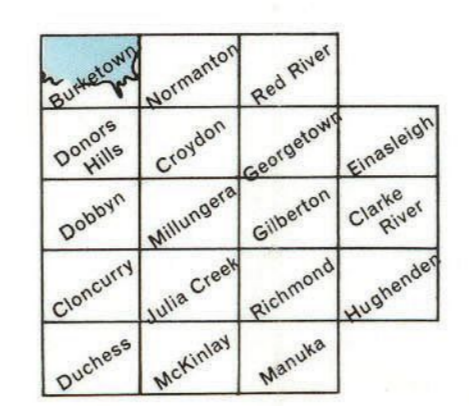


DIVISION OF LAND RESEARCH AND REGIONAL SURVEY
COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANIZATION

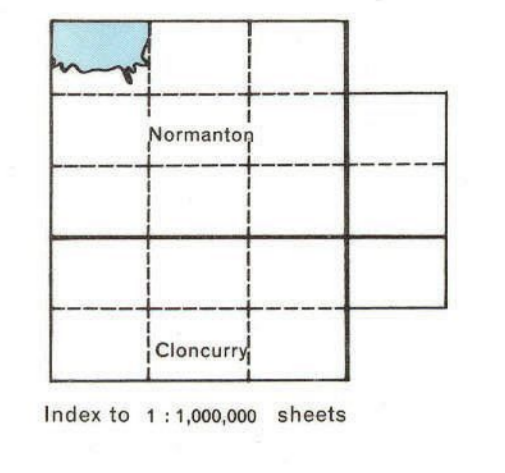
LANDS OF THE LEICHHARDT-GILBERT AREA

QUEENSLAND AUSTRALIA

by R. A. Perry, J. R. Steeman, C. R. Twidale, C. E. Prichard

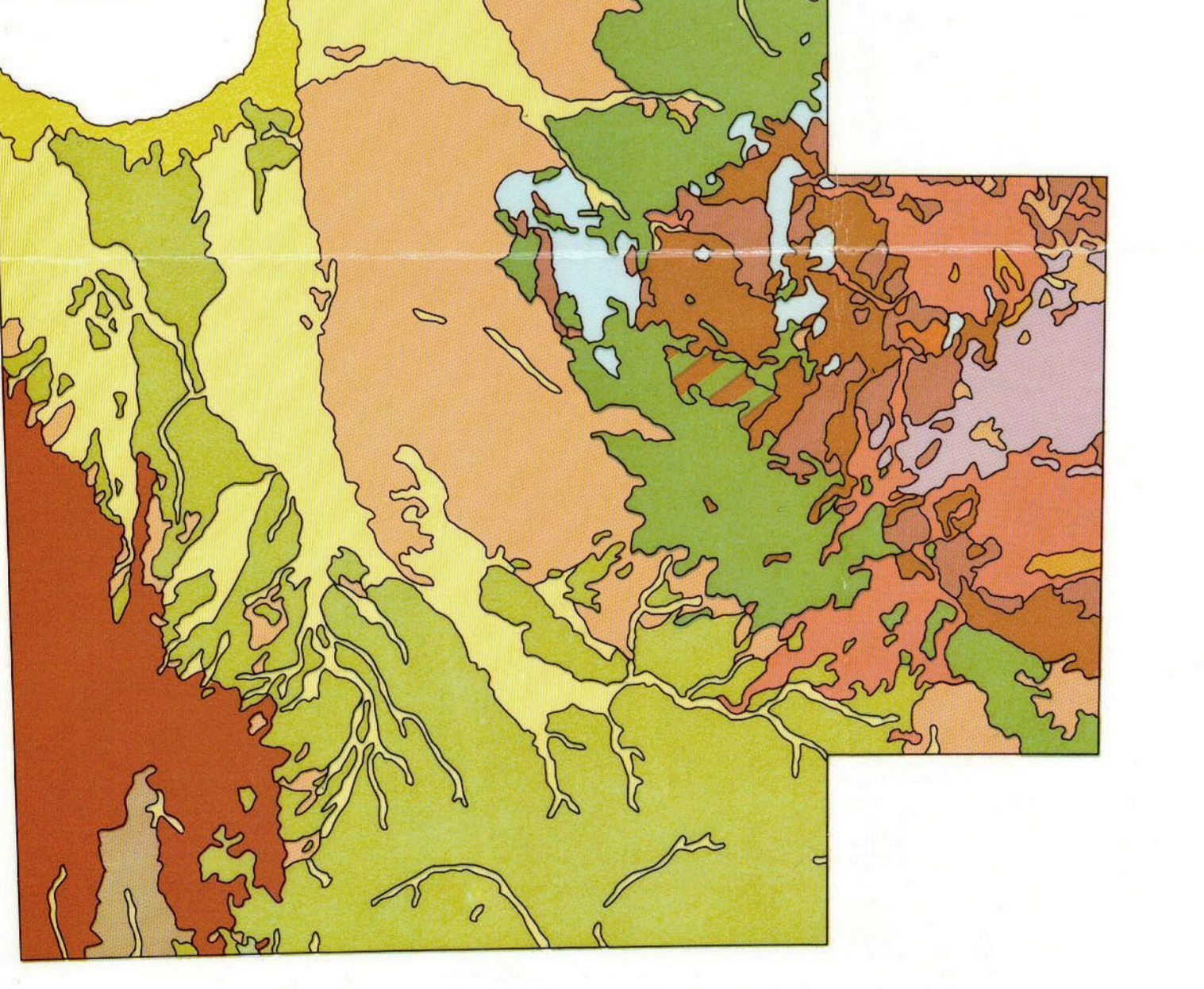


Scale 1:1,000,000 or 15.78 miles to 1 inch



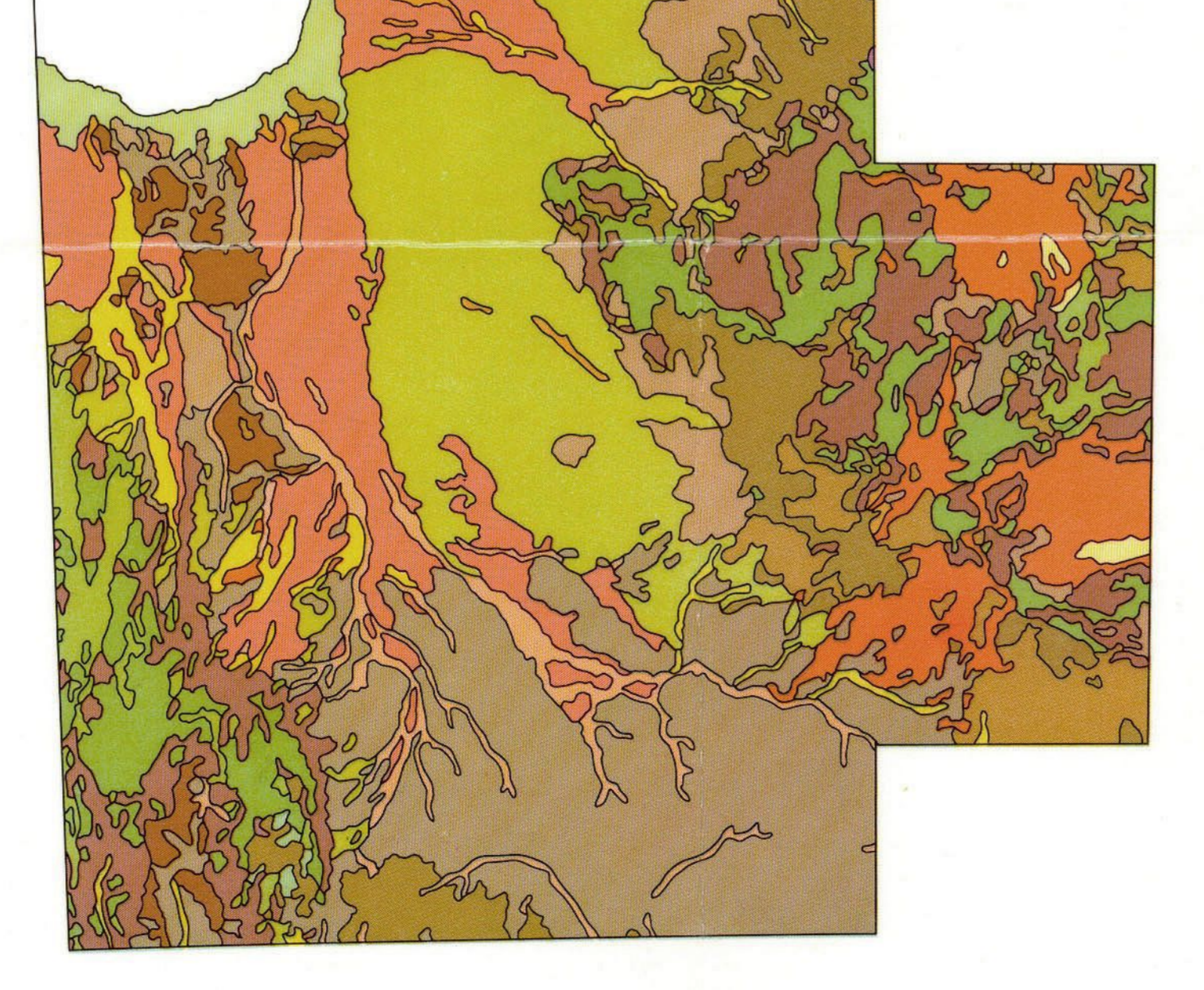
- ### REFERENCE
- NON-RANGE COUNTRY (21,700 sq miles).** Rugged, stony hills and mountains. Shale and rock outcrops. Valleys and less rugged parts used for grazing but overgrazed.
 - MI. Elliott (200 sq miles).** Rocky plateau. Folded and metamorphosed sediments of Cooberoo complex. Highlands sparse low woodland over spinifex. Elevation 1000 ft. Rainfall 15 in.
 - Angella (200 sq miles).** Rocky mountains. Many quartzites of Cooberoo complex. Highlands sparse low woodland over spinifex. Elevation 1000 ft. Rainfall 15-20 in.
 - Terenure (170 sq miles).** Brown tablelands. Sandstones of Byrneside and Rolling Downs groups. Lancelwood over bare ground or sparse low woodland over eastern mid-height grass. Elevation 500-800 ft. Rainfall 15-20 in.
 - Walsuma (300 sq miles).** Mountains of slate and phyllite of Broken River group. Inland low woodland or low woodland over three-awn pastures. Elevation 300-500 ft. Rainfall 25-30 in.
 - Woolshed (200 sq miles).** Dissected plateau. Sandstones of Byrneside group overlying metamorphosed rocks of Etheridge complex. Inland low woodland. Bare grass and eastern mid-height grass. Elevation 1000-1500 ft. Rainfall 25 in.
 - Leichhardt (600 sq miles).** Hilly country. Igneous, metamorphic and sedimentary rocks (Etheridge complex, plutonic rocks, Broken River group, etc.). Shale and sandstone soils and rock outcrops. Inland woodland with eastern mid-height grass. Elevation 1000-1500 ft. Rainfall 25-30 in.
 - Betmore (1400 sq miles).** Hilly country. Igneous and metamorphic rocks (Etheridge complex and Cooberoo basalts). Georgetown box woodland over three-awn pastures. Elevation 300-1100 ft. Rainfall 25-30 in.
 - Toomba (200 sq miles).** Rough lava country. Outcropping rock with microphyll vine woodland. Elevation 1000-2000 ft. Rainfall 25-30 in.
 - SPINIFEX PLAINS AND LOW PLATEAUX (200 sq miles).** Dissected low plateau. Generally of sandy soils or rock outcrops. Many sparse low trees or spinifex. Stocking rate low.
 - Normanton (200 sq miles).** Deeply weathered greywacke and sandstone of Rolling Downs group. Red and yellow earths (granitic Claria and Wooroolga). Spinifex woodland with three-awn ribbon grass under high rainfall. In highland sparse low woodland with western spinifex under lower rainfall. Elevation < 300 ft. Rainfall 22-30 in.
 - Punchbowl (300 sq miles).** Deeply weathered greywacke and sandstone of Rolling Downs group. Shale soils. Trees absent or nearly so with western spinifex. Elevation < 300 ft. Rainfall 20-30 in.
 - Convent (100 sq miles).** Deeply weathered greywacke and sandstone of Rolling Downs group. Mainly shallow soils with clay loams and outcropping pallid and mottled zones with low woodland with western spinifex. Small sparse blue bromelias or yellow earths (Nangum) with shallow box low woodland with western spinifex. Elevation < 100 ft. Rainfall 25-30 in.
 - Mulle (600 sq miles).** Deeply weathered Cambrian sediments. Mainly outcropping pallid zone and shale soils on ferruginous, mottled and red soils. Spinifex woodland with three-awn ribbon grass. Trees absent or low highlands sparse low woodland. Western spinifex. Elevation 100-1500 ft. Rainfall < 15 in.
 - NORTHERN SANDY FOREST COUNTRY (16,000 sq miles).** Plains with sandy soils. Mainly open woodland, three-awn grass pastures. Stocking rate high.
 - Skirringup (800 sq miles).** Plains of erosion. Sandstones of Georgetown box woodland. Elevation 500-1000 ft. Rainfall 22 in.
 - Dandy (2000 sq miles).** Plains of erosion. Sandstones of Byrneside group. Brown soils of light texture (Cockatoo) and red and yellow earths (Burgen). Elevation 200-1000 ft. Rainfall 20-30 in.
 - Bennettside (800 sq miles).** Plains of erosion. Sandstones of Byrneside group. Brown soils of light texture (Cockatoo) and red and yellow earths (Elliott). Paperbark low woodland. Elevation 200-800 ft. Rainfall 20-30 in.
 - Stanhill (200 sq miles).** Plains of erosion on granite. Brown soils of light texture (Cockatoo) and shale soils (Claria). Paperbark low woodland. Elevation 400-700 ft. Rainfall 22 in.
 - Mayvale (800 sq miles).** Outwash plains. Terracial deposits. Mainly unconsolidated sand. Red and yellow podzolics (Wallerawang) and red and yellow earths (Elliott). Paperbark low woodland. Elevation 50-300 ft. Rainfall 27-30 in.
 - Clareville (200 sq miles).** Outwash plains. Terracial deposits. Mainly unconsolidated sand. Brown soils of light texture (Cockatoo) and red and yellow earths (Elliott). Paperbark low woodland. Elevation 100-300 ft. Rainfall 20-30 in.
 - Abingdon (200 sq miles).** Outwash plains. Terracial deposits. Mainly unconsolidated sand. Red and yellow earths (Burgen). Spinifex woodland. Elevation 300-500 ft. Rainfall 30 in.
 - Prosper (100 sq miles).** Lanes and scree plains. Coarse-textured alluvia. Brown soils of light texture (Cockatoo). Paperbark low woodland and foliage woodlands with three-awn ribbon grass and frontage grass. Elevation 300-400 ft. Rainfall 24 in.
 - SOUTHERN SANDY FOREST COUNTRY (2800 sq miles).** Plains with sandy soils. Shrub low woodland over three-awn grass. Stocking rate low to moderate.
 - Bylong (2000 sq miles).** Outwash plains. Terracial deposits. Mainly unconsolidated sand. Brown soils of light texture (Cockatoo). Elevation 100-1000 ft. Rainfall 18 in.
 - Murgulla (300 sq miles).** Plains of erosion. Amnaceous sediments of Rolling Downs group. Mainly brown soils of light texture (Cockatoo). Medium areas alluvial box low woodland with western spinifex. Elevation 100-200 ft. Rainfall 25-30 in.
 - COASTAL COUNTRY (2000 sq miles).** Base coastal mud flats with areas of salt couch and rice grasses. Stocking rate low.
 - Carpentaria (2000 sq miles).** Littoral deposits. Solonchak soils (Carpentaria). Elevation < 100 ft. Rainfall 27-28 in.
 - WESTERN MID-HEIGHT GRASS COUNTRY (1800 sq miles).** Plains with shallow low woodland over three-awn grass. Stocking rate moderate.
 - Kerang (1200 sq miles).** Outwash plains. Terracial deposits, sand and clay. Red and yellow earths (Claria, Sturgeon). Elevation 200-500 ft. Rainfall 15-22 in.
 - Manilla (900 sq miles).** Plains of erosion. Deeply weathered greywacke and sandstones of Rolling Downs group. Red and yellow earths (Nangum) over pallid zone at depth. Elevation < 300 ft. Rainfall 25-30 in.
 - ARID SHORT GRASS COUNTRY (3000 sq miles).** Sparsely timbered plains or undulating plains with scattered hills and small plateaus. Arid short grass with western mid-height grass in wetter habitats. Small areas stony pastures with western mid-height grass. Stocking rate moderate.
 - Callia (3000 sq miles).** Undulating plains and hills. Cambrian sediments, mainly limestone. Mainly shallow calcareous soils with trees absent and arid short grass. Medium areas rock outcrop with low woodland over low woodland with western spinifex. Elevation 100-1000 ft. Rainfall < 15 in.
 - Wooroolga (1000 sq miles).** Plains of erosion. Cambrian sediments, mostly siltstone. Red and yellow earths (Forayth). Mulga low woodland. Elevation 700-1200 ft. Rainfall < 15 in.
 - Quambi (600 sq miles).** Plains of erosion. Igneous and metamorphosed rocks of Cooberoo complex. Red and yellow earths (Forayth, Sturgeon), shale and sandstone soils and rock outcrops. Trees absent, low highlands sparse low woodland and arid sparse low woodland with arid short grass and western spinifex. Elevation 300-1000 ft. Rainfall 15-20 in.
 - Parool (200 sq miles).** Outwash plains. Terracial deposits, sand and clay. Shallow calcareous soils (Boonoom) with arid sparse low woodland. Medium areas grassy and low woodland of heavy timber (Baobab) with trees absent. Elevation 800-900 ft. Rainfall 15-17 in.
 - DELTA COUNTRY (1000 sq miles).** Sparsely timbered alluvial plains with mostly heavy soils. Solonchak soil short grass or blue grass-bromeloid pastures. Stocking rate high.
 - Moranda (1000 sq miles).** Fine-textured alluvium. Solonchak soils (Moranda). Trees absent or downy sparse woodland. Elevation < 250 ft. Rainfall 30-37 in.
 - FRONTAGE COUNTRY (1700 sq miles).** Narrow alluvial plains (levees and back slopes) adjacent to streams. Sandy soils with frontage woodland over frontage grass.
 - Clenore (600 sq miles).** Red and yellow earths (Sturgeon) and brown soils of light texture (Manilla). Elevation 200-300 ft. Rainfall < 15-20 in.
 - Donabehn (1700 sq miles).** Brown soils of light texture (Manilla). Elevation 50-200 ft. Rainfall 30-35 in.
 - Arnerahed (400 sq miles).** Shallow alluvium - silt and fine sands. Moderate areas downy sparse woodland with blue grass-bromeloid pastures. Elevation < 200 ft. Rainfall 27-30 in.
 - BLUE GRASS-BROWNTOP PLAINS (15,000 sq miles).** Nearly flat to undulating plains with heavy clay soils and generally timberless. Blue grass-bromeloid pastures. Stocking rate moderately high.
 - Dunera (300 sq miles).** Silty country. Silty loams and silty clay loams. Medium areas red and yellow earths (Nangum) with shallow box low woodland with western mid-height grass. Elevation < 200 ft. Rainfall 20-30 in.
 - Donabehn (1700 sq miles).** Plains of erosion. Silty loams of Rolling Downs group. Barkly soils. Medium areas red and yellow earths (Sturgeon). Elevation 200-500 ft. Rainfall 20-30 in.
 - Bahbahl (2000 sq miles).** Riverine pallid plains. Fine-textured alluvium. Barkly and Wooroolga soils. Elevation < 300 ft. Rainfall 15-20 in.
 - Gleason (700 sq miles).** Riverine pallid plains. Fine-textured alluvium. Red and yellow earths (Nangum) with western box low woodland over blue grass-bromeloid pastures. Medium areas solonchak soils (Moranda) with downy sparse woodland over blue grass-bromeloid pastures. Elevation < 150 ft. Rainfall 27-30 in.
 - Georgina (800 sq miles).** Box plains. Fine-textured alluvium overlying silty loams of Rolling Downs group. Barkly soils. Elevation < 100 ft. Rainfall 20-30 in.
 - Wanderoo (600 sq miles).** Plains of erosion. Cambrian sediments, mostly siltstone. Wooroolga and Barkly soils. Elevation 500-1000 ft. Rainfall < 15 in.
 - Moorebawn (1500 sq miles).** Plains. Fine-textured alluvium overlying silty loams of Rolling Downs group. Barkly soils. Elevation < 100 ft. Rainfall 15-20 in.
 - MITCHELL GRASS PLAINS (22,000 sq miles).** Gently undulating plains with heavy clay soils, mainly timberless, carrying Mitchell grass pastures. Stocking rate high.
 - Julla (18,700 sq miles).** Plains of erosion. Silty loams of Rolling Downs group. Barkly and Wooroolga soils. Elevation 500-1000 ft. Rainfall < 15 in.
 - Wanderoo (600 sq miles).** Plains of erosion. Cambrian sediments, mostly siltstone. Wooroolga and Barkly soils. Elevation 500-1000 ft. Rainfall < 15 in.
 - Moorebawn (1500 sq miles).** Plains. Fine-textured alluvium overlying silty loams of Rolling Downs group. Barkly soils. Elevation < 100 ft. Rainfall 15-20 in.
 - Gregory (1800 sq miles).** Covered plains. Five and coarse-textured alluvia. Barkly and Baobab soils with Mitchell grass or blue grass-bromeloid pastures or arid sparse low woodland over arid short grasses (Nangum) and red and yellow earths (Sturgeon) with frontage woodland over frontage grass. Elevation < 200 ft. Rainfall 18-25 in.
 - EASTERN SPINIFEX COUNTRY (600 sq miles).** Undulating plateau surface with sandy soils carrying ironbark woodland. Patches of eastern spinifex and arid short grasses. Stocking rate low.
 - Europa (300 sq miles).** Terracial deposits (sandstones) of Tertiary age overlying amnaceous sediments of Byrneside group and brown soils of light texture (Cockatoo). Elevation 1500 ft. Rainfall 20 in.
 - Warrigal (200 sq miles).** Terracial deposits (sandstones) of Tertiary age overlying amnaceous sediments of Byrneside group and brown soils of light texture (Cockatoo) and red and yellow earths (Sturgeon). Elevation 1000-2000 ft. Rainfall 22 in.
 - THREE-AWN COUNTRY (2000 sq miles).** Irregular plains and low hills carrying three-awn pastures over blue grass-bromeloid pastures. Stocking rate low to moderate.
 - Townley (2000 sq miles).** Irregular plains. Mica schist and amphibolite. Elevation 700-1000 ft. Rainfall 20 in.
 - Georgina (1100 sq miles).** Gently undulating plains. Pre-Cambrian granite. Crystalline hills, and small areas of metamorphosed rocks of Byrneside group. Elevation 300-1500 ft. Rainfall 20-30 in.
 - Hampden (600 sq miles).** Very gently undulating plateau surface. Sandstones of Byrneside group. Brown soils of light texture (Cockatoo). Elevation 1000-1500 ft. Rainfall 20 in.
 - EASTERN MID-HEIGHT GRASS COUNTRY (16,200 sq miles).** Irregular plains and hills with scrubby woodland over eastern mid-height grass pastures. Stocking rate fairly high.
 - Karoon (1000 sq miles).** Very gently undulating plains and plateaus of Byrneside group. Red and yellow earths (Elliott). Elevation 1400 ft. Rainfall 20 in.
 - Beechmont (2000 sq miles).** Undulating plains. Sandstones of Byrneside group and terracial deposits of Tertiary age. Red and yellow earths (Burgen, Stewart, Claria) and brown soils of light texture (Cockatoo). Elevation 1500-2000 ft. Rainfall 20-30 in.
 - Yamarna (600 sq miles).** Gently undulating plains. Igneous and metamorphic rocks of Etheridge complex and plutonic rocks. Red and yellow earths (Claria, Sturgeon, Nangum) and red and yellow earths (Forayth, Wooroolga, Wyalandah). Elevation 200-2000 ft. Rainfall 20-30 in.
 - Hammond (600 sq miles).** Very gently undulating plateau surface. Sandstones of Byrneside group. Brown soils of light texture (Cockatoo) with poplar gum-grey bloodwood woodland. Elevation 200 ft. Rainfall 20 in.
 - Lyall (1500 sq miles).** Undulating plain. Metamorphic rocks and calcareous beds of Broken River group. Red and yellow earths (Forayth). Elevation 3000 ft. Rainfall 25 in.
 - McKean (200 sq miles).** Undulating plains. Granodiorite of Etheridge complex. Red and yellow earths (Forayth) and red and yellow podzolics (Wyalandah, Claria). Elevation 1000-2000 ft. Rainfall 20-30 in.
 - Headsberg (400 sq miles).** Undulating plains. Granites of Proterozoic and Palaeozoic age. Brown soils of light texture (Cockatoo). Elevation 1000-2000 ft. Rainfall 25-30 in.
 - Nail (1200 sq miles).** Irregular plains. Mainly shale and phyllite of Broken River group. Shale and siltstone soils and rock outcrops. Red River box woodland. Elevation 1000-2000 ft. Rainfall 20-30 in.
 - Cherida Springs (600 sq miles).** Irregular plains. Granites of Proterozoic and Palaeozoic age. Limestone. Blue grass-bromeloid pastures. Elevation 300-1500 ft. Rainfall 20-30 in.
 - Kilbogie (2000 sq miles).** Irregular plains. Metamorphic rocks and granites of Etheridge complex. Red and yellow podzolics (Wyalandah, Claria). Elevation 500-2500 ft. Rainfall 22-30 in.
 - BALBY COUNTRY (700 sq miles).** Irregular stony plains. Stocking rate high.
 - Woolshed (2000 sq miles).** Mainly grassland with blue grass-bromeloid pastures. Stocking rate moderately high.
 - Boonoom (2000 sq miles).** Mainly grassland with blue grass-bromeloid pastures. Stocking rate moderately high.
 - Rosella (2000 sq miles).** Mainly black earths (Rosella). Minor tussocks (Lang). Elevation 1400-3000 ft. Rainfall 20-30 in.

GEOLGY by C. E. Prichard



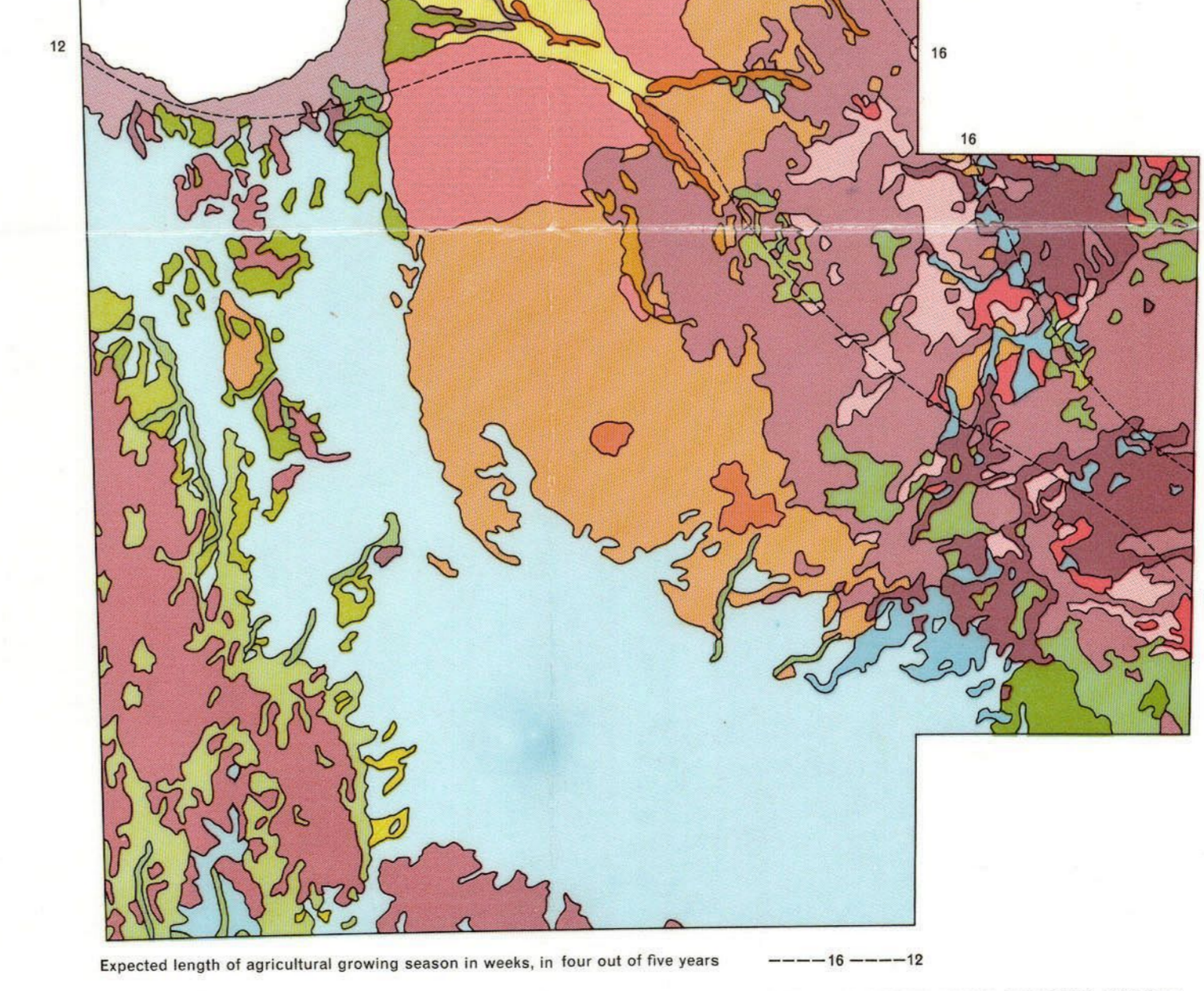
- CAINOZOIC**
 - Quaternary
 - Alluvium. Fine- and coarse-textured
 - Aluvial deposits. Saline muds and shell banks
 - Basalt. Vesicular
 - Tertiary
 - Terracial deposits. Loose sand, some gravel and clay
 - Basalt. Vesicular
 - Mesozoic
 - Rolling Downs group. Siltstone, fine-grained greywacke, thin limestone
 - Byrneside group. Sandstone, conglomerate
- PALAEZOIC**
 - Sediments. Sandstone, minor siltstone
 - Croplite. Interbedded to acid volcanics
 - Silurian-Devonian
 - Terrace. River group. Greywacke, siltstone, shale, limestone
 - Carboniferous
 - Sediments. Limestone and siltstone
- PRE-CAMBRIAN AND PALAEZOIC**
 - Plutonic rocks. Granite and granodiorite
 - Metamorphosed rocks. Gneiss, schist, mica schist
- PRE-CAMBRIAN**
 - Cooberoo complex. Metamorphosed sediments, granite
 - Etheridge complex. Metamorphosed sediments, granite

GEOMORPHIC UNITS (Land systems arranged according to land form and age of surface by C. R. Twidale)



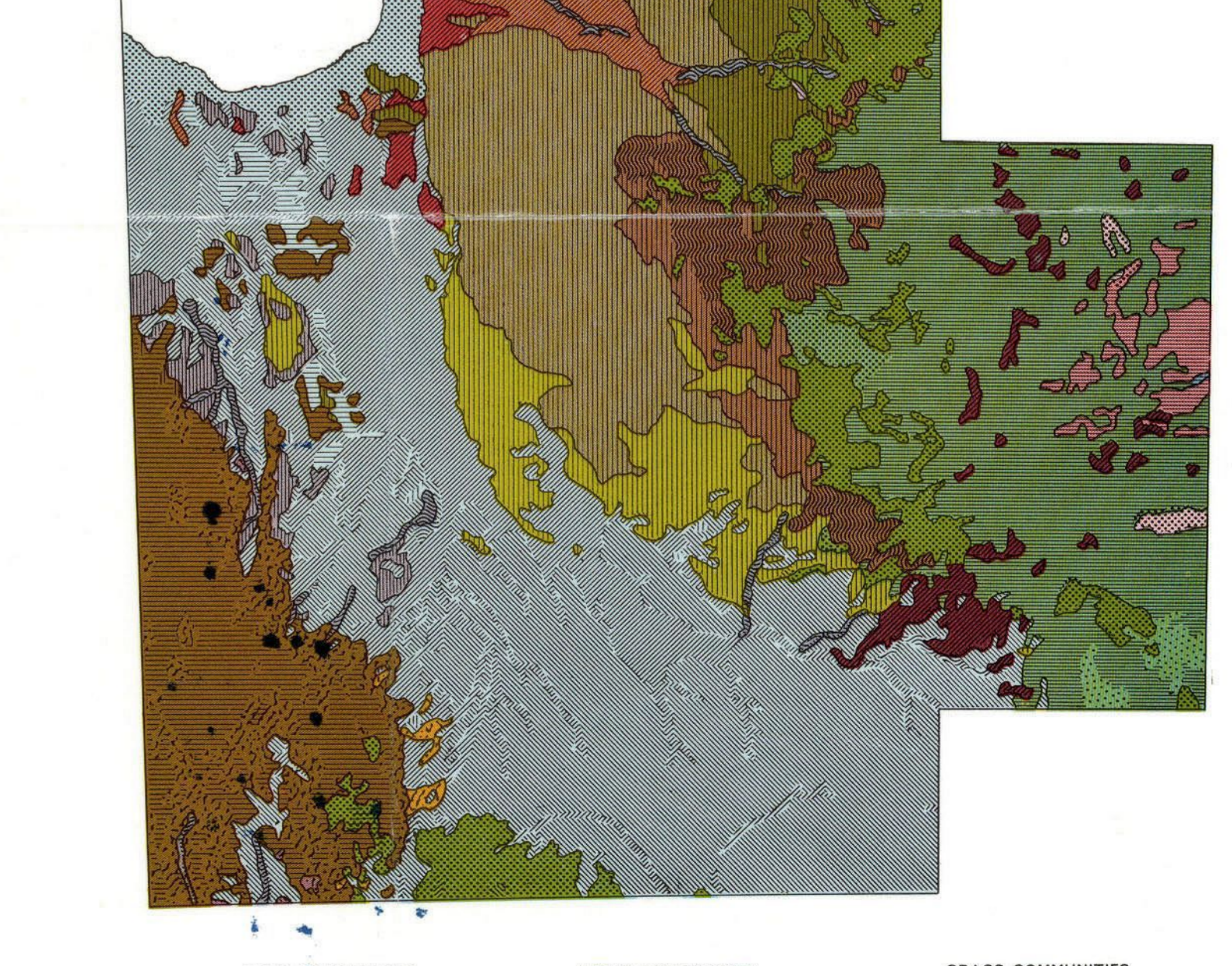
- DESTRUCTURAL LAND SURFACE**
 - Plateau and high plains
 - Early to Tertiary surface
 - Imaginary dissected plateau and high plains
 - Pre-mid Tertiary surface
 - Early to mid Tertiary with late Tertiary surface
 - Dissected pre-mid Tertiary surface, some early to mid Tertiary
 - Late Recent
 - Plains of erosion
 - Early to mid Tertiary surface
 - Late Tertiary to Quaternary with some pre-mid Tertiary
- CONSTRUCTIONAL LAND SURFACE**
 - Outwash plains
 - Piocene
 - Shallow pallid plains
 - Covered plains
 - Ben plains
 - Lacine and scree plains
 - Late Recent
 - Late Pliocene and Quaternary
 - Late Tertiary to Quaternary
 - Pliocene and Pleistocene
 - Mid Tertiary to Quaternary
 - Early Recent

SOILS (Land systems grouped according to their dominant soil families by J. R. Steeman)



- BROWN SOILS OF LIGHT TEXTURE**
 - Cockatoo
 - Muebilo
 - Cullin
 - Norman
- RED AND YELLOW EARTHS**
 - Zagari
 - Forayth
 - Sturgeon
 - Nangum
 - Claria
- KRASNOZEMS**
 - Lims
- RED AND YELLOW PODZOLICS**
 - Wyalandah
 - Carpoon
 - Wallerawang
- SOLONCHAKS**
 - Boonoom
 - Carpentaria
- GREY AND BROWN SOILS OF HEAVY TEXTURE**
 - Wooroolga
 - Rosella
- ALLUVIAL SOILS**
 - Manilla
 - Sturgeon
 - Stewart
 - Claria
 - Shale soils

VEGETATION (Land systems grouped according to their dominant plant communities by R. A. Perry)



- TREE COMMUNITIES**
 - Grasslands, mud flats
 - Georgetown box woodland
 - Ironbark woodland
 - Frontage woodland and forest
 - Blue grass-bromeloid woodland
 - Paperbark low woodland
 - Shallow box low woodland
 - Downy sparse woodland
- TREE COMMUNITIES**
 - Trunks medium height and moderately dense
 - Western low woodland
 - Georgetown box woodland
 - Ironbark woodland and forest
 - Frontage woodland and forest
 - Lancelwood woodland and forest
 - Microphyll vine woodland
- GRASS LAYER COMMUNITIES**
 - Grasslands and outcrops
 - And short-lived perennials
 - And short grass
 - Blue grass-bromeloid
 - Blue grass-bromeloid
 - Eastern mid-height grass
 - Western mid-height grass
 - Three-awn ribbon grass
 - Rolling Downs group
 - Grasses mid-height, evergreen perennials
 - Eastern spinifex