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Landscape scale measurement and monitoring of  
biodiversity in the Australian rangelands

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Thesis presented for the degree of

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Kenneth Clarke

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## Appendix 1: IBRA sub-region descriptions

Courtesy of Alison Wright (wright.alison@saugov.sa.gov.au), Program Leader, Protected Area System, Land Administration Branch, South Australian Department for Environment and Heritage, 2008.

### Arcoona Plateau

- **Land type:** Erosional.
- **Landscape:** Plateau.
- **Landform:** Dissected sandstone plateau with bold eastern escarpment. Surface undulating to hilly and often gibber-covered, particularly in east.
- **Geology:** Sands, clays, silts; pallid zones and ferruginised breakaway scarps. Silcrete and silcrete skins; stony plains and plateau remnants. Colluvial fans, alluvial sands, silts, clays and gravels. Stony tablelands, gibber plains and stone circles..
- **Soil:** Crusty red duplex soils, red calcareous loams.
- **Vegetation:** Chenopod shrublands.
- **Climate:** Semi-arid climate that is too dry to support field crops. Soil moisture tends to be greatest in winter..

### Breakaways

- **Land type:** Erosional.
- **Landscape:** Plateau.
- **Landform:** Silcrete capped low tablelands and plains.
- **Geology:** Nodular, prismatic silcretes; ferricretes, calcretes, commercial quality opal; gilgai; desert armour; hardpans; deep weathering profiles; ferruginized and calcreted scarp exposures with pallid zones and duricrusts; porcellanitic cemented sediments.
- **Soil:** Loamy soils with weak pedologic development, crusty loamy soils with red clayey subsoils, cracking clays, brown calcareous earths.
- **Vegetation:** Chenopod shrublands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### Dieri

- **Land type:** Depositional.
- **Landscape:** Sand plain.

- **Landform:** Aeolian dunefield (NNW trending seif dunes), with numerous claypans.
- **Geology:** Aeolian sand, fine lacustrine and alluvial deposits. Probably overlies duricrusts and weathered rock similar to that found in the Haddon unit.
- **Soil:** Siliceous sands, grey cracking clays.
- **Vegetation:** Hummock grasslands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### Gawler Lakes

- **Land type:** Erosional.
- **Landscape:** Depositional plain.
- **Landform:** Undulating plains overlain with sand sheets and dunes, with occasional silcrete capped rises.
- **Geology:** Alluvium, colluvium (sand, silt, clay and gravels). Silcrete cappings and Ti-rich skins. Dune sand and residual sand mantles. Evaporites (gypsum and halite). Bleached Cretaceous shales. Silicified rhizomorphs and nodular silcrete (Tertiary).
- **Soil:** Brown calcareous earths, crusty loamy soils with red clayey subsoil, sandy brown and red soils, shallow dense loams.
- **Vegetation:** Arid and semi-arid acacia low open woodlands and shrublands with chenopods.
- **Climate:** Semi-arid climate that is too dry to support field crops. Soil moisture tends to be greatest in winter.

### Kingoonya

- **Land type:** Erosional, Depositional or Volcanic.
- **Landscape:** Depositional plain.
- **Landform:** Plains broken by hills and ridges; some dune tracts; saline flats; clay pans; seasonal swamps and lakes. Lakes fringed on the eastern margins by lunettes.
- **Geology:** Sand mantle with minimal soil development, dune sands, outcrops of bare rock; clay silt and sand in alluvial and seasonal swampy lowlands. Gypsum and halite deposits; some kopi dunes. Silcrete and ferricrete development. Deeply weathered basement.
- **Soil:** Brown calcareous earths, siliceous sand, loamy soils with weak pedologic development.
- **Vegetation:** Arid and semi-arid acacia low open woodlands and shrublands with chenopods.
- **Climate:** Semi-arid climate that is too dry to support field crops. Soil moisture tends to be greatest in winter.

## Macumba

- **Land type:** Erosional.
- **Landscape:** Low hills.
- **Landform:** Broad shallow drainage basin of Alberga River and north and south Branch of Neales River. Pediment below dissected tablelands.
- **Geology:** Talus slopes and pediments; some dune sand and sandplain; desert armour; some commercial opal in Oodnadatta region. Alluvial sand, silt and clay; dreikanterers; highly weathered kaolinised basement rocks. Tertiary duricrusts.
- **Soil:** Siliceous sand, red earths, cracking clays.
- **Vegetation:** Chenopod shrublands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

## Murnpeowie

- **Land type:** Erosional/Depositional.
- **Landscape:** Depositional plain.
- **Landform:** A gently undulating gypcrete plain with entrenched drainage and low escarpments.
- **Geology:** Gypcreted tableland, dune sand; alluvial sand silt clay and gravel; kopi dunes and low ridges; halite; claypans.
- **Soil:** Crusty red duplex soils.
- **Vegetation:** Chenopod shrublands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

## Northern Flinders

- **Land type:** Depositional.
- **Landscape:** Hills.
- **Landform:** Ranges and hills with extensive rock outcrop and shallow soils; stony pediments and small basin plains; some remnants of stony downs; narrow valleys, some with gorges. Ranges and hills in form of hogback ridges in quartzite.
- **Geology:** Bare rock; some alluvium and colluvium (sand, silt and clay); less common dune sand and some sand mantles. Calcreted gravels derived from silcreted deposits and probably equate with Ripon Calcrete. Younger Telford gravels (Middle Pleistocene).
- **Soil:** Loamy soils with weak pedologic development, crusty loamy soils with red clayey subsoil.
- **Vegetation:** Arid and semi-arid acacia low open woodlands and shrublands with chenopods.

- **Climate:** Semi-arid climate that is too dry to support field crops. Soil moisture tends to be greatest in winter.

### **Oodnadatta**

- **Land type:** Erosional.
- **Landscape:** Plateau.
- **Landform:** Silcrete capped low tablelands and plains.
- **Geology:** Nodular, prismatic silcretes; ferricretes, calcretes, commercial quality opal; gilgai; desert armour; hardpans; deep weathering profiles; ferruginized and calcreted scarp exposures with pallid zones and duricrusts; porcellanitic cemented sediments.
- **Soil:** Loamy soils with weak pedologic development, crusty loamy soils with red clayey subsoils, cracking clays, brown calcareous earths.
- **Vegetation:** Chenopod shrublands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### **Peake-Dennison Inlier**

- **Land type:** Depositional.
- **Landscape:** Low hills.
- **Landform:** Bevelled low ridges of folded metamorphic rocks.
- **Geology:** Sand mantles over bare rock; alluvial sands, silts and clays; evaporites (gypsum halite, some calcrete development); siliceous and ferruginous duricrusts.
- **Soil:** Loamy soils with weak pedologic development, crusty loamy soils with red clayey subsoils, cracking clays, brown calcareous earths.
- **Vegetation:** Chenopod shrublands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### **Pedirka**

- **Land type:** Depositional.
- **Landscape:** Dunefield.
- **Landform:** Dune fields of large longitudinal sand dunes and interdune plains in the north, and confused sand dune country with small claypans in the south.
- **Geology:** Aeolian sand, minor alluvium, colluvium and lacustrine sediments.
- **Soil:** Siliceous sands.
- **Vegetation:** Mulga (*Acacia aneura*) woodlands and tall shrublands with tussock grass.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### **Simpson Desert**

- **Land type:** Erosional.
- **Landscape:** Dunefield.
- **Landform:** Aeolian sandplain dominated by NNW trending seif dunes; narrow interdune swales and corridor plains.
- **Geology:** Aeolian sand overlying finer sediments of alluvial or lacustrine origin. Sands grade from red to yellow and white from N to S; white sands are more common close to drainage ways.
- **Soil:** Siliceous sands.
- **Vegetation:** Hummock grasslands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### Tieyon, Finke

- **Land type:** Erosional / Depositional.
- **Landscape:** Erosional plain.
- **Landform:** Plains with many short and irregular shaped dunes, flat to gently undulating sand plains with some low broad sand rises and intervening swales.
- **Geology:** Aeolian sand, some laterite and silcrete-capped ridges, shallow stream valleys, calcrete mounds.
- **Soil:** Red earthy sands, red siliceous sands, red earths.
- **Vegetation:** Other tussock grasslands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.

### Warriner

- **Land type:** Erosional.
- **Landscape:** Alluvial plain.
- **Landform:** Plains with tracts of sand dunes; clay pans and seasonal lakes, broad floodplains. Grypcrete remnants.
- **Geology:** Dune sands and sand mantles. Evaporites (gypsum, halite). Kopi dunes and ridges. Parna and clay pans. Clayey loams, some calcareous in interdune corridors. Alluvial sand, silt and clays in swampy lowland regions draining towards Lake Eyre (north).
- **Soil:** Crusty, loamy soils with red clayey subsoils, cracking clays, brown calcareous earths.
- **Vegetation:** Arid and semi-arid hummock grasslands.
- **Climate:** Desert, supporting very little plant growth due to water limitation.