orthic Tenosol; sandy/sandy-loamy]: (L-M) sandy rises. <i>Shallow calcareous loam on calcrete B2</i> - very shallow to shallow calcareous (some slightly calcareous) soil on calcrete: (M-L) low rises and flats [Calcic-Hypocalcic Petrocalcic Calcarosol; loamy-sandy/loamy]. <i>Loam over poorly structured red clay D3-D2</i> or <i>gradational red sandy loam C1</i> - medium to thick non calcareous to slightly calcareous loamy topsoil over loamy to clayey subsoil with abundant fine carbonate: (M) flats and depressions [Sodic Hypercalcic Red-Brown Chromosol-Kandosol]. Summary: soils are mainly calcareous loams over clay loam or loam with hard carbonate rubble, underlain by reddish clay at usually less than 1m. Surface rubble of common abundance is widespread. Soils often have high boron and sodium levels in the lower subsoil. This land unit has about 40-50% depressions with non rubbly soils and clay loamy</p>



		<p>(with some clayey) subsoils. A few shallow soils on calcrete occur. There are about 10-15% longitudinal sandy rises. Reddish clay has near surface expression in some depressions. A few soils in depressions (loamy over clay loamy) are underlain by red sandstone at depth (at about 140-160cm): a layer of reddish clay or sandy clay overlies the sandstone. The land is arable: cropping and some grazing are the main land uses. Water holding capacities are restricted by carbonate rubble; and root growth is restricted where subsoil toxicities occur. Nutrient availability problems occur through soils being calcareous throughout. Surface rubble can interfere with farming practices. Slight limitations include: alkalinity; water holding capacity, fertility, subsoil toxicities, wind erosion potential (plains), and water repellence (sandy rises). Moderate limitations include: fertility, surface rubble, and wind erosion potential on sandy rises.</p> <p><u>Soil descriptions</u></p> <p>Duneslope: Haplic Arenaceous Hypercalcic Calcarosol; thick, non-gravelly, sandy/sandy, moderate.</p> <p>Duneslope: Haplic Arenaceous Lithocalcic Calcarosol; thick, non-gravelly, sandy/loamy, moderate.</p> <p>Duneslope: Calcareous Arenic Orthic Tenosol; very thick, non-gravelly, sandy/loamy, moderate.</p> <p>Duneslope: Arenic Orthic Tenosol; thick, non-gravelly, sandy/loamy, moderate.</p> <p>Mid slope (1%): Haplic Arenaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Slope (1%): Petrocalcic Supracalcic Orthic Tenosol; thick, non-gravelly, loamy/loamy, moderate.</p> <p>Flat: Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Lower slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, gravelly, loamy/clay loamy, moderate.</p> <p>Depression (near dune): Haplic Arenaceous Lithocalcic Calcarosol; medium, non-gravelly, loamy/loamy, moderate.</p> <p>Depression: Haplic Argillaceous Hypercalcic Calcarosol; medium, moderately gravelly, loamy/clay loamy, moderate.</p> <p>Related soils on adjacent land units</p> <p>Mid slope (2%): Sodic Hypercalcic Red Kandosol; thin, non-gravelly, loamy/clayey, moderate.</p> <p>Flat: Sodic Hypercalcic Red Chromosol; medium, non-gravelly, loamy/clayey, moderate.</p> <p>Flat: Effervescent Petrocalcic Red Chromosol; medium, non-gravelly, sandy/clay loamy, very shallow.</p> <p>Flat: Haplic Arenaceous Lithocalcic Calcarosol; medium, slightly gravelly, sandy/loamy, moderate.</p> <p>Flat: Haplic Petrocalcic Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p>
SdA SdAu	2.2 12.9	<p>Gently undulating plains with slopes of 0-2%. The dominant soils are calcareous soils formed in (mainly rubbly) medium textured wind deposited sediments: there are also some soils formed in clayey material and some shallow soils on calcrete.</p> <p>SdA – plains.</p> <p>SdAu – plains with minor areas of longitudinal sandy rises.</p> <p>Main soils:</p> <p><i>Rubbly calcareous loam on clay A5</i> - medium to thick calcareous loamy topsoil (a few are sandy) over clay loamy subsoil (a few are loamy) with abundant carbonate rubble, underlain by reddish clay: (E) flats, low rises and relict sandy rises [Argillaceous Lithocalcic Calcarosol; loamy/clay loamy].</p> <p><i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy topsoil (some are clay loamy) over clay loamy subsoil with abundant fine carbonate, sometimes with abundant carbonate rubble: (C-L) flats and depressions [Argillaceous Hypercalcic Calcarosol; loamy/clay loamy].</p> <p><i>Gradational calcareous clay loam A6</i> - medium to thick calcareous loamy to clay loamy topsoil over reddish clay subsoil with abundant fine carbonate: (C-L) depressions [Argillaceous Hypercalcic Calcarosol; loamy-clay loamy/clayey].</p> <p><i>Shallow calcareous loam on calcrete B2</i> - very shallow to shallow calcareous (some are only slightly calcareous) soils on calcrete: (M-L) flats, rises and relict sandy rises [Calcic-Hypocalcic Petrocalcic Calcarosol; loamy-sandy/loamy].</p>



		<p><i>Calcareous siliceous sand H2a</i> - deep to moderate depth calcareous siliceous sand, some with abundant carbonate rubble [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy-loamy]; with some <i>siliceous sand H2b</i> with medium to very thick non calcareous sand over sand with abundant fine carbonate [Calcareous Arenic-Arenaceous Orthic Tenosol; sandy/sandy-loamy]: sandy rises.</p> <p>Summary: soils are mainly calcareous loams over clay loam with hard carbonate rubble, with reddish clay usually at less than 1m. Surface rubble of common abundance is widespread. The area has about 30-40% depressions with non rubbly soils and clay loamy to clayey subsoils. The reddish clay has near surface expression in many depressions. Shallow soils on calcrete cover 10-15% of the area. Longitudinal sandy rises cover approximately 5% of the area.</p> <p>The land is arable: cropping and some grazing are the main land uses. Water holding capacities are restricted by carbonate rubble. Boron and sodium levels are generally high in subsoils or lower subsoils and become a significant issue where clayey subsoils occur close to the soil surface. Nutrient availability problems occur through soils being calcareous throughout. Surface rubble can interfere with farming practices. Patches of waterlogging can occur in depressions with clayey subsoils. Slight limitations include: water holding capacity, subsoil toxicities, alkalinity, wind erosion potential. Moderate limitations include: fertility, surface rubble, and wind erosion potential on sandy rises.</p> <p><u>Soil descriptions</u></p> <p>Crest: Haplic Argillaceous Lithocalcic Calcarosol; thin, slightly gravelly, loamy/clay loamy, moderate.</p> <p>Upper slope (4%) – old dune: Haplic Lithocalcic Calcarosol; thick, slightly gravelly, sandy/loamy, moderate.</p> <p>Upper slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clayey, moderate.</p> <p>Upper slope (1%): Haplic Argillaceous Lithocalcic Calcarosol; medium, gravelly, loamy/clay loamy, moderate.</p> <p>Mid slope (2%): Haplic Argillaceous Hypercalcic Calcarosol; thick, gravelly, loamy/clay loamy, moderate.</p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; thick, slightly gravelly, loamy/clayey.</p> <p>Slope (1%): Hypervescent Argillaceous Hypercalcic Calcarosol; thick, slightly gravelly, clay loamy/clay loamy, moderate.</p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; thick, slightly gravelly, clay loamy/clayey, moderate.</p> <p>Flat: Haplic Lithocalcic Calcarosol; thick, slightly gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Argillaceous Hypercalcic Calcarosol; thick, non-gravelly, clay loamy/clay loamy, moderate.</p> <p>Related soils on adjacent land units</p> <p>Dune slope: Haplic Arenaceous Hypercalcic Calcarosol; medium, non-gravelly, sandy/sandy, moderate.</p> <p>Dune slope: Calcareous Arenic Orthic Tenosol; medium, non-gravelly, sandy/sandy, moderate.</p> <p>Dune slope: Arenic Rudosol; very thick, non-gravelly, sandy/sandy, moderate.</p> <p>Mid slope (4%) - old dune: Haplic Petrocalcic Hypocalcic Calcarosol; thin, moderately gravelly, sandy/loamy, very shallow.</p> <p>Lower slope (2%): Haplic Petrocalcic Hypocalcic Calcarosol; medium, gravelly, loamy/-, very shallow.</p> <p>Flat: Haplic Petrocalcic Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, shallow.</p> <p>Flat: Haplic Calcic Petrocalcic Calcarosol; medium, gravelly, loamy/loamy, shallow.</p> <p>Flat: Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Argillaceous Calcic Calcarosol; medium, slightly gravelly, loamy/clayey, moderate.</p> <p>Flat: Haplic Petrocalcic Supracalcic Calcarosol; thick, slightly gravelly, loamy/loamy, very shallow.</p>
ShA	11.3	<p>Gently undulating plains with slopes of 0-2%. The dominant soils are calcareous soils formed in (mainly rubbly) medium textured wind deposited sediments: there are some shallow soils on calcrete.</p> <p>Main soils:</p> <p><i>Deep rubbly calcareous loams A4-A5</i> - medium to thick calcareous loamy topsoil (some</p>



are sandy) over loamy or clay loamy subsoil, usually with abundant carbonate rubble, underlain by reddish clay, clay loamy or loamy sediments, or sometimes calcrete: (V) [Haplic-Hypervescent Lutaceous-Argillaceous-Arenaceous-Petrocalcic Lithocalcic-Hypercalcic Calcarosol; loamy/loamy-clay loamy].

Shallow calcareous loam on calcrete B2 - shallow to very shallow calcareous sandy or loamy topsoil over loamy subsoil on calcrete [Calcic Petrocalcic Calcarosol; sandy-loamy/loamy]; maybe with some *shallow sandy loam on calcrete B3* which are shallow to very shallow non calcareous to slightly calcareous soils on calcrete [Petrocalcic Orthic Tenosol; sandy-loamy/loamy]: (L).

Calcareous siliceous sand H2a - thick calcareous sandy topsoil over loamy or sandy subsoil with abundant fine carbonate, and sometimes with hard carbonate rubble: (M) sandy rises [Lutaceous-Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/loamy-loamy].

Gradational calcareous clay loam A6 - medium to thick calcareous loamy topsoil over reddish clay subsoil with abundant fine carbonate: (M) depressions [Argillaceous Hypercalcic Calcarosol; loamy/clayey].

Gradational red sandy loam C1 - medium to thick non calcareous to slightly calcareous loamy topsoil over loamy to clay loamy subsoil with abundant fine carbonate and maybe some hard carbonate rubble; on calcrete or possibly some other sediments: (M) [Hypercalcic-Lithocalcic Orthic Tenosol; loamy/loamy-clay loamy].

Summary: soils are mainly calcareous loams over loams or clay loams with hard carbonate rubble, usually underlain by reddish clay at greater than 1m. Surface rubble of common abundance is widespread. Lower subsoils usually have high levels of boron and sodium. 15-20% of soils are shallow on calcrete. There are 5-10% longitudinal sandy rises. There are about 5% depression areas with clayey subsoils.

The land is arable: cropping and some grazing are the main land uses. Water holding capacity is restricted by carbonate rubble and where soils are shallow. Nutrient availability problems occur through soils being calcareous throughout. Surface rubble can interfere with farming practices. Slight limitations include: water holding capacity, subsoil toxicities, alkalinity, and wind erosion potential. Moderate limitations include: fertility, surface rubble, and wind erosion potential on sandy rises.

Soil descriptions

Dunecrest: Haplic Lutaceous Hypercalcic Calcarosol; thick, slightly gravelly, sandy/loamy, moderate.

Crest (1%): Hypervescent Argillaceous Supracalcic Calcarosol; thick, slightly gravelly, sandy/clay loamy, moderate.

Upper slope (1%): Hypervescent Argillaceous Hypercalcic Calcarosol; medium, moderately gravelly, loamy/clay loamy, moderate.

Mid slope (1%): Haplic Arenaceous Lithocalcic Calcarosol; thick, gravelly, loamy/loamy, moderate.

Slope (1%): Haplic Petrocalcic Lithocalcic Calcarosol; medium, gravelly, loamy/loamy, shallow.

Slope (1%): Haplic Arenaceous Lithocalcic Calcarosol; thick, slightly gravelly, loamy/loamy, moderate.

Lower slope (2%): Hypervescent Hypercalcic Petrocalcic Calcarosol; thick, slightly gravelly, loamy/loamy, shallow.

Lower slope (1%): Haplic Arenaceous Lithocalcic Calcarosol; thick, non-gravelly, loamy/loamy, moderate.

Flat: Haplic Arenaceous Lithocalcic Calcarosol; medium, slightly gravelly, sandy/loamy, moderate.

Flat: Haplic Lutaceous Hypercalcic Calcarosol; thick, slightly gravelly, sandy/clay loamy, moderate.

Flat: Haplic Lutaceous Supracalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate.

Flat: Haplic Arenaceous Lithocalcic Calcarosol; medium, non-gravelly, sandy/loamy, moderate.

Flat: Hypervescent Argillaceous Lithocalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.

Flat: Haplic Petrocalcic Calcic Calcarosol; thick, non-gravelly, sandy/loamy, moderate.

Flat: Haplic Argillaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate.

Related soils on adjacent land units:

Mid slope (2%): Haplic Petrocalcic Lithocalcic Calcarosol; medium, gravelly, sandy/loamy, shallow.



		<p>Mid slope (1%): Petrocalcic Orthic Tenosol; thin, moderately gravelly, loamy/loamy, very shallow.</p> <p>Mid slope (1%): Hypervescent Argillaceous Hypercalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Petrocalcic Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Lutaceous Lithocalcic Calcarosol; medium, very gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Argillaceous Hypocalcic/Lithocalcic Calcarosol; thick, gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Petrocalcic Supracalcic Brown Kandosol; thick, non-gravelly, loamy/loamy, moderate.</p> <p>Depression: Haplic Argillaceous Hypercalcic Calcarosol; medium, moderately gravelly, loamy/clay loamy, moderate.</p>
SRA	12.1	<p>Low lying gently undulating plain with slopes of 0-2%. The dominant soils are calcareous soils formed in medium textured wind deposited sediments: there are some shallow soils on calcrete, and some soils formed in clayey sediments.</p> <p>Main soils:</p> <p><i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy topsoil (a few sandy) over clay loamy subsoil (a few loamy) with abundant fine carbonate, and often with hard carbonate rubble, usually underlain by reddish clay, or occasionally calcrete: (E-V) low rises and flats [Argillaceous Hypercalcic-Lithocalcic Calcarosol; loamy/clay loamy].</p> <p><i>Gradational calcareous clay loam A6</i> - medium thickness calcareous loamy topsoil over reddish clay subsoil with abundant fine carbonate [Argillaceous Hypercalcic Calcarosol; loamy/clayey]; and <i>loam over poorly structured red clay D3-D2</i> with medium thickness non calcareous to slightly calcareous loamy topsoil over reddish clay subsoil with abundant fine carbonate, sometimes over clay loamy saprolitic material, especially on slopes [Sodic Hypercalcic Red Chromosol-Kandosol; loamy/clayey]: (L-C) depressions and flats.</p> <p><i>Shallow calcareous loam on calcrete B2</i> - very shallow to shallow calcareous soils on calcrete on low rises and flats [Calcic Petrocalcic Calcarosol; loamy/loamy]; and <i>shallow sandy loam on calcrete B3</i> which are very shallow to shallow non calcareous to slightly calcareous soils on calcrete in flats [Petrocalcic Orthic Tenosol; loamy-sandy/loamy]: (L).</p> <p>Summary: soils are mainly loams over clay loam, often with hard carbonate rubble, underlain by reddish clay at usually less than 1m. Surface rubble of common abundance is fairly widespread. Lower subsoils have high levels of boron and sodium. The land unit has about 20-25% depressions where the soils usually have clayey subsoils. 10-20% shallow soils on calcrete occur. Some fine grained saprolitic material was found underlying a texture contrast soil (Chromosol: W299) at depth on a slope; and some red sandstone was found underlying a shallow soil on calcrete on a flat.</p> <p>The land is arable: cropping and some grazing are the main land uses. Water holding capacities are restricted where carbonate rubble occurs; and root growth is restricted in lower subsoils by toxic accumulations. Nutrient availability problems occur through soils being calcareous throughout. Surface rubble can interfere with farming practices. Slight limitations include: water holding capacity, subsoil toxicities, alkalinity, wind erosion potential, surface rubble, and some patches of potential waterlogging. Moderate limitations include fertility.</p> <p><u>Soil descriptions</u></p> <p>Mid slope (3%): Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, sandy/clay loamy, moderate.</p> <p>Mid slope (2%): Sodic Hypercalcic Red Kandosol; thin, non-gravelly, loamy/clayey, moderate.</p> <p>Slope (2%): Sodic Hypercalcic Red Chromosol; medium, non-gravelly, loamy/clayey, moderate.</p> <p>Slope (2%)Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate.</p> <p>Slope (1%): Haplic Argillaceous Supracalcic Calcarosol; thick, slightly gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Petrocalcic Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Petrocalcic Orthic Tenosol; medium, gravelly, loamy/loamy, moderate.</p> <p>Lower slope (2%): Petrocalcic Orthic Tenosol; medium, slightly gravelly, sandy/loamy, shallow.</p>



		<p>Flat: Haplic Petrocalcic Supracalcic Calcarosol; thick, slightly gravelly, loamy/loamy, shallow.</p> <p>Flat: Haplic Argillaceous Calcic Calcarosol; medium, slightly gravelly, loamy/clayey, moderate.</p> <p>Flat: Sodic Hypercalcic Red Chromosol; medium, non-gravelly, loamy/clayey, moderate.</p> <p>Related soils on adjacent land units</p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Slope (1%): Haplic Petrocalcic Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, shallow.</p> <p>Lower slope (1%): Haplic Lutaceous Hypercalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Arenaceous Lithocalcic Calcarosol; medium, slightly gravelly, sandy/loamy, moderate.</p> <p>Flat: Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p>
SMA	3.7	<p>Gently undulating plain with slopes of 0-3%, dominated by calcareous soils formed in medium textured wind deposited sediments.</p> <p>Main soils:</p> <p><i>Deep calcareous loams A4-A5</i> - medium to thick calcareous loamy topsoil (with some clay loamy) over clay loamy subsoil (with some loamy) with abundant fine carbonate and sometimes abundant hard carbonate rubble; under this are usually clay loamy sediments, or sometimes reddish clay, or calcrete: (D-V) [Haplic-Hypervescent Lutaceous-Argillaceous-Petrocalcic Hypercalcic-Lithocalcic Calcarosol; loamy-clay loamy/clay loamy].</p> <p><i>Shallow calcareous loam on calcrete B2</i> - shallow calcareous loamy topsoil over loamy to clay loamy subsoil on calcrete: (M) [Petrocalcic Calcarosol].</p> <p><i>Gradational calcareous clay loam A6</i> - medium to thick calcareous loamy to clay loamy topsoil over reddish clay subsoil with abundant fine carbonate: (M) depressions [Argillaceous Hypercalcic Calcarosol; loamy-clay loamy/clayey].</p> <p>Summary: soils are mainly calcareous loams (some are clay loamy) over clay loam (a few are loamy), sometimes with hard carbonate rubble, underlain by reddish clay usually at greater than 1m. Surface rubble of slight or common abundance is quite widespread. Soils often have high boron or sodium levels in the lower subsoil. There are 5-10% shallow soils on calcrete. There are 0-5% depressions with reddish clayey subsoils.</p> <p>The land is arable: cropping and some grazing are the main land uses. The main limitations are nutrient availability problems through soils being calcareous throughout, lower subsoil toxic accumulations, and the potential for wind erosion. Slight limitations include: water holding capacity, subsoil toxicities, alkalinity, wind erosion potential, and surface rubble. Moderate limitations include fertility.</p> <p><u>Soil descriptions- north</u></p> <p>Haplic Lutaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p> <p><u>Soil descriptions - south</u></p> <p>Mid slope (1%): Hypervescent Lutaceous Supracalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate</p> <p>Mid slope (1%): Haplic Lutaceous Hypercalcic Calcarosol; thick, slightly gravelly, loamy/clay loamy.</p> <p>Flat: Haplic Lutaceous Hypercalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Hypervescent Lutaceous Hypercalcic Calcarosol; thick, non-gravelly, clay loamy/clay loamy, moderate.</p> <p>Flat: Haplic Lutaceous Hypercalcic Calcarosol; medium, non-gravelly, clay loamy/clay loamy, moderate.</p> <p>Flat: Haplic Argillaceous Hypercalcic Calcarosol; thin, non-gravelly, loamy/clay loamy, moderate.</p> <p>Flat: Haplic Petrocalcic Supracalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p> <p>Lower slope (1%): Haplic Argillaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate.</p>
U-C	1.1	Mappable sand dunes (dunes cover more than 90% of area).
U-D	1.4	<p>U-C - longitudinal sand dunes.</p> <p>U-D - longitudinal low sand dunes.</p> <p>Dune soils:</p>



		<p><i>Calcareous siliceous sand H2a</i> - deep calcareous siliceous sand often with hard carbonate rubble in the subsoil: found on most dunes [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy].</p> <p><i>Siliceous sand H2b</i> - medium thickness to very thick non calcareous to slightly calcareous sand over sand with abundant fine carbonate and sometimes with hard carbonate rubble: possibly found on some dunes [Calcareous Orthic Arenic Tenosol; sandy/sandy].</p> <p>Summary: the dunes are generally arable if managed with care. Semi-arable dune ridge strips often occur, especially on larger dunes. Wind erosion risk and low fertility are the main limitations of these dunes: excessive drainage leads to water and soluble nutrients moving beyond the root zone. Slight limitations include alkalinity and water repellence. Moderate limitations include: water holding capacity, fertility, and wind erosion potential.</p>
UCF UCG UCJ	1.1 0.4 1.6	<p>Dunefields: with more than 30% sand dunes and low sand dunes overlying gently undulating land (slopes 0-2%). Swales are dominated by calcareous soil formed in rubbly medium textured wind deposited sediments.</p> <p>UCF - dunefield with 60-90% longitudinal sand dunes.</p> <p>UCG - dunefield with 60-90% longitudinal low sand dunes.</p> <p>UCJ - dunefield with 30-60% longitudinal low sand dunes.</p> <p>Dune soils:</p> <p><i>Calcareous siliceous sand H2a</i> - deep calcareous siliceous sand often with hard carbonate rubble in the subsoil: found on most dunes [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy].</p> <p><i>Siliceous sand H2b</i> - medium thickness to very thick non calcareous to slightly calcareous sand over sand with abundant fine carbonate and sometimes with hard carbonate rubble: possibly found on a few dunes [Calcareous Orthic Arenic Tenosol; sandy/sandy].</p> <p>Swale soils:</p> <p><i>Rubbly calcareous loam on clay A5</i> - medium to thick calcareous loamy to sandy topsoil over loamy or clay loamy subsoil usually with hard carbonate rubble, underlain by reddish clay: (V-D in swales) [Argillaceous Lithocalcic-Hypercalcic Calcarosol; loamy-sandy/loamy-clay loamy].</p> <p><i>Gradational calcareous clay loam A6</i> (with some texture contrast variants D3-D2) - medium to thick calcareous (possibly with some non calcareous) loamy or sandy topsoil over reddish clay subsoil: (M in swales) mainly depressions [Argillaceous Hypercalcic Calcarosol with Sodic-Effervescent Hypercalcic Red Chromosol].</p> <p><i>Shallow calcareous loam on calcrete B2</i> - shallow calcareous sandy to loamy topsoil over loamy subsoil on calcrete: (M in swales) [Petrocalcic Calcarosol].</p> <p>Summary: the dunes are generally arable if managed with care, but often have semi-arable dune ridge strips. Swale soils are mainly calcareous loams or sands over clay loam or loam usually with hard carbonate rubble. Surface rubble of common abundance is quite widespread in swales; and lower subsoils often have high boron and sodium levels. Slight limitations include: water holding capacity (swales), subsoil toxicities (swales), alkalinity, wind erosion potential (swales), water repellence (dunes), surface rubble (swales). Moderate limitations include: water holding capacity (dunes), fertility, wind erosion potential (dunes), and surface rubble (swales).</p> <p><u>Related soils on adjacent swales - UCF</u></p> <p>Mid slope (1%): Haplic Arenaceous Lithocalcic Calcarosol; thick, gravelly, loamy/loamy, moderate.</p> <p>Slope (1%): Haplic Arenaceous Lithocalcic Calcarosol; thick, slightly gravelly, loamy/loamy, moderate.</p> <p>Flat: Hypervescent Argillaceous Lithocalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p> <p>Lower slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, non gravelly, clay loamy/clayey, moderate.</p> <p>Lower slope (1%): Haplic Argillaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate.</p> <p><u>Related soils on adjacent swales - UCG</u></p> <p>Very low sand ridge: Haplic Lutaceous Hypercalcic Calcarosol; thick, non gravelly, sandy/sandy, deep.</p> <p>Ridge (1%): Haplic Argillaceous Supracalcic Calcarosol-Chromosol; thin, slightly gravelly, sandy/clay loamy, moderate.</p> <p><u>Soil descriptions - swales - UCJ</u></p> <p>Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; medium, gravelly, sandy/clay loamy, moderate.</p> <p><u>Related soils on adjacent swales - UCJ</u></p>



<p>UEI UEJ</p>	<p>0.6 0.4</p>	<p>Flat: Haplic Lutaceous Lithocalcic Calcarosol; medium, gravelly, loamy/clay loamy, shallow.</p> <p>Dunefields: with approximately 60% sand dunes and low sand dunes overlying gently undulating land (slopes 0-2%). Swales are dominated by calcareous soil formed in medium textured wind deposited sediments and soil formed in reddish clayey sediments.</p> <p>UEI – dunefield with approximately 60% longitudinal sand dunes. UEJ – dunefield with approximately 60% longitudinal low sand dunes.</p> <p>Dune soils: <i>Calcareous siliceous sand H2a</i> - deep calcareous siliceous sand often with hard carbonate rubble in the subsoil: found on most dunes [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy]. <i>Siliceous sand H2b</i> - medium thickness to very thick non calcareous to slightly calcareous sand over sand with abundant fine carbonate and sometimes with hard carbonate rubble: found on some dunes [Calcareous Orthic Arenic Tenosol; sandy/sandy].</p> <p>Swale soils: <i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy or sandy topsoil over loamy or clay loamy subsoil often with hard carbonate rubble, underlain by reddish clay: (E-VE in swales) [Argillaceous Hypercalcic-Lithocalcic Calcarosol; loamy-sandy/loamy-clay loamy]. <i>Gradational calcareous clay loam A6</i> (with some texture contrast variants D3-D2) - medium to thick calcareous (with some non calcareous) loamy or sandy topsoil over reddish clay subsoil: (E-C in swales) mainly depressions [Argillaceous Hypercalcic Calcarosol with Sodic-Effervescent Hypercalcic Red Chromosol].</p> <p>Summary: the dunes are generally arable if managed with care, but often have semi-arable dune ridge strips. Swale soils are mainly calcareous loams or sands over clay loam or loam. Swales have approximately 30% of soils with clayey subsoils mainly in depression areas. Swale soils often have high boron and sodium levels in the lower subsoil or subsoil. Slight limitations include: waterlogging (swales), water holding capacity (swales), surface soil structure (swales), fertility (swales), alkalinity, raised subsoil salinity levels (swales), wind erosion potential (swales), water repellence (dunes), surface rubble (swales). Moderate limitations include: water holding capacity (dunes), subsoil structure (swales), fertility (dunes), subsoil toxicities (swales), wind erosion potential (dunes).</p> <p><u>Related soils on adjacent land units – UEI</u> Mid slope (1%): Haplic Lutaceous Hypercalcic Calcarosol; thick, non-gravelly, loamy/loamy, moderate. Flat: Haplic Argillaceous Calcic Calcarosol; medium, slightly gravelly, loamy/clayey, moderate. Flat: Haplic Petrocalcic Supracalcic Calcarosol; thick, slightly gravelly, loamy/loamy, shallow. Flat: Sodic Hypercalcic Red Kandosol; medium, non-gravelly, clay loamy/clayey, moderate.</p> <p><u>Related soils on adjacent land units - UEJ</u> Lower slope (2%): Haplic Argillaceous Supracalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate. Flat: Hypervescent Argillaceous Hypercalcic Calcarosol; medium, moderately gravelly, loamy/clayey, moderate.</p>
<p>UJF UJG UJI UJJ</p>	<p>0.5 0.4 0.7 0.1</p>	<p>Dunefields: with greater than 30% longitudinal sand dunes and low sand dunes overlying gently undulating plains (slopes 0-2%). Swale are dominated by calcareous soil formed in medium textured wind deposited sediments, and there are some shallow soils on calcrete.</p> <p>UJF – dunefield with approximately 70-80% longitudinal sand dunes. UJG – dunefield with approximately 60-70% longitudinal low sand dunes. UJI – dunefield with approximately 40-50% longitudinal sand dunes. UJJ – dunefield with approximately 40% longitudinal low sand dunes.</p> <p>Dune soils: <i>Calcareous siliceous sand H2a</i> - deep calcareous siliceous sand often with hard carbonate rubble in the subsoil: found on most dunes [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy]. <i>Siliceous sand H2b</i> - medium thickness to very thick non calcareous to slightly calcareous sand over sand with abundant fine carbonate and sometimes hard carbonate rubble: found on some dunes [Calcareous Orthic Arenic Tenosol; sandy/sandy].</p> <p>Swale soils: <i>Calcareous loam on clay A5</i> - medium to thick calcareous loamy to sandy topsoil over loamy to clay loamy subsoil with abundant fine carbonate and often hard carbonate rubble, usually underlain by reddish clayey sediments: (V in swales) [Argillaceous</p>



		<p>Hypercalcic-Lithocalcic Calcarosol; loamy-sandy/loamy-clay loamy]. <i>Shallow calcareous loam on calcrete B2</i> - shallow calcareous sandy to loamy topsoil over loamy subsoil on calcrete: (L in swales) [Petrocalcic Calcarosol]. <i>Gradational calcareous clay loam A6</i> (with some texture contrast variants D3-D2) - medium to thick calcareous (possibly some non calcareous) loamy to sandy topsoil over reddish clayey subsoil: (M in swales) [Argillaceous Hypercalcic Calcarosol with Effervescent-Sodic Hypercalcic Red Chromosol]. Summary: the dunes are generally arable if managed with care, but usually with semi-arable dune ridge strips. Swales are mainly calcareous sands or loams over loam or clay loam, often with hard carbonate rubble. Surface rubble of common abundance is quite widespread in swales; and lower subsoils often have high boron and sodium levels. Swales have about 10-20% shallow soils on calcrete, and 10% or less depression areas with clayey subsoils. Slight limitations include: water holding capacity (swales), subsoil toxicities (swales), alkalinity, wind erosion potential (swales), water repellence (dunes), and surface rubble (swales). Moderate limitations include: water holding capacity (dunes), fertility, and wind erosion potential (dunes). <u>Related soils on adjacent land units - UJF</u> Mid slope (2%): Haplic Argillaceous Hypercalcic Calcarosol; thick, gravelly, loamy/clay loamy, moderate. Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; thick, slightly gravelly, loamy/clayey, moderate. Slope (1%): Haplic Argillaceous Hypercalcic Calcarosol; thick, gravelly, clay loamy/clayey, moderate. Slope (1%): Hypervescent Argillaceous Hypercalcic Calcarosol; thick, slightly gravelly, clay loamy/clay loamy, moderate. Flat: Haplic Lithocalcic Calcarosol; thick, slightly gravelly, loamy/clay loamy, moderate. Crest (1%): Haplic Argillaceous Lithocalcic Calcarosol; thin, slightly gravelly, loamy/clay loamy, moderate. <u>Related soils on adjacent land units - UJG</u> Lower slope (2%): Haplic Lithocalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, moderate. Crest (1%): Haplic Argillaceous Lithocalcic Calcarosol; thin, slightly gravelly, loamy/clay loamy, moderate. <u>Soil descriptions - UJI</u> Flat: Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate. <u>Related soils on adjacent land units - UJI</u> Flat: Haplic Argillaceous Hypercalcic Calcarosol; medium, non-gravelly, loamy/clay loamy, moderate.</p>
UMF	3.6	<p>Dunefields: with approximately 60% longitudinal sand dunes overlying a gently undulating plain (slopes 0-3%). Swales mainly have calcareous soil formed in rubbly medium textured wind deposited sediments, with some shallow soil on calcrete. Dune soils: <i>Calcareous siliceous sand H2a</i> - moderate depth to deep calcareous siliceous sands, sometimes overlying calcrete: found on most dunes [Arenaceous-Petrocalcic Hypercalcic Calcarosol; sandy/sandy]. <i>Siliceous sand H2b</i> - medium to very thick non calcareous to slightly calcareous sand, over sand with abundant fine carbonate, or sometimes on calcrete: found on some dunes [Calcareous Arenic-Petrocalcic Orthic Tenosol; sandy/sandy]. Swale soils: 1. Medium to thick calcareous loamy or sandy topsoil over loamy to clay loamy subsoil usually with abundant hard carbonate rubble, underlain by calcrete, clay loamy sediments, or reddish clay. The non rubbly variants exist in the depression areas. (V in swales) A4-A5 [Petrocalcic-Lutaceous-Argillaceous Lithocalcic-Hypercalcic Calcarosol; loamy-sandy/loamy-clay loamy]. 2. Shallow calcareous sandy to loamy topsoil over loamy subsoil on calcrete: (L in swales) B2 [Petrocalcic Calcarosol]. Summary: dunes are generally arable if managed with care, but often have semi-arable dune ridge strips. Swales are mainly calcareous loams or sands over loam or clay loamy with hard carbonate rubble. Surface rubble of common abundance is widespread on swales. Lower subsoils in swales often have high boron and sodium levels. There are 10-30% shallow soils on calcrete in swales. The land is arable except for many semi-arable dune ridge strips: cropping and grazing are</p>



		<p>the main land uses. The main limitations of the dunes are their potential for wind erosion and low fertility. Swale soils have nutrient availability problems through being calcareous throughout. Slight limitations include: alkalinity, water holding capacity (swales), subsoil toxicities (swales), wind erosion potential (swales), and water repellence (dunes). Moderate limitations include: water holding capacity (dunes), fertility (dunes), wind erosion potential (dunes), surface rubble (swales).</p> <p><u>Related soils in adjacent land units</u></p> <p>Upper slope (4%): Haplic Lithocalcic Calcarosol; thick, slightly gravelly, sandy/loamy, moderate.</p> <p>Upper slope (3%): Haplic Arenaceous Lithocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p> <p>Upper slope (3%): Haplic Petrocalcic Hypocalcic Calcarosol; medium, slightly gravelly, loamy/loamy, very shallow.</p> <p>Crest (1%): Haplic Argillaceous Lithocalcic Calcarosol; thin, slightly gravelly, loamy/clay loamy, moderate.</p> <p>Mid slope (4%): Haplic Petrocalcic Hypocalcic Calcarosol; thin, moderately gravelly, sandy/loamy, very shallow.</p> <p>Lower slope (2%): Haplic Petrocalcic Hypocalcic Calcarosol; medium, gravelly, loamy/-, very shallow.</p> <p>Flat: Haplic Argillaceous Hypercalcic Calcarosol; thick, non-gravelly, clay loamy/clay loamy, moderate.</p> <p>Flat: Haplic Petrocalcic Lithocalcic Calcarosol; medium, moderately gravelly, sandy/loamy, shallow.</p>
UQI	1.5	<p>Dunefields: with approximately 55-60% longitudinal sand dunes overlying gently undulating plains (slopes 0-2%). Swales are dominated by calcareous soil formed in rubbly medium textured wind deposited sediments, with some soil formed in clayey sediments, and some shallow soil on calcrete.</p> <p>Dune soils:</p> <p><i>Calcareous siliceous sand H2a</i> - deep calcareous siliceous sand often with hard carbonate rubble in the subsoil: found on most dunes [Arenaceous Hypercalcic-Lithocalcic Calcarosol; sandy/sandy].</p> <p><i>Siliceous sand H2b</i> - medium thickness to very thick non calcareous to slightly calcareous sand over sand with abundant fine carbonate and sometimes with hard carbonate rubble: found on some dunes [Calcareous Orthic Arenic Tenosol; sandy/sandy].</p> <p>Swale soils:</p> <p><i>Deep rubbly calcareous loams A5-A4</i> - medium to thick calcareous loamy or sandy topsoil over loamy or clay loamy subsoil usually with abundant hard carbonate rubble, underlain by reddish clay, clay loamy sediments, or calcrete: (E-V in swales) [Argillaceous-Lutaceous-Petrocalcic Lithocalcic-Hypercalcic Calcarosol; loamy-sandy/loamy-clay loamy].</p> <p><i>Gradational calcareous clay loam A6</i>, with some loam over poorly structured red clay D3-D2 - medium to thick calcareous (with some non calcareous) loamy to sandy topsoil over reddish clay: (L-C in swales) depressions [Argillaceous Hypercalcic Calcarosol with Sodic-Effervescent Hypercalcic Red Chromosol].</p> <p><i>Shallow calcareous loam on calcrete B2</i> - shallow calcareous sandy to loamy topsoil over loamy subsoil on calcrete: (L in swales) [Petrocalcic Calcarosol].</p> <p>Summary: the dunes are generally arable if managed with care, but usually have semi-arable dune ridge strips. Swale soils are mainly calcareous loams or sands over loam or clay loam with hard carbonate rubble. Lower subsoils in swales often have high boron and sodium levels; and surface rubble of common abundance is quite widespread. In swales there are also 10-20% shallow soils on calcrete, and about 20% depression areas with soils formed in reddish clayey material.</p> <p>The land is arable except for many semi-arable dune ridge strips: cropping and grazing are the main land uses. The main limitations of the dunes are their potential for wind erosion and low fertility. Swale soils often have nutrient availability problems through being calcareous throughout. Soils with clayey subsoils are likely to have subsoil accumulations of toxic elements. Slight limitations include: water holding capacity (swales), subsoil toxicities (swales), alkalinity, wind erosion potential (swales), water repellence (dunes). Moderate limitations include: water holding capacity (dunes), fertility, wind erosion potential (dunes), and surface rubble (swales).</p> <p><u>Soil descriptions</u></p> <p>Duneslope: Arenic Rudosol; very thick, non-gravelly, sandy/sandy, moderate</p> <p>Flat: Haplic Petrocalcic Calcic Calcarosol; medium, gravelly, loamy/loamy, shallow.</p> <p><u>Related soils on adjacent land units</u></p>



		Slope (2%): Sodic Hypercalcic Red Chromosol; medium, non-gravelly, loamy/clayey, moderate.
UUF UUI	1.3 1.2	<p>Dunefields: greater than 30% longitudinal sand dunes overlying a level to gently undulating plain (slopes 0-1%). Swale soils are mainly shallow on calcrete.</p> <p>UUF – dunefield with approximately 65% longitudinal sand dunes. UUI – dunefield with approximately 50% longitudinal sand dunes.</p> <p>Dune soils: <i>Calcareous siliceous sand H2a</i> - moderate depth to deep calcareous siliceous sands, often overlying calcrete: found on most dunes [Petrocalcic-Arenaceous Hypercalcic Calcarosol; sandy/sandy]. <i>Siliceous sand H2b</i> - medium to very thick non calcareous to slightly calcareous sand, on calcrete or over sand with abundant fine carbonate: found on some dunes [Petrocalcic-Arenic Orthic Tenosol; sandy/sandy].</p> <p>Swale soils: Shallow to moderate depth calcareous loam on calcrete B2-A4 - shallow to moderate depth calcareous loamy to sandy topsoil over loamy subsoil on calcrete. There may be a few non calcareous soils on calcrete: (V in swales) [Petrocalcic (-Lithocalcic) Calcarosol; sandy-loamy/loamy with a few Petrocalcic Orthic Tenosol]. <i>Calcareous loam on clay A5</i> with <i>gradational calcareous clay loam A6</i> (and a few sandy texture contrast variants G4) - medium to thick calcareous loamy to sandy topsoil over clay loamy (or even clayey) subsoil with abundant fine carbonate, possibly some hard carbonate rubble: (C in swales) [Argillaceous-Lutaceous Hypercalcic Calcarosol; loamy-sandy/clay loamy-clayey with a few Effervescent Hypercalcic Red Chromosol; sandy/clay loamy].</p> <p>Summary: the dunes are generally arable if managed with care, but usually have semi-arable dune ridge strips. Swale soils are mostly shallow to moderate depth calcareous loams or sands over loam on calcrete. Surface rubble of common abundance is widespread on swales, with a few patches of thicker rubble. There are about 20-30% flats and depressions with calcareous loamy to sandy soils over clay loamy or sometimes clayey material. Swale soils are saline and have high boron levels in the lower subsoil. The land is arable except for many semi-arable dune ridge strips: cropping and grazing are the main land uses. The main limitations of the dunes are their potential for wind erosion and low fertility. Swale soils generally have poor water holding capacity. Slight limitations include: subsoil toxicities (swales), alkalinity, wind erosion potential (swales), water repellence (dunes). Moderate limitations include: water holding capacity, fertility, wind erosion potential (dunes), and surface fragments (swales).</p> <p><u>Soil descriptions- UUF</u> Duneslope: Haplic Arenaceous Hypercalcic Calcarosol; medium, non-gravelly, sandy/sandy, moderate. Duneslope: Petrocalcic Orthic Tenosol; medium, non-gravelly, sandy/sandy, shallow.</p> <p><u>Related soils on adjacent land units</u> Flat: Hypervescent Argillaceous Hypercalcic Calcarosol; medium, slightly gravelly, loamy/clay loamy, moderate. Upper slope (2%): Haplic Petrocalcic Lithocalcic Calcarosol; medium, moderately gravelly, loamy/loamy, shallow. Lower slope (1%): Haplic Petrocalcic Supracalcic Calcarosol; medium, slightly gravelly, loamy/loamy, moderate.</p> <p><u>Soil descriptions - UUI</u> Duneslope: Haplic Petrocalcic Hypercalcic Calcarosol; medium, non-gravelly, sandy/sandy, moderate. Duneslope: Red Sandy/K Lower slope (1%): Effervescent Hypercalcic red Chromosol; thick, non-gravelly, sandy/clayey, moderate. Flat: Haplic Hypocalcic Hypercalcic Calcarosol; thick, non-gravelly, sandy/loamy, moderate. Flat: Haplic Petrocalcic Hypercalcic Calcarosol; medium, slightly gravelly, sandy/loamy, moderate.</p>

PROPORTION codes assigned to soils within Soil Landscape Units (SLU):

- (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:**Main Soils:**

- A5** *(Rubbly) calcareous loam on clay and A4 deep (rubbly) calcareous loam* [Lutaceous-Argillaceous Lithocalcic-Hypercalcic Calcarosol].
Medium to thick greyish brown calcareous loamy topsoil (sometimes sandy) over clay loamy or loamy subsoil with abundant fine carbonate, and often with abundant hard carbonate rubble. This can be underlain by reddish clay, clay loamy to loamy sediments, or occasionally calcrete. Found on gently undulating land and on very low rises. These are easily the most common soils found in this system.
- B2** *Shallow calcareous loam on calcrete* [Petrocalcic Calcarosol].
Shallow to very shallow greyish brown to brown calcareous loamy topsoil (sometimes sandy) over loamy or clay loamy subsoil on calcrete. Found on gently undulating land and on very low rises.
- H2a** *Salcareous siliceous sand* [Arenaceous Hypercalcic-Lithocalcic Calcarosol].
Deep light brown calcareous siliceous sand, often with hard carbonate rubble in the subsoil. Found on most dunes.
- A6** *Gradational calcareous clay loam* [Argillaceous Hypercalcic Calcarosol].
Medium to thick calcareous reddish brown to brown loamy to clay loamy topsoil grading to reddish clay with abundant fine carbonate. Found in depressions and flats. Closely related to the texture contrast **D3-D2** soils.

Minor Soils:

- B3** *Shallow sandy loam on calcrete* [Petrocalcic Tenosol, Petrocalcic Hypocalcic Calcarosol, or Petrocalcic Red Chromosol].
Shallow to very shallow brown to reddish brown non calcareous to slightly calcareous sandy or loamy topsoil over reddish loamy or clay loamy subsoil on calcrete. Often found in rubbly depressions.
- D3-D2** *Loam over poorly structured red clay* [Effervescent-Sodic Red Chromosol-Sodosol].
Medium to thick, often calcareous, reddish brown to brown loamy to clay loamy topsoil overlying reddish clay with abundant fine carbonate. Found in some depressions and flats. Closely related to the gradational **A6** soils.
- H2b** *Siliceous sand* [Calcareous Arenic Tenosol].
Medium thickness to very thick brown to reddish brown non calcareous to slightly calcareous sand over sand with abundant fine carbonate and sometimes hard carbonate rubble. Found on some dunes.

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

