YAMARNA

AUSTRALIA 1 : 100 000 GEOLOGICAL SERIES | **GEOLOGICAL SURVEY OF WESTERN AUSTRALIA** | **SHEET 3642**

123° 30' 40' 50' 124° 00'

27° 30' 40' 50' 28° 00'

GREAT VICTORIA DESERT

LAKE THROSSELL

COMMONWEALTH MILITARY RESERVE

MOUNT MARGARET MINERAL FIELD

MOUNT YAMARNA

YEO LAKE RESERVE

ABORIGINAL RESERVE

Yamarna Airstrip

Khan North Au

Khan Au

Yamarna Rd

Talbot Well

Yeo Lake

Yeo Lake Rd

Tjukayirla Roadhouse 138 km

Cosmo Newbery Aboriginal Community 74 km

Kalgoorlie

White Cliffs – Yamarna Road 30 km

Mount Shenton – Yamarna Road 20 km

Neale Junction Road 12 km

DIAGRAMMATIC SECTION

Paterson Formation too thin to show in section

A — Yamarna Shear Zone — B C — D E — F

SEA LEVEL

2 km

4 km

PHANEROZOIC — CENOZOIC

Colluvial units

- C — Colluvium derived from different rock types; includes gravel, sand, and silt
- C_L — Colluvial talus derived from different rock types
- Cf — Ferruginous gravel and reworked ferruginous duricrust
- C_Q — Quartzofeldspathic gravel, sand, and silt, commonly derived from granitic rock and associated weathering products
- C_X — Colluvium dominated by reworked calcrete; includes loose nodules and irregular fragments
- C_q — Quartz-vein debris
- C_Z — Colluvium of silcrete; includes gravel, sand, and silt

Sheetwash units

- W — Clay, silt, and sand in extensive fans; local ferruginous gravel
- Wx — Clay, silt, and sand with abundant calcrete nodules

Alluvial units

- A — Clay, silt, sand, and gravel in channels and on floodplains
- A_a — Clay, silt, sand, and gravel on alluvial plains
- A_k — Calcrete and carbonate-cemented material on alluvial plains
- A_s — Clay, silt and sand in fluvial channels
- A_{sk} — Calcareous clay, silt, and sand with calcrete in brocked swales on floodplains
- A_r — Stream bar, commonly dominated by sand, in fluvial channels
- A_t — Clay, silt, sand, and gravel in alluvial fans

Lacustrine units

- L_z — Sand, silt, and gypsum in dunes adjacent to and within playa lakes
- L_m — Mixed dunes, evaporite, and alluvial deposits; typically adjacent to playa lakes
- L_p — Saline and gypsiferous evaporite deposits, clay, silt, and sand in playa lakes
- L_k — Calcrete within playa lake systems

Sandplain units

- S — Residual and eolian sand with minor silt and clay; low vegetated dunes locally common
- S_d — Sand in stabilized dunes
- S_l — Longitudinal dunefield

Residual or relict units

- Rf — Ferruginous duricrust; massive to rubbly; includes iron-cemented reworked products
- Rc — Silcrete
- R_{Qfp} — Quartzofeldspathic sand, and minor silcrete over granite; sparse granite outcrop; includes mottled and leached zones of weathering profile

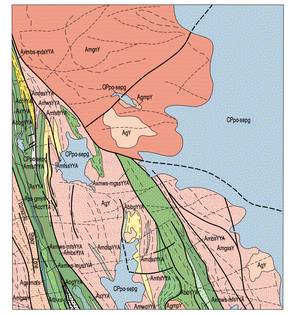
PALEOZOIC — CARBONIFEROUS - PERMIAN — GUNBARREL BASIN

- CPpo-segg — **PATERSON FORMATION:** conglomerate (including diamictite), sandstone, and siltstone; largely glacigene
- Vq — Quartz vein or pod; massive, crystalline, or brecciated; age uncertain

ARCHEAN — YILGARN CRATON — Yamarna Terrane

- Amgsf / Apa-gnys / Apmgf / Agmgyf / Agrf / Amgrf
- c. 2962 Ma — **POINT SALVATION MONZOGRANITE:** biotite monzogranite; fine- to coarse-grained, seriate to K-feldspar-porphyritic; abundant leucogranitic layers and schlieren; metamorphosed (section only)
- Agmgf — Porphyritic monzogranite; fine- to coarse-grained with feldspar megacrysts; locally seriate; metamorphosed
- Agmgyf — Biotite monzogranite, fine- to coarse-grained; seriate to K-feldspar-phyric; abundant leucogranitic layers and schlieren; metamorphosed
- Agrf — Granitic rocks, undivided; metamorphosed; includes deeply weathered rock
- Amgrf — Granitic gneiss, locally migmatitic; includes local mafic bands and enclaves (section only)
- c. 2711 Ma?
- AmdsstYIA / AsltYIA / AapYIA / AsbgtYIA / AczzttYIA / AczttYIA
- AmdsstYIA — Foliated metasedimentary rock, undivided; includes metasandstone, metasiltstone, metashale, and quartz–mica schist; commonly deeply weathered
- AsltYIA — Siltstone and mudstone with minor sandstone; metamorphosed
- AspYIA — Fine-grained to pebbly sandstone and pebble conglomerate; minor siltstone and mudstone; metamorphosed
- AsqzYIA — Fine- to medium-grained, quartz-rich sandstone; minor shale and mudstone; metamorphosed
- AczzttYIA — Banded chert; includes minor quantities of banded iron-formation; metamorphosed
- AczlYIA — Chert and banded chert; locally includes siliciclastic rock; ferruginous; metamorphosed
- AmbsYIA / AmbstYIA
- AmbsYIA — Felsic schist with common feldspar porphyroclasts; derived from felsic volcanic and volcaniclastic rock
- AmbstYIA — Foliated to strongly foliated, fine- to medium-grained, equigranular metaclastic rock; minor metasedimentary rocks
- Axmws-mgssYIA / Axmes-mfdYIA / AmwdYIA / AmwstYIA
- Axmws-mgssYIA — Intercalated mafic schist and foliated metagranite; minor metasedimentary rocks; commonly schistose (section only)
- Axmes-mfdYIA — Mafic schist interleaved with schist derived from felsic volcanic and/or volcaniclastic rock (section only)
- AmwdYIA — Amphibolite; locally schistose
- AmwstYIA — Mafic schist with abundant chlorite and actinolite; local amphibolite
- AodYIA — Dolerite; minor basalt or quartz gabbro components; metamorphosed
- AmbaYIA / AbzzYIA / AbbgtYIA
- AmbaYIA — Schistose metamorphic volcanic rock; includes medium-grained zones
- AbzzYIA — Basalt; locally porphyritic; includes dolerite-textured zones; metamorphosed
- AbbgtYIA — Amygdaloidal and vesicular basalt with minor plagioclase-porphyritic layers; local pillow structures; metamorphosed

INTERPRETED BEDROCK GEOLOGY



SCALE 1:500 000

0 5 10 15 20 Kilometres

- CPpo-segg — Paterson Formation: conglomerate, sandstone, and siltstone; largely glacigene
- Amgsf Apa-gnys Apmgf Agrf Amgrf
- Amgsf — Foliated metagranitic rock; includes amphibolite lenses
- Apa-gnys — Point Salvation Monzogranite
- Agmgf — Porphyritic monzogranite; metamorphosed
- Agrf — Granitic rocks, undivided; metamorphosed
- Amgrf — Granitic gneiss; locally migmatitic
- Talbot Formation: sedimentary rock; undivided; metamorphosed
- AmdsstYIA / AsltYIA / AczzttYIA
- AmdsstYIA — Foliated metasedimentary rocks; undivided
- AsltYIA — Undivided siliciclastic sedimentary rocks; metamorphosed
- AczzttYIA — Chert; metamorphosed
- AmbstYIA / AmbsYIA / AmbaYIA
- AmbstYIA — Schist derived from proterozoic volcanic and volcaniclastic rock
- AmbsYIA — Felsic schist with common feldspar porphyroclasts
- AmbaYIA — Foliated metafelsic rock
- Axmws-mgssYIA / Axmes-mfdYIA / Axmes-mudYIA / AmwdYIA / AmwstYIA
- Axmws-mgssYIA — Intercalated metamafic rocks and foliated metagranite
- Axmes-mfdYIA — Mafic to felsic schist, after volcanic and/or volcaniclastic rock
- Axmes-mudYIA — Meta-igneous mafic and meta-igneous ultramafic volcanic rocks
- AmwdYIA — Amphibolite
- AmwstYIA — Mafic schist
- AogtYIA — Gabbro; metamorphosed
- c. 3737 Ma — Ags-mofs — Argus Igneous Complex: metamorphosed amphibolite; contains interleaved amphibolite
- Axmbs-mdsYIA / AmbaYIA / AbzzYIA / AbbgtYIA
- Axmbs-mdsYIA — Mafic schist intercalated with schistose metasedimentary rocks
- AmbaYIA — Schistose metamafic volcanic rock
- AbzzYIA — Basalt; metamorphosed
- AbbgtYIA — Amygdaloidal basalt with minor vesicules and porphyritic layers; metamorphosed

GUNBARREL BASIN — Yamarna Terrane — YILGARN CRATON

For further details refer to main reference

Interpretation partly based on subsurface geology data available in East Yilgarn 1:100 000 Geological Information Series

- Geological boundary — exposed / concealed
- Fault or shear — exposed / concealed / concealed, interpreted from aeromagnetic data
- Strongly foliated rock
- Fold, showing axial trace and generalized plunge direction — anticline; exposed, concealed / syncline; exposed, concealed / antiform, exposed
- Small-scale fold axial surface, showing strike and dip — inclined
- Small-scale fold axis, showing trend and plunge — S-vergence
- Bedding, showing strike and dip — inclined / horizontal / overturned
- Trend of bedding or foliation
- Igneous banding, showing strike and dip — trend of igneous banding
- Way-up indicator — graded bedding
- Metamorphic foliation, showing strike and dip — inclined / vertical / trend of foliation
- Shear-sense indicator, showing dip of foliation — dextral; inclined
- Lineation, unspecified, showing trend and plunge — inclined
- Mineral lineation, showing trend and plunge — inclined / horizontal
- Mineral alignment, showing trend and plunge — inclined
- Fracture, joint, or extension vein, showing strike and dip — inclined
- Airphoto lineament — unspecified
- Aeromagnetic lineament
- Road; unsealed
- Track
- Reserve boundary
- Sand dune crest
- Contour line — 420m
- Watercourse
- Lake
- Waterhole — Waterhole
- Soak — Soak
- Mineral deposit — Khan North
- Made ground or mining area

MINERAL SITES

MINERALIZATION STYLES

◇ Vein and hydrothermal

MINERAL AND ROCK COMMODITY GROUPS

Precious metal

OPERATING STATUS AND SITE IDENTIFICATION NUMBER

Mineral deposit e.g. 5223915

In the MINEDEX database the format Site ID consists of '5' followed by seven numbers.
Site numbers shown on this map are abbreviated for clarity by removing the leading zeros (0).
To search for site numbers in the MINEDEX database the user must insert sufficient leading zeros (0).

e.g. 51234 = 50001234 or 512 = 50000012

MINERAL AND ROCK COMMODITIES

Gold ..... Au

Access for mapping unavailable or limited; geology from remote sensing and published information

GRID CONVERGENCE 0.3°

TN GN MN

GRID / MAGNETIC ANGLE 3.6°

True north, grid north and magnetic north are shown diagrammatically for the centre of the map. Magnetic north is correct for 2010 and moves westerly by approx. 50' annually

SHEET INDEX

TATE 3240	LINARITY 3240 DUPERTON	DE LA POER 3440	STRAWBRIDGE 3540	BLAKLAND 3640 YAMARNA	BULCHA 3740
BALGARARRA 3240	DAWSON 3240	COSMO NEWBERY 3440	JUTSON 3540	YAMARNA 3640	LAKE THROSSELL 3740
MAMBI 3241	MOUNT WIRDIN 3341 DUPERTON	MARBLAIR 3441	MCLAREDDY CREEK 3541	DOROTHY HILLS 3641 YAMARNA	YEO LAKE 3741
MINERVE 3242	LAWRTON 3342	BURTVILLE 3442	BALDY 3542	TOPPIN 3642	RAEON 3742

1:100 000 maps shown in black

1:250 000 maps shown in Green

Search for current GSWA map products online <http://www.dmp.wa.gov.au/GSWApublications>

Government of Western Australia
Department of Mines and Petroleum

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MINISTER FOR MINES AND PETROLEUM

Geological Survey of Western Australia

ROY ROGERSON
ACTING EXECUTIVE DIRECTOR

NGAANYATJARRA COUNCIL (Aboriginal Corporation)

Compiled by MJ Powley 2009

Geology by MJ Powley 2006–08

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 <http://www.dmp.wa.gov.au/geoview> and on CVD (Compilation of geochronology data – updated as required), or can be downloaded from <http://www.dmp.wa.gov.au/datacentre>

Ngaanyatjarra cultural field guides: Alwyn Bates, Mark Butler, Winston Mitchell, Janice Scott, Mr I Shepherd, Bruce Smith, Reggie Smith, and Mr I Ward

Ngaanyatjarra liaison: Jon Turner

Interpreted geochronology by:
(1) Block, LP, GA Sample ID 99967022B: Geoscience Australia's geochronology database, July 2007 data release, <http://www.ga.gov.au/oracle/sazchron>

Cartography by P Bickhouse

Edited by S White and B Williams

Published by the Geological Survey of Western Australia. Digital and hard copies of this map are available from the Information Centre, Department of Mines and Petroleum, 100 Plain Street, East Perth, WA 6004.
Phone (08) 9222 3459 Fax (08) 9222 3444
Website <http://www.dmp.wa.gov.au/gswa> Email geological.survey@dmp.wa.gov.au

The recommended reference for this map is:
Powley, MJ 2010, Yamarna, WA Sheet 3642: Geological Survey of Western Australia, 1:100 000 Geological Series.

DATA DIRECTORY

Theme	Data Source	Data Currency	Organization
Geology *	GSWA	2006–08	Dept of Mines and Petroleum
Mineral sites *	MINEDEX	MAY 2010	Dept of Mines and Petroleum
Structural data	WAROX	MAY 2010	Dept of Mines and Petroleum
Cadastre	TENGRAPH	MAY 2010	Dept of Mines and Petroleum
Topographic nomenclature	GEONOMA	2010	Landgate
Topography	Landgate and GSWA field survey	2010	Landgate
Contours	NASA SRTM 90m Digital Elevation Data	2000	Consultative Group for International Agriculture Research – Consortium for Spatial Information

* DMP data can be viewed online at <http://www.dmp.wa.gov.au/geoview>, and related datasets can be downloaded from the GSWA Data and Software Centre <http://www.dmp.wa.gov.au/dataccentre>

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 51

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

YAMARNA

SHEET 3642 **FIRST EDITION 2010**

Version 1.0 — June 2010

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