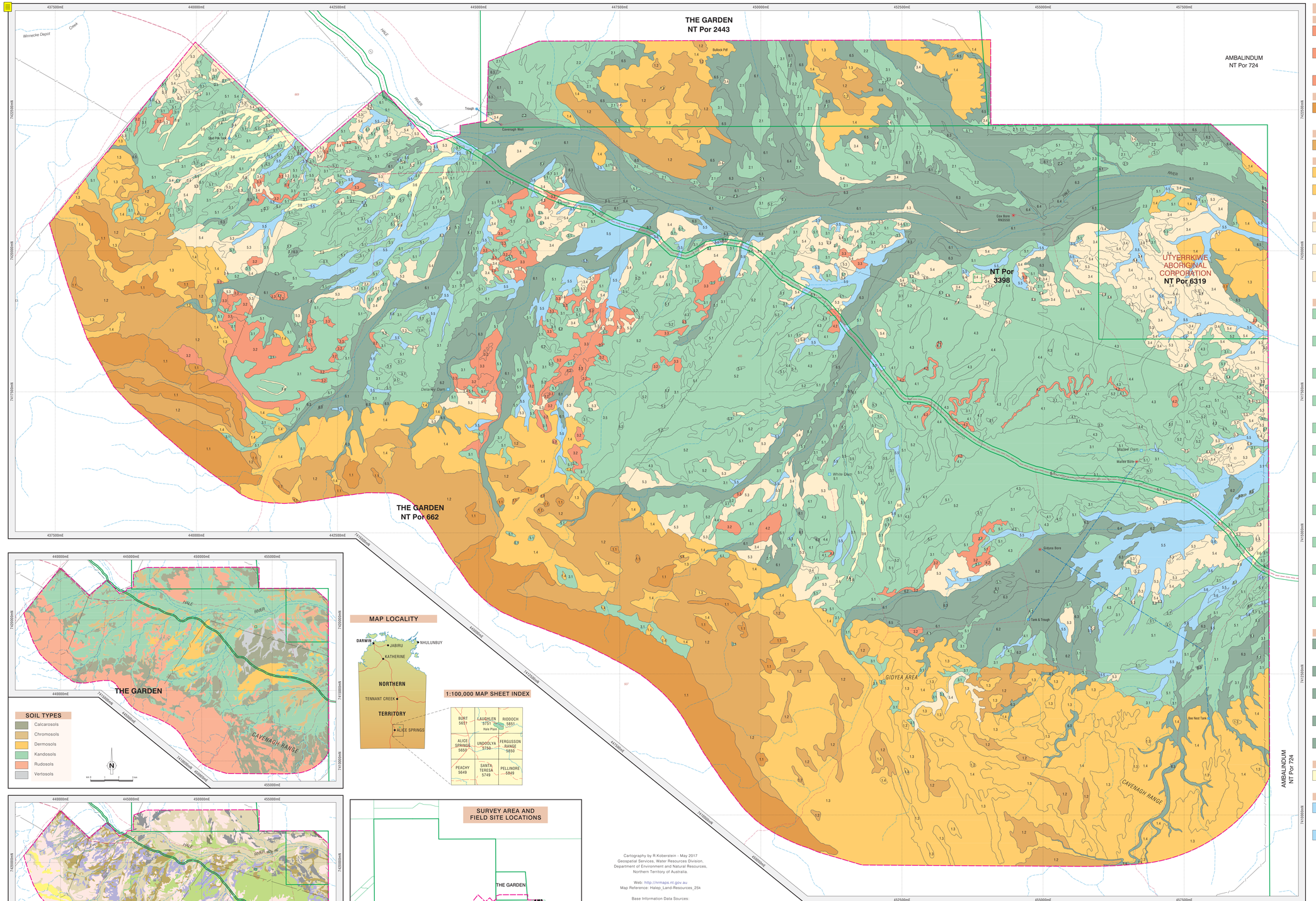

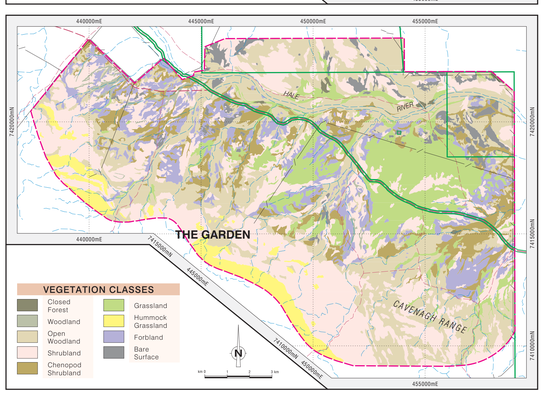

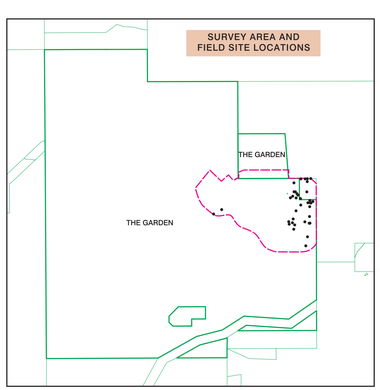

Cartography by R.Koberstein - May 2017
Geospatial Services, Water Resources Division,
Department of Environment and Natural Resources,
Northern Territory of Australia.

Web: http://nrmaps.nt.gov.au
Map Reference: Halep_Land-Resources_25k

Base Information Data Sources:
Northern Territory, Department of Infrastructure, Planning and Logistics
Geoscience Australia, Australian Government

GENERAL FEATURES

- Land unit boundary
- Property boundary
- Extent of Mapping
- Minor road - unsealed
- Local road / track
- Landing ground
- Mailes Bore — Bore
- Cavenagh Well — Well
- Mailes Dam — Dam
- Bee Nest Tank — Water tank
- Trough — Trough
- Water pipeline
- Bullock Pck — Fence / paddock name
- Yard — Yard
- Watercourse, mainly dry
- CAVENAGH RANGE — Mountain Range
- 627 — Spot Height

N

metres 0 500 1000 1500 2000 2500 metres

Black numbered lines are 2 500 metre intervals of the Map Grid of Australia (MGA) Zone 53
Transverse Mercator Projection Horizontal Datum: GDA 94

NORTHERN TERRITORY GOVERNMENT

This map was produced on the Geocentric Datum of Australia 1994 (GDA 94)

For further information contact:
Department of Environment and Natural Resources
Director, Land Assessment, Rangelands Division,
Ph. (08) 8999 4443 Email: rangelands@nt.gov.au Web: http://denr.nt.gov.au
Level 3, Goyder Centre, 25 Chung Wah Terrace, Palmerston, Northern Territory of Australia.

Land resource information has been derived from aerial imagery interpretation and field data describing landform, soil and vegetation. Mapping has been collected according to the national standards and prepared at a scale of 1:100 000. Enlarging this map beyond this scale will not provide further detail.

A site inspection should always accompany mapping for specific areas.

LAND UNIT DESCRIPTIONS

SIDESLOPES

3.2 Scarp faces along the margins of Unit 3.1, particularly in association with mesa topography, characterized by very steep slopes and relief up to about 70m. Shallow, stony lithosols (Rudosols), with some areas of sandstone outcrop. Eucalyptus thozetiana or Eucalyptus socialis open woodland with a Triodia longiceps open hummock grassland understorey.

3.3 Dissected scarp faces with variable slopes and relief up to 30m, draining into narrow channels that feed small alluvial tracts usually about 500m in length. The scarp faces are comprised of bare, white sandstone outcrop, with only small pockets of soils (Rudosols). Atriplex vesicaria sparse chenopod shrubland with Enneapogon polyphyllus, Fimbristylis dichotoma and Chloris scariosa mixed grasses occur on alluvial tracts. Isolated trees of Eucalyptus thozetiana are often present on the scarp faces.

4.2 Scarp faces fringing platform or mesa surfaces with moderate slopes and relief up to 15m. White calcareous marl (Calcarosols), usually with stony surfaces. Enneapogon avenaceus sparse grassland with isolated clumps of Eucalyptus socialis, and scattered Acacia tetragonophylla and Santalum lanceolatum.

MOUNTAINS

1.1 Mountain ridges with bold relief, very steep slopes and conspicuous bedding, drained by narrow, widely-spaced channels. Also includes some areas of lower relief without prominent bedding northwest of Georgina Gap. Mainly absent, with pockets of shallow lithosol (Rudosols) amongst rock outcrop. Triodia basedowii sparse hummock grassland with scattered acacia spp. and Grevillea wickhamii low shrubs. Eucalyptus gamophylla occurs on areas with moderate slopes.

HILLS

1.2 Rocky, steep-sided hills with narrow-crested ridges, drained by widely-spaced deep and narrow valleys. Shallow lithosols (Rudosols), with some areas of rock outcrop. Acacia aneura and Acacia kempeana sparse shrubland with a mainly Enneapogon polyphyllus, Themeda triandra and Eriachne mucronata grass understorey.

LOW HILLS

1.3 Hills with low relief, moderate slopes and rounded crests, drained by a close network of narrow drainage lines. Shallow lithosols (Rudosols) amongst rock outcrop. Acacia aneura and Acacia kempeana open shrubland with mixed annual grasses, including Enneapogon polyphyllus, Enneapogon avenaceus and Aristida contorta.

1.4 Stony hills with low relief and gentle slopes (less than 10%), drained by a widely-spaced network of depressions tributary to the main creek channels. Predominately medium-textured, gravelly, dark reddish brown and usually slightly alkaline and calcareous lithosols (Rudosols). Acacia estrophiolata, Acacia aneura and Acacia kempeana sparse open woodland (to isolated trees) with an understorey of mainly Enneapogon polyphyllus, Enneapogon avenaceus and Aristida contorta grasses.

LOW RISES

3.4 Terrace residuals, including gently sloping terrace surfaces fringed by steep scarps, and low rises with smooth rounded crests. Virtually absent. Surfaces are comprised of ironstone gravel and cobbles (Rudosols). Largely bare and devoid of vegetation with minor areas of sparse annual grasses. Isolated Acacia aneura (often dead), Eucalyptus thozetiana and Eremophila freelingii occur on small sandstone outcrops.

5.3 Breakaway areas and residuals where the terrace surface has been dissected. These landforms feature low relief and gentle slopes (2-5%), and are drained by an open network of broad depressions. Bare stony surfaces with a mantle of white quartzite gravel predominate. Soil profiles consist of a calcareous brown light clay horizon graduating to a calcareous yellowish-brown medium clay or sandy clay at 0.5m (Calcarosols). Maireana astrotricha sparse chenopod shrubland in association with annual grasses, mainly Enneapogon polyphyllus.

5.4 Breakaway areas and residuals where the terrace surface has been dissected, featuring low relief and gentle slopes (2-5%). Shallow, gravelly reddish brown sandy loam horizon containing fine quartzite gravel graduating to a yellowish-red sandy clay loam at about 0.4m (Red Kandosols). Carbonate nodules are occasionally present at this depth. Acacia aneura open woodland over annual grasses, mainly Enneapogon polyphyllus. Dense Acacia aneura with Enteropogon acicularis and Bothriochloa ewartiana is present in drainage depressions.

PLAINS

2.1 Very gently-sloping pediment surfaces, with some small areas of bare rock or ironstone gravel. These plains drain by sheet flow into Unit 2.2. Red earths (Red Kandosols), consisting of gritty, dark reddish brown sandy clay loams at the surface, graduating to slightly calcareous, red light clays at about 0.5m. They are slightly alkaline throughout the profile, with carbonate nodules at depth. Acacia aneura or Hakea eyreana sparse (to isolated) shrubland with a open grassland of Enneapogon polyphyllus, Enneapogon avenaceus and Aristida contorta.

2.2 Broad tributary drainage floors with little surface relief, featuring shallow watercourse channels on their lower reaches. Sandy texture-contrast soils (Chromosols) are present throughout the unit. Most areas have been severely scalded and gullied. Erosion has exposed a red saline light clay or sandy clay, usually alkaline and slighty calcareous at depth. Largely bare and devoid of vegetation in its present eroded and saline condition. Chloris scariosa, Sclerolaena spp., and annual grasses occur on the remaining islands of topsoil, with Aristida biglandulosa colonizing sandy deposits along watercourses.

2.3 Terminal drainage floors (downslope of Unit 2.2) with very low relief and slopes of less than 1%, drained by narrow, well defined creek channels. Saline and moderately alkaline texture-contrast soils (Sodosols), dark reddish brown in colour. The profile consists of a sandy clay loam surface horizon 0.2m thick overlying a pedal silty clay or light clay. Atriplex nummularia shrubland with mainly Enneapogon polyphyllus and Enteropogon acicularis grasses in the understorey.

3.1 Terrace surfaces with low relief and very gentle slopes (1% or less), featuring an open network of narrow tributary drainage depressions. Gravelly red earths (Red Kandosols), with textures graduating from a sandy clay loam at the surface to a light clay at about 0.5m. Profiles are neutral or slightly acid throughout. Acacia aneura open shrubland with occasional Acacia kempeana and Eremophila freelingii over a Aristida biglandulosa, Enneapogon polyphyllus and Digitaria coenicola grass understorey.

3.5 Broad valley floors with gentle slopes and low relief, with a closely-spaced drainage network of deep, narrow watercourses. A pavement of quartzite or sandstone cobbles overlying a white kaolinitic saprolite (Rudosols). Eucalyptus thozetiana sparse open woodland (to isolated trees) with Atriplex vesicaria and Eremophila freelingii low open to sparse shrubland understorey with Enneapogon spp. and Sclerolaena spp. grasses and forbs.

4.1 Level, with very low relief residual terrace surfaces, either as low platforms merging with adjacent landforms, or mesa tops where isolated by geologic erosion. Shallow calcareous earths (Calcarosols) consisting of a dark reddish brown horizon, sandy clay loam in texture and highly alkaline, overlying calcrete. Acacia kempeana open shrubland with an occasional solitary Eucalyptus terminalis or Grevillea striata trees, over Enneapogon avenaceus, Enneapogon cylindricus grasses and sparse herbage.

4.3 Pediplain surfaces (erosional surfaces formed by scarp retreat), partly mantled by Quaternary colluvium, comprising gently sloping plains with low relief. Stony, highly calcareous (Calcarosols) and alkaline brown sandy clay loam at the surface to a medium clay at 0.5m occur between the gilgai depressions, and yellowish red light to medium clay, occupy the gilgai depressions. Enneapogon avenaceus and Enneapogon cylindricus tussock grassland, with Eragrostis setifolia and Astrebla lappacea within the gilgai depressions. Sparse Acacia victoriae or Hakea leucoptera is present on some downslope areas.

4.4 Broad, flat-floored drainage tracts with very gentle fall (approx. 1%). Narrow meandering watercourse channels have developed where the drainage floor is constricted by adjacent landforms. Slightly calcareous or non-calcareous gilgaied cracking clays (Vertosols). Consisting of dark brown light clay at the surface, graduating to reddish brown medium clay at about 0.5m. They are alkaline throughout. Astrebla lappacea tussock grassland with scattered Astrebla pectinata and Dicanthium sericeum. Eragrostis setifolia is present on poorly-drained areas, together with sparse Sclerolaena bicornis, Dissocarpus paradoxa and isolated Acacia victoriae.

5.1 Colluvial terrace surfaces, comprising plains with very gentle slopes (approx.1%) and low relief, drained by widely-spaced, narrow linear channels. Stony, red, non-calcareous (Red Kandosols) sandy clay loam at the surface to a light clay at about 0.6m. Sclerolaena spp. sparse forbland with annual grasses, including Enneapogon polyphyllus, Aristida contorta and Fimbristylis dichotoma. Samphire is present on slightly saline slopes, and scattered Aristida contorta grasses on shallow colluvium overlying sandstone.

5.2 Colluvial fan deposits post-dating Unit 5.1 comprising gently-sloping plains (approx. 1% slope) with very low relief. Gravelly, crabhole gilgai relief, with slightly alkaline dark red, fine sandy clay loam or light clay at the surface to a medium clay at 0.6m between the depressions, and dark reddish grey medium clays and slightly acid within the crabholes (Dermosols). Eragrostis setifolia, Astrebla lappacea, Astrebla pectinata and Dicanthium sericeum tussock grassland within the crabholes, the margins support isolated clumps of Hakea leucoptera and a sparse groundcover of Sclerolaena spp. and Enneapogon polyphyllus.

5.2/3.1 Colluvial fan deposits post-dating Unit 5.1 comprising gently-sloping plains (approx. 1% slope) with very low relief. Gravelly, crabhole gilgai relief, with slightly alkaline dark red, fine sandy clay loam or light clay at the surface to a medium clay at 0.6m between the depressions, and dark reddish grey medium clays and slightly acid within the crabholes (Dermosols). Eragrostis setifolia, Astrebla lappacea, Astrebla pectinata and Dicanthium sericeum tussock grassland within the crabholes, the margins support isolated clumps of Hakea leucoptera and a sparse groundcover of Sclerolaena spp. and Enneapogon polyphyllus. 3.1 component present.

ALLUVIAL PLAINS

6.1 Broad sandy floodplains and floodouts along the Hale River and its major tributaries, up to 800m in width. Levee banks and other surface relief are generally absent. Dark reddish brown alluvial soils (Brown Kandosols), sandy loam in texture to a depth of 0.4m, often graduating to a coarse sandy clay loam beneath this depth. Hakea eyreana sparse open woodland (to isolated trees) and occasionally Acacia estrophilata or Acacia victoriae over mainly Aristida holathera.

6.2 Broad floodout deposits up to 1km in width, fed by shallow watercourse channels. No surface relief. Gravelly dark reddish brown alluvial soils (Brown Kandosols), light sandy clay loam at the surface to a sandy clay loam at 0.5m. Acacia estrophilata sparse open woodland (to isolated trees) and occasionally Hakea eyreana over Aristida browniana and annual grasses.

6.3 Shallow drainage tracts, including flood channels on floodplains, depressions adjacent to floodout areas and tributary valley floors in low hill country. Medium-textured alluvial soils (Brown Kandosols), dark brown sandy clay loam horizon overlying a dark reddish brown light clay at 0.5m. Enteropogon acicularis, Eulalia aurea, Themeda triandra closed tussock grassland with isolated Eucalyptus camaldulensis, Corymbia apparenirija and Acacia estrophiolata trees.

6.4 Terminal lobes of floodouts where flood deposition is presently active. Coarse-textured brown alluvial soils (Brown Kandosols) with bed load sand and gravels. Eucalyptus camaldulensis closed forest of saplings. Groundcover is generally absent, but perennial tussock grasses such as Enteropogon acicularis may be present.

6.5 Alluvial fans up to 500m long, fed by minor watercourse channels arising in adjacent low hilly country. Gravelly brown alluvial soils (Brown Kandosols), usually sandy loam or light sandy clay loam in texture, slightly alkaline and noncalcareous. Acacia estrophilata or Hakea eyreana sparse open woodland (to isolated trees) over mainly Enneapogon polyphyllus and some Aristida holathera grasses.

SAND PLAINS

3.6 Narrow, flat-floored drainage tracts, comprising an open tributary drainage network on Unit 3.1. Watercourse channels are generally absent. Coarse-textured yellowish red alluvial soils (Uc 5.21) (Red Kandosols). Textures grade from sandy loam at the surface to sand clay loam at 0.5m. Acacia aneura woodland, with occassional Acacia estrophiolata, over a mainly Enneapogon polyphyllus and Aristida hygrometrica grass understorey.

DRAINAGE SYSTEMS

5.5 Extensively scalded and gullied, narrow tributary drainage floors of very low relief and slope, 100 - 200m wide on Unit 5.1 together with broad drainage floors 400 - 800m along Georgina and Mulga Creeks, and north-east of Gidyea Bore. Dark reddish brown sandy loam surface horizon up to 0.2m deep overlying a slightly redder sandy clay or light clay (Red Chromosols). Maineana aphylla sparse chenopod shrubland in association with mainly Enneapogon polyphyllus with scattered tussocks of Enteropogon acicularis and Digitaria coenicola and herbage species.

5.6 Narrow, linear depressions less than 100m in width, draining the terrace surface (Unit 5.1) in the eastern part of the study area. Dark red sandy clay loam horizon 0.1m deep overlying a dark red sandy clay (Red Chromosols). Maineana aphylla sparse chenopod shrubland in association with mainly Enneapogon polyphyllus with scattered tussocks of Enteropogon acicularis, Digitaria coenicola, Bothriochloa ewartiana and Dicanthium sericeum.

Example of Land Unit Descriptions

LOW HILLS
1.3 — Landform: Hills with low relief, moderate slopes and rounded crests, drained by a close network of narrow drainage lines. Soil description: Shallow lithosols (Rudosols) amongst rock outcrop. Vegetation description: Acacia aneura and Acacia kempeana open shrubland with mixed annual grasses, including Enneapogon polyphyllus, Enneapogon avenaceus and Aristida contorta. Land unit

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LAND RESOURCES OF HALE PLAIN (THE GARDEN STATION) and UTYERRKIWE ABORIGINAL CORPORATION (NT Portion 6319)