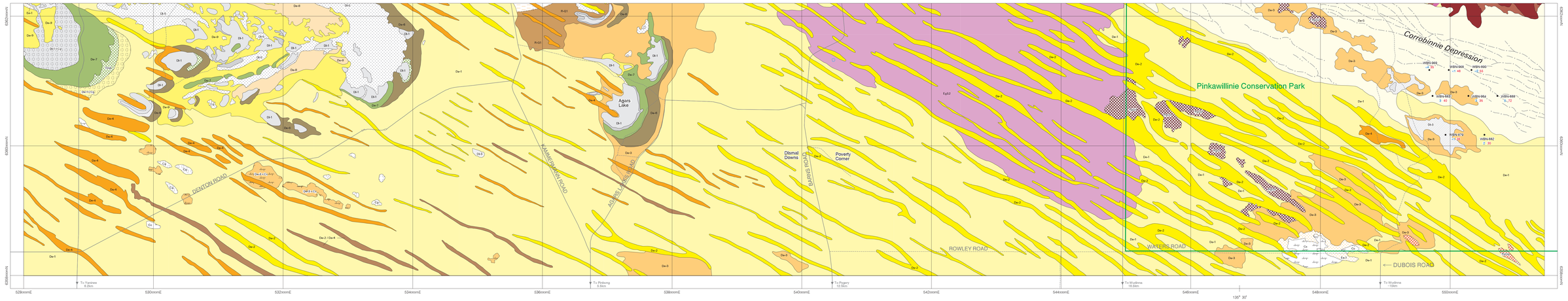
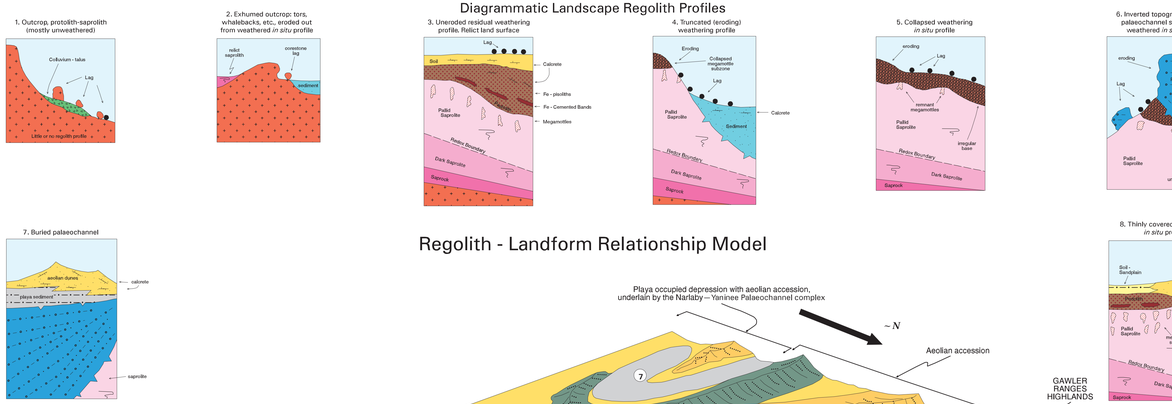
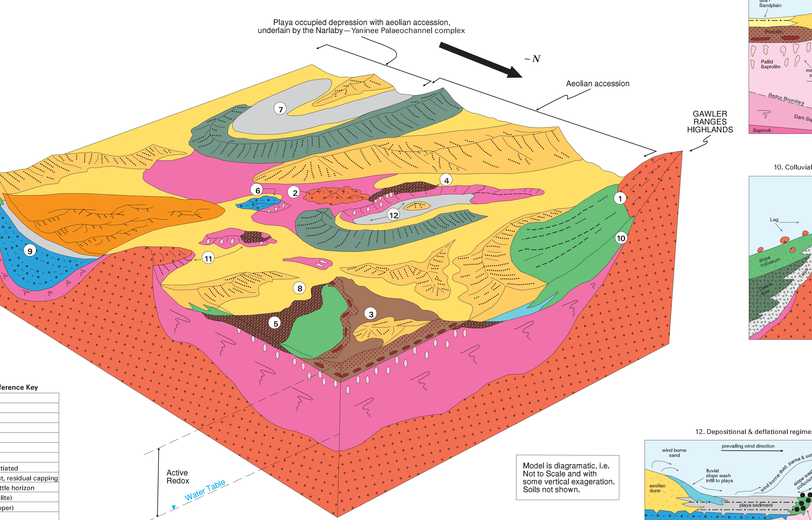
Wudinna North Area Regolith Landform Map, Part B



Diagrammatic Landscape Regolith Profiles

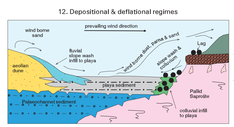


Regolith - Landform Relationship Model

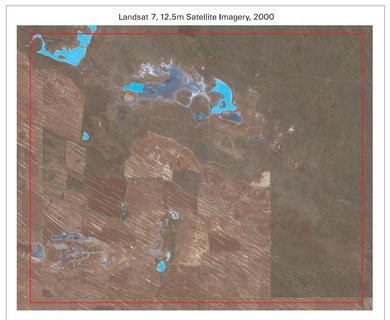


Regolith and Landform Relationship Model, Reference Key

- Transported Regolith
  - Playa-lake sediments
  - Lunettes, undifferentiated
  - Sand dunes, undifferentiated
  - Complex sandplain
  - Sandplain, undifferentiated
  - Colluvium, undifferentiated
  - Sediment, undifferentiated
  - Palaeochannel sediment, undifferentiated
- In situ Regolith
  - Pedolith ± Fe-pisolithic ± Fe-cement, residual capping
  - Pedolith, collapsed Fe-rich megamottle horizon
  - Megamottles (mostly in pallid saprolite)
  - Pallid or highly leached Saprolite (upper)
  - Dark Saprolite (lower)
  - Saprock, undifferentiated
  - Protolith - bedrock, undifferentiated



Model is diagramatic, i.e. Not to Scale and with some vertical exaggeration. Soils not shown.



RELICT Landscape Class

Basement – Protolith ± Saprolith ± Pedolith ± Duricrusts

- **RvP1** — GAWLER RANGE VOLCANICS: **felsic volcanics**, porphyritic rhyolite of Mt Hart. Protolith to Saprolite: fines ± colluvial lithics; highly porphyritic ± dark groundmass, ± surficial fragments; gibbsite-kg of parent lithotype. Pliocene age, Mesoproterozoic, Strathering time frame, Moonacle-Cullinaroo.
- **RvP2** — GAWLER RANGE VOLCANICS: **felsic dykes** (predifferentiated). Protolith to Saprolite: spheroidal to porphyritic & dark groundmass, ± surficial fragments; gibbsite-kg of parent lithotype. Pliocene age, Mesoproterozoic, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RgP1** — MUNDAL SUITE: **granite**. Protolith to Saprolite: weakly to non-foliated, phaneritic, medium to coarse-grained, ± quartz veins. Forms large whaleback inselbergs or for 5 kmsolar outcrop – these are enhanced relief. Mesoproterozoic age, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RgP2** — TUNKALILLA SUITE: **foliated granite (orthogneiss)**. Protolith to Saprolite: highly deformed, phaneritic, coarse-grained, commonly cross cut by foliated quartz veins. Forms small low whaleback inselbergs to few km & boulder strewn slopes. Gibbsite-kg of parent lithotype; ± surficial fragments; gibbsite-kg of parent protolith. Pliocene age, Palaeoproterozoic, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RbS1** — **Weathered mafics**. Saprolite & Protolith: mostly dolerite, ± basalt, relict amphibolite + ultramafics, ± alteration minerals (chlorite ± epidote ± actinolite). Weathering products: smectite ± kaolinite ± gibbsite. Bandingbanding relicts in some areas. Forms low rises & undulating plains, ± inselbergs. Gibbsite-kg of parent lithotype. Variably homogenous near weathered rock, where gibbsite-rich, may have developed lateritic bauxite by gibbsitic leaching. Pliocene age, Palaeoproterozoic, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RgP-** — **Quartz veins** (significant felsic dykes, stockworks). Protolith: siliceous hydrothermal fracture infill, similar to pale-coloured, fine-grained, ± porphyritic granite. Forms low ridges, usually surrounded by quartz rubble-rich apron. Age, overall & post granite emplacement, Quaternary exhumation.
- **RgS1** — **Highly weathered granite**. Saprolite, (c.f. RgP1): medium- to coarse-grained, quartz + feldspar, pallid & white to grey with quartz. Relates relict texture & lineation, upper portions typically red to orange & yellowbrown (c.f. RgS2 below). Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype. Pliocene age, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RgS2** — **Highly weathered folded granite**. Saprolite, (c.f. RgP2): coarse-grained, quartz + feldspar, pallid & mottled white to grey with quartz. Relates relict texture & lineation, upper portions typically red-orange & yellowbrown (c.f. RgS1 above). Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype. Pliocene age, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RgQm** — **Collapsed megamottle horizon**. Highly weathered granite (c.f. RgP2 & RgS2) Protolith: Fe-cemented megamottles collapse merged by clay removal from megamottled saprolite precursor. Forms distinctive Fe-rich lateritic horizon capping many escarpments & mesas. Thickness ≤0.5-2.5 m + irregular base, dark red to dark red-brown to brown with pisolitic to nodular to massive structure. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Pliocene age, Strathering time frame, Moonacle-Cullinaroo, Quaternary exhumation.
- **RgQd** — **Pisolitic Fe-pedolith**, undifferentiated, weathered granite (c.f. RgQm): an Fe-rich pisolitic horizon, ≤0.3-2 m thick, dark red-brown to brown, ± pisolitic, ± nodular, ± massive, ± cemented, ± vesicular, ± mottled, ± clay, ± sand, ± gravel, ± quartz, ± ferruginous fragments, ± gibbsite, ± kaolinite. Forms small low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be calcrited, commonly incorporating Fe-pisolithic. Where transitional to Fe-cemented horizon, may be indurated, ± massive, ± vesicular, ± cemented, ± mottled, ± clay, ± sand, ± gravel, ± quartz, ± ferruginous fragments. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Pliocene age, Strathering time frame, Moonacle-Cullinaroo, Poorly to well-strongly organised, mostly by fine stands of Allonsense sp.

Soils (pedogenic overprint)

- **RgQg** — **Brownish earthy grit** (c.f. RgP1 & RgS1): Fe-stained earthy grit-soils subzone developed mechanically around MUNDAL SUITE granite outcrop-subcrop. Weathered bases to strong orthoclase-rich, quartz + feldspar + muscovite ± biotite ± garnet ± tourmaline ± gibbsite. Forms low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be variably calcrited (ks, horizon), usually bioturbed pisolitic orthoclase rich dark orange brown to sandy soil, dense rooting via relict and deep-root processes. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Quaternary, Where undifferentiated, landform is well organised by cadnow tree, shrub & grass species.
- **RgQh** — **Red-brown sandy clay** (c.f. RgQg): Pedolith: clay-rich soil developed into regolith. MUNDAL SUITE granite. Forms low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be variably calcrited (ks, horizon), usually bioturbed pisolitic orthoclase rich dark orange brown to sandy soil, dense rooting via relict and deep-root processes. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Quaternary, Where undifferentiated, landform is well organised by cadnow tree, shrub & grass species.
- **RgQa** — **Reddish earthy grit** (c.f. RgP2 & RgS2) Protolith: Fe-stained earthy grit-soils developed mechanically around MUNDAL SUITE granite outcrop-subcrop. Weathered bases to strong orthoclase-rich, quartz + feldspar + muscovite ± biotite ± garnet ± tourmaline ± gibbsite. Forms low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be variably calcrited (ks, horizon), usually bioturbed pisolitic orthoclase rich dark orange brown to sandy soil, dense rooting via relict and deep-root processes. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Quaternary, Where undifferentiated, landform is well organised by cadnow tree, shrub & grass species.
- **R-Q1** — **Reddish Loam**. Protolith: deep reddening to orange light sandy clay loam (10-20% clay) to clay loam (20-30% clay) ± gravel ± quartz ± ferruginous fragments. Forms low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be calcrited (ks, horizon). Occurs in western half of mapped area on gently undulating & sloping plains, may be extensively cultivated. Gibbsite-kg, ± surficial fragments. Quaternary, Where undifferentiated, landform can be well organised by cadnow tree, shrub & grass species.

EROSIONAL Landscape Class

Eroding Highly Weathered Basement – Saprolith ± Pedolith ± Duricrusts

- **EgS1** — **Eroding highly weathered granite** (c.f. RgS1): Saprolite: medium- to coarse-grained, quartz + feldspar, pallid & white to grey with quartz. Relates relict texture & lineation, upper portions typically red-orange & yellow brown. Forms rolling low rises, ± scattered on slopes, ± inselbergs. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype. Pliocene age, Mesoproterozoic, Strathering time frame, Moonacle-Cullinaroo, Quaternary erosional exhumation.
- **EgS2** — **Eroding highly weathered folded granite** (c.f. RgS2): Saprolite: coarse-grained, quartz + feldspar, pallid & mottled white to grey with quartz. Relates relict texture & lineation, upper portions typically Fe-impregnated (red-orange & yellow brown). Forms rolling low rises, ± scattered on slopes, ± inselbergs. Gibbsite-kg, ± surficial fragments; fragments may become more gravel, containing ubiquitous Fe-cemented (QDRA-LR, QLRS) orthogneiss. Gondwanan time frame, Late Cainozoic. Vegetation is very sparse in landlocks areas, limited to few shrubs & occasional grasses.
- **EgQm** — **Eroding collapsed megamottle horizon** (c.f. RgQm): Protolith: Fe-cemented megamottles merged by partial clay removal from megamottled saprolite precursor. Forms distinctive Fe-rich lateritic horizon capping many escarpments & mesas. Thickness ≤0.5-2.5 m + irregular base, dark red to dark red-brown to brown & rare yellowbrown, ± massive structure. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Pliocene age, Strathering time frame, Late Cainozoic. Mostly unvegetated on steep slopes, or variably vegetated by trees + shrubs.
- **EgQd** — **Eroding Pisolitic Fe-pedolith** (c.f. RgQd & EgQg): Fe-rich pisolitic horizon ≤0.3-1.0 m thick, dark red-brown to brown, ± calcrited (ks, Pisolith), ± massive, ± cemented, ± vesicular, ± mottled, ± clay, ± sand, ± gravel, ± quartz, ± ferruginous fragments. Forms low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be calcrited, commonly incorporating Fe-pisolithic. Where transitional to Fe-cemented horizon, may be indurated, commonly incorporating Fe-pisolithic. Gibbsite-kg, ± surficial fragments; gibbsite-kg of parent lithotype; ± secondary goethite-kg. Pliocene age, Strathering time frame, Moonacle-Cullinaroo, Poorly to well-strongly organised, mostly by fine stands of Allonsense sp.
- **EgQg** — **Eroding brownish earthy grit** (c.f. RgQg & EgQd): Pedolith: Fe-stained extremely weathered granite derived from highly weathered granite (gneiss), developed mechanically around TUNKALILLA SUITE granite outcrop & subcrop. Weathered bases to strong orthoclase-rich, quartz + feldspar + muscovite ± biotite ± garnet ± tourmaline ± gibbsite. Forms low rises, ± scattered on slopes, ± inselbergs. Where exposed or near surface, top may be variably calcrited, On rolling slopes S of Gawler Ranges National Park Fe form calcrited & forms dark brown to sandy soil, dense rooting via relict and deep-root processes. Gondwanan time frame, Quaternary. Naturally well-organised but poor where severely eroded.

Eroding Depositional Landforms

Eroding Colluvium

- **Ecps** — **Eroding piedmont slope deposit** (c.f. Dcps): S Banks of Mt Hart, dominantly a colluvial-longterm mass wasting-fan deposit on moderately steep to low angle slopes. Change to eroding sandy clay loam with variable, abundant lithic fragments. Forms low rises, ± scattered on slopes. Calcrite may be present in ± soil (ks, horizon). Age, Quaternary. Poorly to unorganised where eroding.
- **Ecdf** — **Eroding debris flow** (c.f. Dcdf): gravity assisted mass wasting colluvium. Reworked material from steep slopes. Clay loam to clay to loam to mostly sandy-textured, ± lithic, clasts are angular to rounded & poorly sorted. Forms low rises, ± scattered on slopes, ± inselbergs. Calcrite may be present in ± soil (ks, horizon). Fragments are angular to rounded & unsorted. Landform is ≤1-≥3 m thick & smooth. Gully erosion exposes cross-section. Age, Pleistocene. Well organised by Mallee Eucalyptus sp., Melaleuca sp., Acacia sp. many shrub species.

Eroding Aeolian Landforms

- **Ee-1** — **Eroding orange sand dune** (c.f. De-1): defunding-reactivated, commonly overlying strongly weathered basement, Surface layer of calcrete rolls, even where sand is well-eroded. Terrain can be gently undulating to hummocky. Forms low rises, ± scattered on slopes, ± inselbergs. Calcrete may be present in ± soil (ks, horizon). Where exposed or near surface, top may be calcrited (ks, horizon). Commonly eroded, areas poorly organised by shrubs & grasses.
- **EegL** — **Eroding gypsum lunettes** (c.f. De-1): usually fine single discrete deposits on the E ≥ 1.5 ≥ 50 (line sides) of clay pans. Forms lunettes, ± scattered on slopes, ± inselbergs. Gypsum may be present in ± soil (ks, horizon). Forms minor landforms, forms linear gypsum lunettes (De-1) & deposits located mostly around the large southern playa system, Eroded time frame, Holocene, Poorly grass-organised.

REFERENCE

DEPOSITIONAL Landscape Class

Lacustrine–Paludal Lanforms

- **Dl-1** — **Playa floors**: lacustrine floors, depositional areas, grey to dark grey, dark brown to red-brown to red, gypsiferous, mud ± clay & silt with other sand, sandy mud, and soft to sandy calcrete; may be organically some have thin white halite crusts (ice have thin rose surface characteristic halophile ± blue-breeding flora). Places in this area are mostly ≤0.5 km long & ≤0.3 km wide, height and mud where hummocks-hummocks-soil makes soft nearby. Eocene-Holocene Age, Quaternary, Unvegetated.
- **Dl-2** — **Playa shores + terraces**: sphenoidal flood-reworked aeolian sand ± fluvial sand to mine gravel ± lake shore strandline gravel ± sand gypsum crystal fragments ± halite ± organic fetisan, unsemented. Can stand higher than playa floors, ≤1 m higher than playa floors, ≤0.5 m higher than playa floors, ≤0.3 m higher than playa floors. Forms low rises, ± scattered on slopes, ± inselbergs. Gypsum may be present in ± soil (ks, horizon). Forms minor landforms, forms linear gypsum lunettes (De-1) & deposits located mostly around the large southern playa system. Eocene-Holocene Age, Quaternary, Unvegetated.
- **Dl-3** — **Marshland**: fringing areas to ephemeral playa lakes or sites where seasonal waterlogging occurs ± where significant deflation is producing incipient salt-crust concentrating impressions. Sedimentation is mostly sandy to silty, dark brown to red-brown to red, gypsiferous, mud ± clay & silt with other sand, sandy mud, and soft to sandy calcrete, halite grit, gibbs, Age, Quaternary, Vegetated by halophytic grasses & halo-halites & halibush & samphire & succulent creepers.
- **Dl-4** — **Beginner**: palaeo-swamp deposit, massive black Fe/Fe-Mn/clay-humic soil, ≤1.0-≥1.5 m thick. Fe/Fe-Mn minerals chemically precipitated, ± clay & silt with other sand, sandy mud and soft to sandy calcrete, halite grit, gibbs, Age, Quaternary, Vegetated by halophytic grasses & halo-halites & halibush & samphire & succulent creepers.
- **Dl-5** — **Palaeo-lagoon** (c.f. Dl-1): paleo to modern grey, gypsiferous clay ± silt ± other sand, sandy calcrete ± sandy mud, halite, gibbs, Age, Quaternary, Vegetated sparsely by grasses & some low shrubs.

Ephemeral Creeks

- **Da-1** — **Ephemeral Creeks**: channel confined alluvium, usually loose but may be variably cemented by pedogenic carbonate (calcrete) and/or gypsum. Silty + sandy + gravelly + pebbly & rare cobbles. Age, Quaternary. Landform can be lined (Eucalyptus sp., Acacia sp. & various shrub species.

Colluvial Landforms

- **Dcps** — **Piedmont slope deposit**: S Banks of Mt Hart, colluvium dominated, long-term mass wasting- on moderately steep slopes. Silty clay to loam to sandy loam, ± lithic, ± gravelly, ± pebbly, ± rare cobbles. Calcrite may be present in ± soil (ks, horizon). Age, Quaternary. Poorly to unorganised where eroding.
- **Dcdf** — **Debris flow**: ± gravity assisted mass wasting colluvium. Reworked alluvial materials from steep slopes. Clay loam to clay to loam to mostly sandy-textured, ± lithic, clasts are angular to rounded & poorly sorted. Forms low rises, ± scattered on slopes, ± inselbergs. Calcrite may be present in ± soil (ks, horizon). Fragments are angular to rounded & unsorted. Landform is ≤1-≥3 m thick & smooth. Gully erosion exposes cross-section. Age, Pleistocene. Well organised by Mallee Eucalyptus sp., Melaleuca sp., Acacia sp. many shrub species.
- **Dctd** — **Talus**: a gravity assisted, mechanically moved deposit of fragmented rock fragments from precipitous slopes around Mt Hart. Silty clay to loam to sandy loam, ± lithic, ± gravelly, ± pebbly, ± rare cobbles. Calcrite may be present in ± soil (ks, horizon). Forms minor landforms, forms linear talus slopes around part of the periphery outcrop. Age, Late Pleistocene-Holocene, Poorly organised by a few shrubs & trees.

Aeolian Landforms

- **De-1** — **Yellowish sand plain**: light yellowish brown to light grayish brown, fine- to medium-grained siliceous sand, loose to weakly bound, bound below ≥1.5 m by earthy pedogenic carbonate. Forms ≤0.5-≥1 m high, Landforms occur as low rises, ± scattered on slopes, ± inselbergs. Calcrete may be present in ± soil (ks, horizon). Forms minor landforms, forms linear dunes or dendritic dune patterns. Landform is stratigraphically equivalent to larger dunes of landform De-2. Geological Age, Late Pleistocene. Typically well organised. Mallee Eucalyptus sp. & Melaleuca sp. trees, abundant spinifex & many shrubs.
- **De-2** — **Yellowish longitudinal dunes**: light yellowish brown to light grayish brown, fine- to medium-grained siliceous sand, loose to weakly bound, bound below ≥1.5 m by earthy pedogenic carbonate. Forms ≤5-≥10 m high, Landforms occur as long, ± straight, ± sinuous, ± parallel, ± anastomosing-linear or dendritic to linear dune patterns. Landform may be stratigraphically equivalent to larger dunes of landform De-3. Calcrete may be present in ± soil (ks, horizon). Geological Age, Late Pleistocene. Typically well organised. Mallee Eucalyptus sp. & Melaleuca sp. trees, abundant spinifex & many shrubs.
- **De-3** — **Orange sand plain**: dark orange-yellow to medium orange-yellow to orange-brown, fine- to medium-grained siliceous sand, loose to moderately bound by pedogenic carbonate. Forms ≤0.5-≥1 m high, Landforms occur as low rises, ± scattered on slopes, ± inselbergs. Calcrete may be present in ± soil (ks, horizon). Forms minor landforms, forms low rolling undulating surfaces. Landform is related stratigraphically to larger dunes of landform De-4. It can be mobilized by the dunes of landform De-2. Geological Age, late sand (related ≥40ka MIS3/MIS4 dune-building phase). Typically well organised. Mallee Eucalyptus sp. & Melaleuca sp. trees, abundant spinifex & many shrubs. Landform is been cultivated S of Gawler Ranges National Park.
- **De-4** — **Orange longitudinal dunes**: dark orange-yellow to medium orange-yellow to orange-brown, fine- to medium-grained siliceous sand, loose to moderately bound by pedogenic carbonate. Indurated carbonate rhizomorphs at depth. Forms ≤5-≥10 m high, Landforms occur as long, ± straight, ± sinuous, ± parallel, ± anastomosing-linear or dendritic to linear dune patterns. Landform may be stratigraphically equivalent to smaller landforms De-5 & De-6 but forms distinctive terrains in Pinkawillinie Conservation Park (Corrobinnie Depression) and Gawler Ranges National Park. Calcrete may be present in ± soil (ks, horizon). Geological Age, Late Pleistocene. Typically well organised. Mallee Eucalyptus sp. & Melaleuca sp. trees, abundant spinifex & many shrubs.
- **De-2 / De-4** — **Complex longitudinal dunes**: landform De-2 overriding landform De-4. Several occurrences recognised, widespread in inaccessible rolling profiles & restricted exposures. Major sand colour contrast De-2 (Munsell Color 10YR 6/3 to 10YR 7/3) & De-4 (Munsell Color 10YR 5/6 to 2.5YR 5/8). Calcrete may be present in ± soil (ks, horizon). Forms minor dunes & De-4 (≥5m) or De-2 (≤5m).
- **De-5** — **Complex sand plain**: light grayish brown to light yellowish brown, fine- to medium-grained siliceous sand, loose, freewashing at surface but may be weakly bound by earthy pedogenic carbonate. Thickness ≤0.5-≥2.0 m, ≤1.5 m average. Forms ≤0.5-≥1 m high, Landforms occur as low rises, ± scattered on slopes, ± inselbergs. Forms ± anastomosing-linear or dendritic to linear dune patterns. Landform may be stratigraphically equivalent to smaller landforms De-6 & De-2 but forms distinctive terrains in Pinkawillinie Conservation Park (Corrobinnie Depression) and Gawler Ranges National Park. Calcrete may be present in ± soil (ks, horizon). Typically well organised. Mallee Eucalyptus sp. & Melaleuca sp. trees, abundant spinifex & many shrubs.
- **De-6** — **Lunettes**: usually low crescent-shaped dunes, ± silty parna deposits on the angle dunes on E ≥ 50 ≥ 50 (line sides) of clay pans & playas. Pale colours, commonly associated with low strandline-gypsum (lake) ± may have ± gypsum crystals ± halite ± organic fetisan, unsemented. Forms ≤0.5-≥1 m high, Landforms occur as ± generations of overlapping lunettes. Age, Quaternary. Vegetated sparsely by grasses & some low shrubs.
- **De-7** — **Gypsum lunettes**: usually low single crescent-shaped landforms on the E ≥ 50 ≥ 50 (line sides) of playas. Willie to pale grey, component of small gypsum crystal fragments, may be partly cliffed towards lunet. May be ≤1 m thick & ≤1 km long, Forms low rises, ± scattered on slopes, ± inselbergs. Some playas exhibit 2-3 generations of overlapping lunettes. Age, Quaternary. Sparsely grass vegetated.
- **De-8** — **Playa side dunes**: yellowish to pale yellowish to pale brownish, siliceous sand, loose free running, rarely cohesive, any calcrete but may contain appreciable earthy to well cemented gypsum. Irregular to rectilinear asymmetrical dunes, ≤0.5-≥1 m high, Landforms occur as low rises, ± scattered on slopes, ± inselbergs. Forms ± parallel to playa margin. Calcrete may be present in ± soil (ks, horizon). Forms minor landforms, forms linear dunes. Age, Quaternary. Sparsely to densely vegetated by shrubs of many species and sometimes by trees of Mallee Eucalyptus sp. and Melaleuca sp.
- **De-9** — **Playa periphery sand plains**: yellowish to pale yellowish to pale brownish, siliceous sand, free running to weakly bound by gypsum, rarely cohesive any calcrete. Near flat to slightly undulating acres of sand associated with playa side dunes, ≤0.5-≥1 m high, Landforms occur as low rises, ± scattered on slopes, ± inselbergs. Forms ± parallel to some adjacent water action strandline-near shore areas. Thickness ≤1-≥3 m. Age, Quaternary. Sparsely to well-vegetated by phreatophytic ± halophytic shrubs & forbs of several genera, stands of paperbark Melaleuca sp. may adorn the landform's near lake fringe.
- **De-10** — **Irregular dunes**: light yellowish brown to pale orange, fine- to medium-grained siliceous sand, loose free-running at surface but at depth may be weakly bound by pedogenic carbonate. Thickness ≤1-≥3 m, Landform forms irregular dunes. Gawler Ranges High ground & extending out from S forms irregular dunes(De-10) to rectilinear dune patterns (De-8) & ultimately to linear dune patterns (De-9). Calcrete may be present in ± soil (ks, horizon). Gawler Ranges National Park. Age, Late Pleistocene-Holocene. Typically well organised. Mallee Eucalyptus sp. & Melaleuca sp. trees, abundant spinifex & many shrubs.

INDURATION MODIFIER (duricrusts & pedogenic cements)

- **Cc** — **Pedogenic carbonate**: calcretic laminated sheets to massive horizons to nodular aggregates, surficially exposed results in accelerated forms around some playas & minor alluvial channels, also exposed in road cuts, barrow pits, quarries, etc. Forms ≤0.5-≥1.5 m thick, Landforms occur as low rises, ± scattered on slopes, ± inselbergs. Forms ± rolling surfaces, ± horizon, where developed with Pisolith or Hydro Fe+ Fe-oxide fragments or gibbsite are incorporated. Age, Quaternary. Typically non-vegetated where exposed by deflation.
- **Cg** — **Gypsum** (CaSO4.2H2O): pale grey to pale yellowish grey, crystal-bearing to crystal gypsum cement (ice interlocking crystals) ± massive, ± vesicular, ± cemented, ± mottled, ± clay, ± sand, ± gravel, ± quartz, ± ferruginous fragments. Forms ≤0.5-≥1.5 m thick & overlying fragments, calcrete cover ≤0.3-≥0.5 m. Mostly developed within quartz gibbsitic accretionary zone of an old-weathered lateritic lithosome but can also cement alluvium & colluvium. Age, Late Cainozoic-Holocene, Typically non-vegetated.
- **Cs** — **Silcrete**: dominantly a siliceous cementation of local lithologies. Gondwanan to yellowish, very hard & unbroken, ± massive, ± vesicular, ± mottled, ± clay, ± sand, ± gravel, ± quartz, ± ferruginous fragments. Forms ≤0.5-≥1.5 m thick & overlying fragments, calcrete cover ≤0.3-≥0.5 m. Mostly developed within quartz gibbsitic accretionary zone of an old-weathered lateritic lithosome but can also cement alluvium & colluvium. Age, Late Cainozoic-Holocene, Typically non-vegetated.

COMPLEX REGOLITH TERRANE

Landscapes can include complex regolith patterns or mosaics, where distinct landforms overlap or intercollgate in detailed ways, each component with its own provenance or regolith zone (e.g. Dl-4 on RgQd or Dcd on RgQm, plus EgQm & Cc & Cs, etc.). It is impossible to show details of these complex patterns at 1:25,000 scale. These complex patterns are represented by a complex symbol, e.g. Dl-4 / RgQd / Dcd / RgQm / EgQm / Cc / Cs. Age, Quaternary. Adapted lithostral and lithostral subtract cultural capacity for these of each individual landform for that polygon (one Symbol Key) but do not reflect abundance nor stratigraphic order or regolith architecture. Indurative complex symbols may still apply to these subject polygons in some cases.

LANDSCAPE UNIT SYMBOL KEY

Relict example

RgQm
- **specifics identifier**: m = collapsed megamottle horizon, ± pisolithic Fe-pedolith, or sesquioxid cement.
- **Regolith Zone**: P = Protolith, S = Saprolith, Q = Pedolith, or Fe-oxide cement.
- **Lithotype**: r = rock, g = granite, s = quartz vein, a = amphibolite, d = dolerite.
- **Landscape Class**: R = Relict.

Erosional example

EgQm
- **specifics identifier**: m = collapsed megamottle horizon, Sodkaolin: dl = dolerite flow.
- **Regolith Zone**: P = Protolith, S = Saprolith, Q = Pedolith, or Fe-oxide cement.
- **Lithotype**: r = lithic rock-outcrop, g = granite, m = mafic rock-outcrop, c = calcrete, a = alluvium.
- **Landscape Class**: E = Erosional.

Depositional example

Dcdf
- **specifics identifier**: dcdf: S, unpaired number, or name abbreviation, dl = debris flow.
- **Regolith Zone**: pa = piedmont slope deposit, ka = talus.
- **Lithotype**: s = alluvium, c = colluvium, e = aeolian, E = lacustrine/paludal.
- **Landscape Class**: D = Depositional.

- ● 45 — Known depth to unweathered basement (protolith) in metres.
- ● 12 — Known thickness of combined transported cover in metres.
- A — B — Section Line.

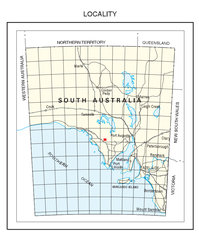
Boundaries

- Mapped/interpreted regolith boundary.
- Inferred regolith boundary.
- National and Conservation Park limits.

Topographic Features

- Dune crests, linear, forked and anastomosing (lunettes).
- Unsealed roadway, 2 lines.
- Track, 1 line.
- Quarry or borrow pit.
- Watercourse.
- Tank, Dam.

LOCALITY



SCALE 1: 20 000

METRES -400 0 400 800 1200 1600 2000 METRES

Mapping and compilation by M.J. Sheard, B. App. Sc., Geological Survey, Minerals & Energy Resources, PIRSA & CRC LEME Program 1.

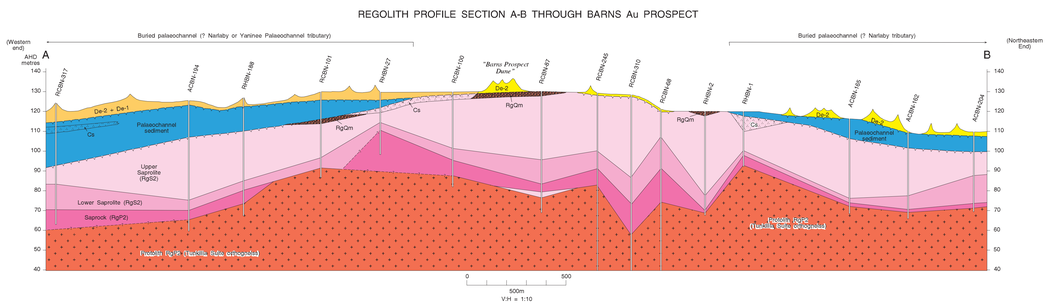
Map derived from digital colour airphotos at 1:42,670 (surveys 5863 & 5864, 19/09/2000) enlarged to 1:15,000 hard copies for in-field use. Photos and map area form part of the YARDEA 1:250,000 topographic map, spanning portions of Yaninee (5932-2) & Wudinna (6032-3) 1:50,000 topographic maps.

Interpreted & mapped landforms adapted from the CSIRO 'RED Classification' Regolith terminology follows Eggleton, R.A., 2001. *The Regolith Glossary*. CRC LEME, Australia.

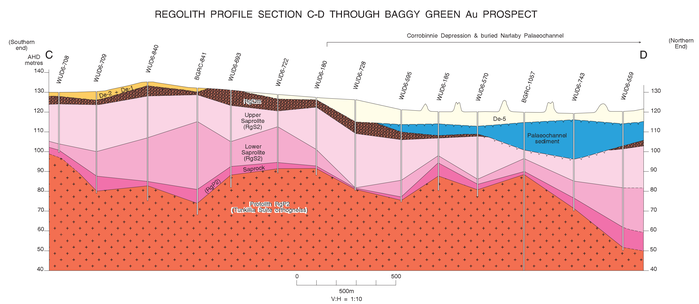
Product of PIRSA Spatial Information Services.

June 22, 2007

REGOLITH PROFILE SECTION A-B THROUGH BARNS Au PROSPECT



REGOLITH PROFILE SECTION C-D THROUGH BAGGY GREEN Au PROSPECT



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Primary Industries and Resources SA

GDA
GOVERNMENT OF SOUTH AUSTRALIA

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J:\PIRSA\Wudinna north part b.eps