

Lag-gravels: dominantly sandy quartzofeldspathic, or quartzofeldspathic

granules or mixtures

Residual rises

Low hills

Escarpment

Hills

Transported regolith Alluvial sediments Sediments consisting of levee deposits, some broad channel alluvial deposits up to 15m thick. Hardpan extensive within 2m of the surface; some fine granule quartzo-feldspathic lag; some granite saprolite as substrate. Sediments consisting mainly of sheet flow deposits with minor bedload stringers. Pale clays often saprolitic substrate at 2 - 4m. Rare greenstone outcrop but forms part of bedrock sequences. Dark brown to black granule lag is extensive over a broadly convex to flat, gently inclined plain.

Alluvium consisting of sandy clays merging to stony sands and occurring in terraces associated with nearby active shallow tributary channels. Sandy red earths and red earths developed in alluvium which become stony at about 0.5m and give way to hardpan at 1m. Overbank deposits Alluvial clay loams and light clays with some bands and lenses of coarse stream-bed deposits. A few lenses of calcrete with extensive hardpan development at 0.75m. Sediments are primarily derived from greenstone sources and are intermixed with the distal portions of sheet flow fan sequences.

Longitudinal dunes either as single units or small sets developed along the edge of saline lake environments and adjacent to calcareous dune systems at the edge of saline water bodies. The dunes are on broad valley plains along the drainage axes. Small playa lakes and lunettes are common. Aeolian sand derived from colluvial sands originating from granitic substrate; some lateritic gravels and duricrusts exposed or as subcrop on broad crests.

Colluvial sediments

Clay loam textured sheet flow deposit up to 1.5m thick on weathered and fresh bedrock; some coarse sandy and granule bedload lenses; hardpan at about 0.75m. Ferruginous saprolitic lag: lithic fragments, and quartzo-feldspathic Mass movement

Extensive deep colluvial clayey sand; some ferruginous gravels; some lateritic duricrust on crests; extensive saprolite as deep substrate; some aeolian sand; some hardpan within 2m of the surface. Sheet flow deposit Clay loam to light clays overlying greenstone saprock and saprolite. Channel deposits present in broad flat drainage floors within alluvial plain in broad major tributary valleys. Granule to gravel sized lag consisting of ferruginous saprolite and pisoliths.

Alluvial and lacustrine sediments with rarer sheet flow sediments with some aeolian reworking. Calcrete at depth. Sheet flow sediments; rare exposures of pallid granitic saprolite.

Gritty sand to loam textured colluvium; some fine gravel bedload as lenses. Coarse granular quartzo-feldspathic lags. Pockets of granitic saprolite (grus). Some hardpan within 2m of surface. Some fresh rock substrate below colluvium; Sheet flow deposits consisting of gritty clay loams to clays 1-2m thick on weathered granitic bedrock. Granule lags of ferruginous saprolite, quartz and quartzo-feldspathic fragments. Extensive subsurface hardpan at 0.75 to 1m, from 5 to 10m thick formed on a gently inclined plain. Sheet flow sediments dominated by ferruginous granules, clayey sands and clay form a gently inclined plain with a complex of elongate rises and shallow flat-floored elongated hollows over greenstone saprolite to saprock. Hardpan is extensive. Clays in hollows; rises are granular to sandy and pisolitic. Sheet flow sediments. Fine granules and sand on broad low rises; ferruginous fine granules on low crests; lithic fragments and coarse quartz overlies clays in depressions.

Clay loams to light clays between 1 and 2m thick over granitic saprolite and saprock. Gravel and granule-sized lag consisting of saprolite, lithic fragments (mainly greenstone and some granite), pisolites and quartz. Hardpan 10cm below surface and 5 to 10m thick.

Clay loams; lenses of coarse gravel dominated channel sediments. Hardpan less than 5m thick within 1m of the surface; substrate consists of stripped and weathered granitic bedrock. Some quartzo-feldspathic lag. Clayey sand forming sheet flow deposits with a fan shape on a gently inclined flat plain. Duplex structureless brown clayey B horizon soil with neutral to alkaline pH. Fine grained sediments; some lenses of coarse grained channel deposits. Extensive 2-5m thick hardpan; substrate consists of an extensive and deeply weathered stripped granitic profile. Minor contributions from mafic rock sources shown in lags. Hardpan from 0.5 to 1m; acid red earths common. Flat to gently inclined plains sometimes fan shaped. Granules (pisolitic) and sand as sheet flow fan deposits forming rises across the contours with clayey hollows. Extensive hardpan at 1m. The fans are developed on a gently inclined plain with less continuous rises and more 'continuous hollows. A "wanderrie" pattern is common.' Gritty clayey sands and sandy loams as sheet flow fan systems on weathered and fresh granite surfaces; quartz and feldspathic granule lags. Extensive hardpan at 0.75 to 1m & from 5 to 10m thick within sheet flow deposits covering a gently inclined flat plain now extensively incised. Remains of extensive sheet flood fan systems now as cappings on rises and crests overlying granitic (rarer greenstone) saprock and saprolite. Gravel and granule sized lag consisting of ferruginous saprolite lithic fragments and quartz. Hardpan at 0.75cm below surface to 5m; Calcrete lag.

Sheet flow fine grained sediments; some lenses of coarse grained channel deposits. Extensive 2-5m thick hardpan; substrate consists of an extensive and deeply weathered, and stripped granitic profile. Sheet flow sediments consisting of 2-8m of clay loams over pisolitic lateritic residuum grading into mottled greenstone saprolite then to greenstone saprock at depth. The mantle occurs on gently inclined flat plains behind some breakaways. Extensive granular and gravel ferruginous, lithic, pisolithic, and quartz lags. Some lenses of coarse channel deposits. Extensive 2-5m thick hardpan within 1m of surface. Weathered profiles on

Sheet flow deposits 1m to 2m thick consisting of clay loams to clays developed from greenstone bedrock but overlying granitic saprolite and saprock. Hardpan at 50cm to 1m and 5 to 10m thick. Lags of ferruginous saprolite, lithic fragments and minor quartz mantle a flat gently inclined plain.

Extensive cobble and gravel-sized lag deposits derived from greenstone outcrops and banded iron formation. Mid to lower slopes of strike ridges and inter-ridge hilly tracts are mantled by saprolite fragments. Clay loam sheet flow deposits over weathered greenstone at 1 to 3m. Gravel and granule lag consisting of ferruginous saprolite, lithic fragments and quartz. Some hardpan and calcrete. Local pockets of exposed fresh greenstone and saprolite. Red earths with carbonate, and calcareous earths. Clay loam sheet flow sediment with soft, and concretionary carbonate to 30cm. Patches of calcareous earths; gently inclined sometimes slightly concave plain. Non-calcareous red plastic clays over saprock at 0.5 to 5m depth.

granitic bedrock may be variably stripped and form a common substrate.

Colluvial clayey sands; some hardpan within the upper 2m of the regolith, and rarer pockets of calcrete. Deep colluvial clayey sands and aeolian sands; some saprock exposed; some lateritic gravels and duricrust exposed, Extensive lateritic profiles eroded on crests. Deep colluvial sands and gravels on slopes and swales. Saprolite is

Wind-modified sheet flow sediments underlain by highly weathered granitic bedrock; small patches of calcrete Clay loams 1-2m thick forming sheet flow fan deposits with windows to fresh greenstone or greenstone saprock. Some pedogenic lime and calcrete. Ferruginous lag consisting of fine granules to fine gravel on the surface of sheet flow fans. Some areas of granitic bedrock present. Sheet flow deposits up to 1m thick with proto-hardpan, rest on older greenstone saprock and fresh rock pediment. Shallow soils and lithic lags overlie a younger surface consisting of shallow greenstone fresh rock or saprolite. Calcareous earth and salinized areas present adjacent playa lake complexes.

Sediments up to about 2m thick over fresh granite to granite saprolite; surface lag consisting of quartzo-feldspathic Clay loams to light clays over saprock to lesser weathered granite. Some calcrete skins on saprock; hardpan between 2 to 6m below surface, generally over granite. Regolith occurs on pediments flanking greenstone hills. Mainly granular, lithic and fe-stained granite with some greenstone lags. Sediments consisting of gritty sandy colluvium derived from weathered granitic bedrock. Outcrops of pallid saprolite and less weathered granite constitute about 10pc of surface expression. Regolith thickness is variable but less than Colluvial sediments consisting of gritty sandy loam derived from a substrate varying from weathered to fresh granitic bedrock. Small patches of fresh granitic bedrock are exposed but only represent about 5pc of the surface exposure. Regolith thickness varies from 4m to less than 1m. Complex patches of sheet flow sediment and areas of exposed greenstone saprock and fresh greenstone appearing on broad very low flat-topped rises on a slightly inclined plain. Small exposures of lateritic residuum beneath

sediment. Small patches of calcrete. Large patches of hardpan. Local patches of sheet flow fans flanking outcrops of meta-sediments including meta-conglomerates. Sheet flow materials consist of fine sandy clay loam with hardpan developed with 1m. Ferruginous lag and quartz are common and are mainly gravel to granule size. The fans are developed in low hills or hills. Pockets of gritty sandy colluvium derived from weathering granite. Sediments consisting of 1-2m thick sandy to clayey loams with extensive surface gravel and granular quartzo-feldspathic and ferruginous lag; underlain by metasediments (shales) and granite. 5m thick hardpan within >0.5m depth; pockets of calcrete, and gravel lenses.

Sheet flow deposits consisting of light clays and gritty clays. Lags consist of lithic fragments from gravel to granule size. Sheet flow systems form narrow colluvial apron below low hills associated with doleritic bedrock. Hardpan is rare; red earth soils are sometimes shallow and stony. Lacustrine sediments Clays, halite and gypsum; aeolian sands with gypsum; rare unmodified sheet flow sediments; rare patches of

Calcrete up to 10m thick probably overlying alluvium ranging from channel to overbank deposits, occupies broad drainage axes, and has irregular undulating surface slightly elevated above adjacent flanking alluvial deposits. Lacustrine sediments Lacustrine sediments

Saline clays, aeolian sands with halite, gypsum and some calcrete developed over fluvial sediments at about 10m depth. A complex pattern of small playas, clays pans, lunettes and hummocks covered with halophitic shrubs and patches of Acacia scrub. Sheet flow deposit

Extensive playa floors consisting of sediments dominated by clays, gypsum and halite;

Discontinuous sheet flow sediment (> 1m) over pale saprolitic clays derived from grantic rocks with local patches of greenstone. Local silcrete. Quartzo-feldspathic granule lag is extensive. Patches of brown to black gravel and granule ferruginous and lithic lag on undulating or gently inclined plain. Completely weathered bedrock

Large patches of shallow gritty sand; locally derived colluvium; extensive quartzo-feldspathic grits; boulder and cobble Fine granular ferruginous veneer on weathered greenstones. Represents erosional relicts of an earlier extensive weathered landsurface. Crestal regions are slightly eroded exposing deeper parts of the weathered mantle. Lateritic materials (pisolitic and indurated), iron segregations, hardpan, fe-saprolite. Nodular, pisolitic to black massive iron-rich duricrusts up to 1.5m thick formed over ferruginous greenstone saprolite. Occur on inclined crests of mesaform rises and low hills surrounded by erosional tracts and nearby breakaways. Red earthy sands to loams with granule to gravelly lags. Relicts of an earlier weathered landscape on greenstones, now stripped at the crests of rises and forming colluvial lower slopes. Ferruginous nodules, saprolite, gossanous material, rare lateritic duricrust, medium granular sandy loam, colluvial sands. Rare calcrete, hardpan at 50cm, red earths. Iron-rich (dark brown to black) dense lateritic duricrust over mottled zone. Traces of pale saprolitic clay derived from greenstone. Laterite is usually pisolithic and can contain ferruginised wood fragments. Duricrusts are on rises and

Very highly weathered bedrock Rare outcrops of fresh granitic bedrock; common pallid granite saprolite exposures and subcrop; thin discontinuous colluvial gritty sands with quartzo-feldspathic granule lag with rare silcrete fragments and very rarely developed Highly kaolinized granitic bedrock; rare fresh outcrop; local pockets of colluvial gritty sand; lag consists of quartzofeldspathic grits and gravel, and some silcrete cobble. Extensive exposures of greenstone sequences with local patches of ferruginous saprolite usually as flat ridge crests. Calcrete, extensive stony colluvium. Localised exposures of iron segregations (massive ironstone). Lags consisting of ferruginous and lithic fragments. Deep weathered bedrock: saprolite and mottled zones, pallid zones; Complete laterite profiles common on crests and upper slopes; saprolite most extensive; lower to mid-slope colluvial sands. Some colluvial pisolitic gravels.

rarer low hills generally on an undulating gently inclined plain.

Outcrops of greenstone bedrock and fresh unweathered rock with pockets of red clay. Saprolite contains iron segregations. Extensive lag deposits consisting of iron segregations and fresh and iron indurated greenstone saprock ranging from pebble to boulder sizes. Rare pockets of laterite. Ferruginous greenstone saprolite with pockets of Fe-rich duricrust and pisolitic laterite merging at depth with mottled saprolite and saprock. Fresh rock from 10 to 30m. Well developed breakaways in greenstone with capping of ferruginous materials; short ravines; some minor crests. Moderately weathered bedrock Moderately weathered greenstone bedrock with patches of calcrete. Some colluvium and scree deposits on hills to low hills and moderately eroding slopes. A general mantle of cobble-sized lag is present. Little or no deeply weathered remnants remain in these hilly belts.

Saprolite with patches of calcrete, some colluvial slopes. An extensive mantle of cobble-sized lag is present on rises to low hills and active gentle erosional slopes but not in narrow alluvial tracts and active channels in valley floors. Moderately weathered gabbro forming saprolite pockets over low hills to hills. Coarse gravel and cobble gabbro lag with occasional calcrete cappings, and patches of calcareous red clay. Narrow alluvial tracts within floors of shallow Patches of lateritic residuum. Some duricrust, iron segregations, mottled zone and calcrete. Clayey sands and clay loams, ferruginous granules, and gravels often formed as colluvium. Extensive saprock and saprolite at depth. Rare outcrops of fresh rock. Lags variable and extensive. Pockets of moderately weathered greenstone bedrock forming saprolite, and banded iron formation forming hills and prominent strike ridges with elongate outcrops. Patches of calcrete. Very minor alluvial tracts with active channels. Extensive cobble sized country rock lag. Slightly weathered bedrock

Saprock extensively developed over greenstone subcrop. Patchy calcrete exposures. Extensive granule sized lag; some narrow alluvial tracts with minor drainage channels in broad drainage floors within a complex array of very low rises and shallow swales. Generally, part of a gently undulating plain. Saprock extensively developed over greenstone subcrop. Discontinuous colluvial mantles; some local alluvium. Greenstone saprolite common. Some grantic bedrock. Dark brown to black gravel and granule lag common but some patches of quartzo-feldspathic granule lag on a gently undulating plain.

THEMATIC MAPPER SIGNATURE

---- Vehicle track ----- Minor administrative boundary

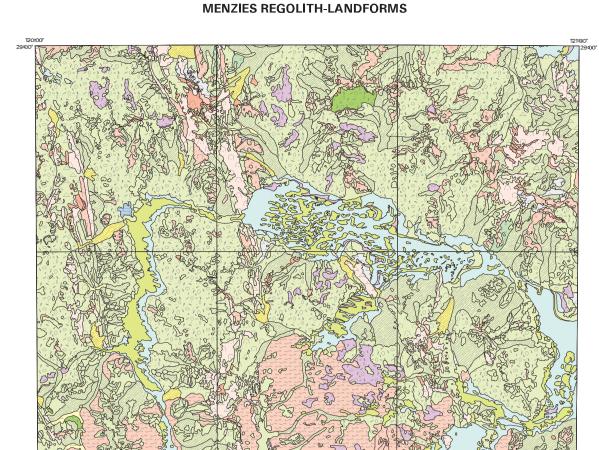
Clay dominated surface response Iron oxide dominated surface response legetation dominated surface response Surfaces with iron oxides and clays dominated Vegetated regions on iron oxide dominated surfaces

MINERAL OCCURRENCE

🔷 Gold

(Data provided by Bureau of Resource Sciences from the MINLOC database)

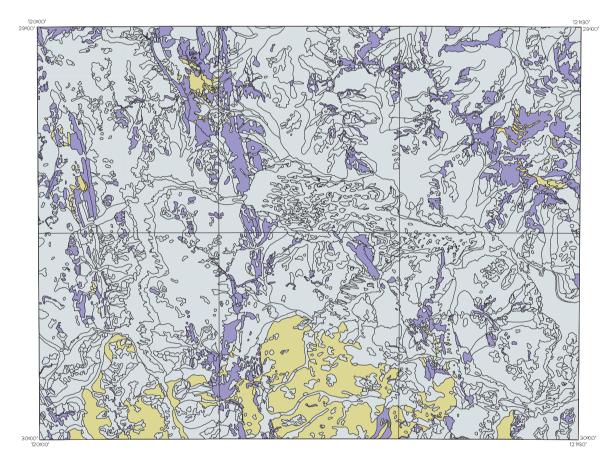
Vegetated regions on dominantly clay covered surfaces



THEMATIC BAND 5 IMAGE OF MENZIES WITH REGOLITH POLYGONS



INTERPRETED LANDSCAPE CLASSES



Depositional

NOTE: The CSIRO "RED" classification is provided for comparative purposes for those more familiar with that scheme

118°3 28°00 ′	1,	EX TO ADJOINING SHEETS 100 000 sheets shown in blue	123'00 '
	YOUANMI SH50-4	LEONORA LAVE SH51-1 SH5	
	BARLEE SH50-8	MOUNT	
31,00 ,	JACKSON SH50-12	KALGOORLIE KURN SH51-9 SH5	
118'30 '			123'00 '



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MENZIES



REGOLITH-LANDFORMS IMAGE MAP SHEET SH51-5

prolonged exposure to light

EDITION 1 January 1998 WARNING: Colours will fade with

