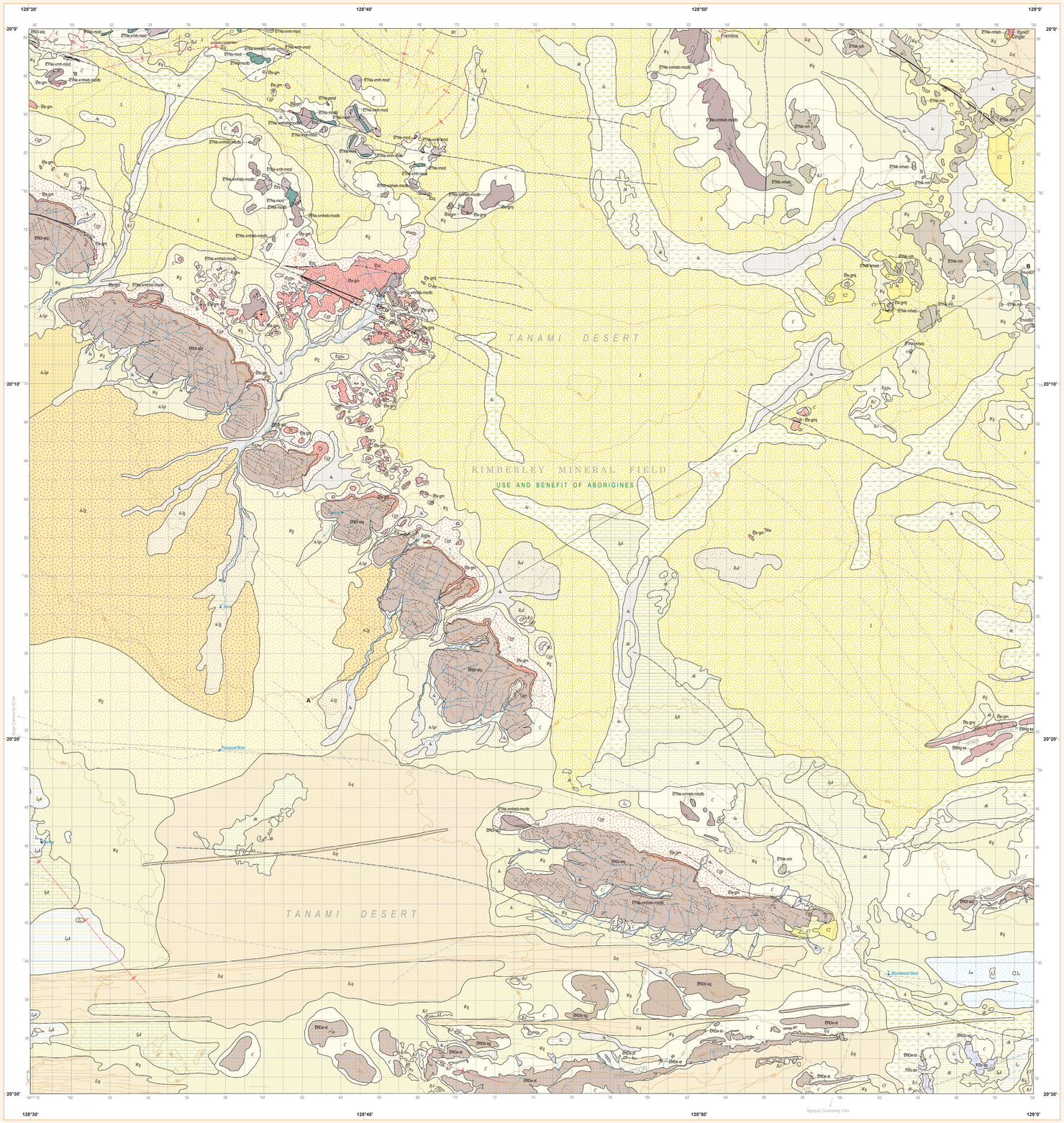
LEWIS

AUSTRALIA 1 : 100 000 GEOLOGICAL SERIES | **GEOLOGICAL SURVEY OF WESTERN AUSTRALIA** | **SHEET 4657**



DIAGRAMMATIC SECTION

PHANEROZOIC

CENOZOIC

Colluvial units, age undivided or unassigned
- *C* — Colluvium derived from different rock types; includes gravel, sand, silt and clay
- *Cf* — Ferruginous clay, silt, and sand in colluvial deposits
- *Cgp* — Quartz/feldspathic clay, silt, and sand in colluvial deposits; derived from plutonic rocks

Sheetwash units, age undivided or unassigned
- *Wf* — Clay, silt, and sand with abundant ferruginous grit
- *Wg* — Clay, silt, and sand sheetwash deposits, commonly derived from granitic rocks
- *Wq* — Quartz-rich silt and sand, with minor clay

Alluvial units, age undivided or unassigned
- *Ad* — Clay, silt, and sand in drainage depressions
- *As* — Clay, silt, and sand on floodplain with numerous claypans
- *Aw* — Clay, silt, and sand in superficial channels
- *Af* — Clay, silt, and sand in alluvial fan deposits
- *Aqg* — Unconsolidated quartz/feldspathic sand, silt, and clay in alluvial fan deposits
- *Aqlg* — Unconsolidated quartz-rich silt and sand with minor clay in alluvial fan deposits; derived from sedimentary rocks
- *Aqg* — Semiconsolidated quartz/feldspathic sand, silt, and clay in alluvial fan deposits
- *Aqlg* — Semiconsolidated quartz-rich silt and sand with minor clay in alluvial fan deposits; derived from sedimentary rocks
- *ak* — Carbonate-cemented alluvium and fluvial deposits, and valley calcrete; locally silicified

Lacustrine units, age undivided or unassigned
- *Lm* — Clay, silt, and sand in dune and playa deposits
- *Lgk* — Clay, silt, and sand in carbonate-rich playa deposits
- *Ls* — Saline lake, rimmed by evaporitic gypsum and carbonate deposits

Eolian units, age undivided or unassigned
- *Eqg* — Quartz-rich sand in longitudinal dunefield
- *Eeq* — Quartz-rich sand in eolian sandplain

Sandplain units, age undivided or unassigned
- *S* — Sandplain
- *Sgk* — Clay, silt, and sand in carbonate-rich sandplain and playa deposits

Colluvial unit, unconsolidated
- *C1* — Unconsolidated clay, silt, and sand in colluvial deposits

Colluvial unit, weakly consolidated
- *C2* — Semiconsolidated clay, silt, and sand in colluvial deposits

Residual or relict units
- *Rgzw* — Quartz/feldspathic sand, silt, and clay derived from weathered monzonite
- *Rcf* — Ferruginous duricrust and iron-cemented products
- *Rcz* — Siliceous duricrust
- *Rsd* — Residual sand, with minor clay and silt

PALEOZOIC

- **P2c-ss** — **LUCAS FORMATION:** sandstone (partly calcareous), siltstone, and mudstone; minor limestone and conglomerate — CANNING BASIN

NEOPROTEROZOIC

Redcliff Pound Group
- **ERd1e-st** — **ERICA SANDSTONE:** lithic sandstone and quartz sandstone
- **ERd1b-sg** — **MURRABA FORMATION:** chert-clast granule and pebble conglomerate, sandstone, siltstone, and mudstone; minor limestone; thin bedded
- **ERd1l-stq** — **LEWIS RANGE SANDSTONE:** cross-bedded quartz sandstone with ripple marks; minor sandstone, conglomerate, and siltstone

MURRAY BASIN — CENTRALIAN SUPERBASIN

Birrindudu Group
- **BIrtg-ss** — **GARDINER SANDSTONE:** cross-bedded, white, medium- to coarse-grained, poorly sorted quartz sandstone with siltstone and shale; minor glauconitic sandstone and flaggy dolomitic sandstone, and basal conglomerate; shallow marine to emergent — BIRRINDUDU BASIN

- **Erq** — Massive, coarse-grained quartz vein

PROTEROZOIC

PALEOPROTEROZOIC

Stafford Event (1810–1790 Ma†)
- **EgmGT** — Biotite monzogranite

c. 1796 Ma‡
- **Eg-gm** / **Eg-gmj** — **LEWIS GRANITE**
  - Eg-gm — Muscovite and biotite monzogranite, locally porphyritic; minor biotite granodiorite
  - Eg-gmj — Magnetite-bearing monzogranite

Tanami Event (1850–1830 Ma†)
- **EmodGT** — Metadiorite; greenschist to amphibolite facies

Tanami Group
- **ETnk-mheb** — **KILLI KILLI FORMATION:** contact-metamorphosed feldspathic metawacke, metasandstone, metasiltstone, and metamudstone; biotite zone
- **ETnk-mh** — Feldspathic metawacke, metasandstone, metasiltstone, and metamudstone; minor quartzite, banded metachert, metabasalt, metadiorite, and metagabbro
- **ETnk-moeb** — Contact-metamorphosed diorite; biotite zone
- **ETnk-xmheb-modb** — Contact-metamorphosed psammite and pelite, and metadiorite; biotite zone
- **ETnk-mod** — Metamorphosed diorite sill; minor interlayered, metamorphosed feldspathic wacke, sandstone, siltstone, and mudstone
- **ETnk-xmh-mod** — **STUBBINS FORMATION:** metamorphosed feldspathic wacke, sandstone, siltstone, mudstone, and dolerite and gabbro sills; minor quartzite, metamorphosed banded chert, and metabasalt

c. 1864 Ma‡

GRANITES–TANAMI OROGEN

Geological boundary

- exposed
- Fault or shear zone
  - exposed
  - concealed
- Fold, showing axial trace and generalized plunge direction
  - anticline; exposed
  - syncline; exposed
  - anticline; concealed
  - syncline; concealed
- Bedding, showing strike and dip
  - inclined
  - vertical
  - way-up not known, inclined
- Trend of bedding
- Igneous layering, showing strike and dip
  - inclined
- Igneous flow banding, showing strike and dip
  - vertical
- Metamorphic foliation, showing strike and dip
  - inclined
  - vertical
- Cleavage, showing strike and dip
  - inclined
  - vertical
- Fracture pattern
- Trend line
  - interpreted from aeromagnetic data

Purple point structure symbols signify measurements of bedrock features preserved in residual regolith units (*Rcf*)

- Track
- Fence
- Yard
- Breakaway
- Sand-dune crest
- Contour line, 20 m interval
- Watercourse
- Spring
- Bore
- Bore, with windpump

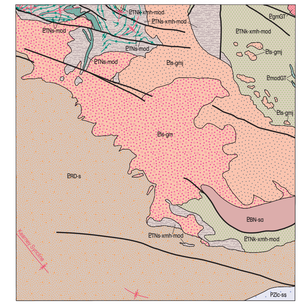
DATA SOURCES

Theme	Data Currency	Organization†
Geology *	2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Mineral sites *	Mar 2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Structural data	Mar 2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Topographic nomenclature	2015	Landgate
Topography	2015	Landgate
Contours	2006	Geological Survey of Western Australia, Department of Mines and Petroleum

* DMP data can be viewed interactively via GeoVIEW.WA <www.dmp.wa.gov.au/geoview>, and related datasets can be downloaded from the GSWA Data and Software Centre <www.dmp.wa.gov.au/datacentre>

† WA State Government unless otherwise indicated

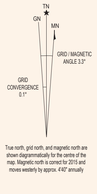
INTERPRETED BEDROCK GEOLOGY



SCALE 1:500 000
0 5 10 15 20
Kilometres

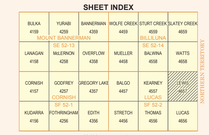
- P2c-ss — Lucas Formation — Canning Basin
- BId-s — Redcliff Pound Group: siliciclastic sedimentary rocks — Murraba, Murrumbidgee, Lewis Ranges — Centralian Superbasin
- BIbn-ss — Birrindudu Group: siliciclastic sedimentary rocks — Birrindudu, Murraba, Lewis Ranges
- EgmGT — Granites–Tanami Orogen granitic unit — Granites–Tanami Orogen
- Eb-gm / Eb-gmj — Lewis Granite: Magnetite-bearing monzogranite; Muscovite and biotite monzogranite, locally porphyritic; minor biotite granodiorite — Granites–Tanami Orogen
- EmodGT — Granites–Tanami Orogen metadiorite — Granites–Tanami Orogen
- ETnk-xmh-mod — Killi Killi Formation — Tanami Group
- ETnk-mod — Metadiorite sill — Tanami Group
- ETnk-xmh-mod — Stubbins Formation — Tanami Group

For further details refer to main legend



True north, grid north, and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is correct for 2015 and moves westerly by approx. 4'40" annually

SHEET INDEX



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MINERAL SITES

MINERALIZATION STYLE
- ◇ Vein and hydrothermal

COMMODITY GROUP
- Precious metal

All precious metal sites are gold unless otherwise indicated

SITE NAME

Mine, deposit, prospect, or occurrence..... Ginger

Mineralization sites on this map have been extracted from GSWA's MINEDEX database. For clarity, names have been shown only for selected sites. Full details of site numbers, site locations, site status, mineralization, and commodities can be obtained from the MINEDEX database, accessed at <www.dmp.wa.gov.au/minedex>.

Compiled by GR Eacott and N de Souza Kovacs 2012, 2014–15

Geology by L Bagas (GSWA) 2005–07; RWA Crowe and PC Muhling (GSWA) 1972; DH Blake, VL Passmore and AN Yeates (BMR) 1972

Revised by GR Eacott 2014–15

Regolith by N de Souza Kovacs 2012

Geochronology from GSWA data (published and in preparation) and interpreted from external sources (listed below). Some GSWA geochronology may come from samples obtained on adjoining map sheets. GSWA geochronology data are available online at <www.dmp.wa.gov.au/geochron>.

External geochronology by:
(1) Crispe et al. 2007, Mineralium Deposita, v. 42, p. 3–26.
(2) Bagas et al. 2010, Precambrian Research, v. 177, p. 212–226.
(3) Bagas et al. 2008, Precambrian Research, v. 166, p. 168–184.
Geoscience Australia geochronology database <www.ga.gov.au>

Cartography by CS Schroder

Edited by MA Ferland and K Greenberg

Published by Geological Survey of Western Australia

This map is published in digital format (PDF) and is available online at <www.dmp.wa.gov.au/GSWApublications>.
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The recommended reference for this map is:
Eacott, GR and de Souza Kovacs, N 2015, Lewis, WA Sheet 4657: Geological Survey of Western Australia, 1:100 000 Geological Series.

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EXPLORATION INCENTIVE SCHEME

Government of Western Australia
Department of Mines and Petroleum

HON. BILL MARMION MLA
MINISTER FOR MINES AND PETROLEUM

Geological Survey of Western Australia

RICK ROGERSON
EXECUTIVE DIRECTOR

SCALE 1 : 100 000

1000 0 1 2 3 4 5 6 7 8 9 10
Metres Kilometres

UNIVERSAL TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: GEOCENTRIC DATUM OF AUSTRALIA 1994
VERTICAL DATUM: AUSTRALIAN HEIGHT DATUM

Grid lines indicate 1000 metre interval of the Map Grid Australia Zone 52

GDA The Map Grid Australia (MGA) is based on the Geocentric Datum of Australia 1994 (GDA94). GDA94 positions are compatible within one metre of the datum WGS84 positions

LEWIS

SHEET 4657 **FIRST EDITION 2015**

Version 1 — June 2015

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