Tasmanian Government

Department of State Growth

MINERAL RESOURCES TASMANIA

GEOLOGY OF NORTHWEST TASMANIA

SCALE 1:250 000

0 5 10 15 20 25km

The geological data for this map were compiled by C.R.Calver B.Sc.(Hons)Ph.D., K.D.Corbett B.Sc.(Hons)Ph.D., G.V.Cumming B.Sc.(Hons), J.L.Everard B.Sc.(Hons), B.D.Goscombe B.Sc.(Hons)Ph.D., C.J. Jackman B.Sc.(Hons), J.Pemberton B.Sc.(Hons)M.Sc., D.B.Seymour B.Sc.(Hons)Ph.D., M.J.Vicary B.Sc.(Hons), from Tasmanian Geological Survey Geological Atlas 1:63 360 and 1:50 000 series, Digital Geological Atlas 1:25 000 series and other sources.

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GDA94 - MGA Zone 55.

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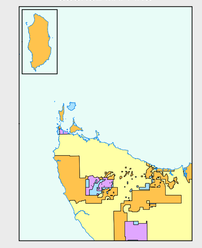
SOURCE MAPPING



- Highly detailed (eg. more detailed than 1:25 000 scale mapping).
- Detailed systematic (eg.1:25 000 map or equivalent detail).
- Regional systematic (eg.1:50 000, 1:63 360 map or equivalent detail).
- Regional mapping less detailed than 1:63 360 map or equivalent (all other scales).
- Reconnaissance mapping with sparse ground traverses.
- Remote sensing and/or geophysical interpretation with limited or no ground information.

CONTACTS

- Geological contact.
- Limit of mapping of sub-unit within undifferiented rock unit.

FAULTS

- Fault
- Fault - concealed.
- Normal fault (downthrown side indicated).
- Normal fault (downthrown side indicated) - concealed.
- Thrust fault (teeth on upper plate).
- Thrust fault (teeth on upper plate) - concealed.
- Strike-slip fault (dextral).
- Strike-slip fault (sinistral).

LINEARS

- Axial surface trace of major antiform.
- Axial surface trace of major synform.
- Axial surface trace of major overturned antiform.
- Axial surface trace of major overturned synform.
- Lithological trend line, including bedding trace.

- Strike and dip of bedding: right way up; overturned; facing unknown; vertical with facing unknown.
- Strike and dip of cleavage: dipping; vertical.
- Strike and dip of crenulation cleavage: dipping.
- Strike and dip of schistosity or metamorphic foliation: dipping; vertical.
- Direction and plunge of hinge line of minor fold: unspecified age; folding cleavage or schistosity.
- Strike and dip of igneous mineral foliation: dipping; trend of foliation trace on horizontal surface.

- Erosional surface.
- Terrestrial cavern fillings (Eugenana Beds) (Dc).
- Angular unconformity attributed to major polyphase orogeny.
- Angular unconformity.
- Diachronous contacts; angular unconformity in some areas, apparent conformity in others.

CENOZOIC

QUATERNARY

HOLOCENE

- Qh — Sand, gravel, and mud of alluvial, lacustrine and littoral origin (Qh).
- Qpf — Glacial, periglacial and fluvioglacial sediments including till and interglacial deposits (Qp); talus, vegetated and active (Qpf).
- Qpg — Glacial and glacigene deposits (Qpg).
- Qps — Coastal sand and gravel (Qps).
- Qpl — Limestone (Qpl).

PLEISTOCENE — Q, Qp

- Erosional surface
- Tr, Ts, Tb, Tc — Dominantly non-marine sequences of sand and gravel, silt clay and regolith (Ts); marine limestone (Tm); ferricrete and laterite derived from basalt (Tl).
- Basalt (tholeiitic to alkalic) and related volcaniclastic rocks (Tb).
- Conglomerate, gravel and grit (Tc).
- Erosional surface.

PALEOGENE-NEOGENE — Tm, Ts, Tb, Tc

MESOZOIC

TRIASSIC — R

- Undifferentiated fluviolacustrine sequences of sandstone, siltstone and mudstone (R).

PERMIAN — P, Pu, Pl, Pt

- Upper glaciomarine sequences of pebbly mudstone, pebbly sandstone and limestone (Pu).
- Freshwater and paralic sandstone and mudstone with some coal measures (Pl).
- Lower glaciomarine sequences of mudstone, pebbly mudstone, pebbly sandstone, minor limestone and tasmanite oil shale (Pl); basal tillite (Pt).

UPPER / LOWER PARMENEER SUPERGROUP

PALEOZOIC

CARBONIFEROUS

DEVONIAN

SILURIAN

ORDOVICIAN

- SD — SDb, SDl, SDa, SDc — Siltstone, shale and fine-grained sandstone (Bell Shale and correlates) (SDb).
- Shallow marine quartz sandstone (Florence Quartzite and correlates) (SDl).
- Siltstone, shale and minor quartz sandstone (Amber Slate, Keel Quartzite, Austral Creek Siltstone and correlates) (SDa).
- Shallow marine quartz sandstone and pebble conglomerate (Crotty Quartzite and correlates) (SDc).
- Dominantly shallow marine limestone with minor siltstone and sandstone (Gordon Group) (Ol).
- Undifferentiated or poorly constrained conglomerate-sandstone sequences of Funongian to Ordovician age (€O).
- €Os — Os, €Os — Shallow marine sandstone-mudstone ± conglomerate ± limestone. Ordovician fossils and trace fossils in places. Includes Moina Sandstone, Pioneer Beds (Os). Unconformity on older rocks in places.
- €Oc — Shallow marine sandstone, typically pink, cross-bedded to thin-bedded, with some siltstone and minor conglomerate. Includes Upper Owen Sandstone (€Oc).
- €Oms — Basalt lava (€Ob).
- Mainly siliciclastic conglomerate with sandstone interbeds, shallow marine to non-marine, pebble to boulder grade. Includes Middle Owen Conglomerate, Dial Conglomerate, Roland Conglomerate (€Oc).
- Marine sandstone-siltstone-conglomerate sequences, typically turbiditic, siliciclastic to polymict. Funongian fossils in places. Includes Newton Creek Sandstone, Middle Owen Sandstone, upper Dundas Group, much of 'Rosebery Group' (€Oms).

GORDON GROUP / OWEN GROUP — ELDON GROUP / WARRAWINA SUPERGROUP

CAMBRIAN

CAMBRIAN SERIES 3 - FURONGIAN

CAMBRIAN SERIES 2

? TERRENEUVIAN - CAMBRIAN SERIES 2

SMITHTON - ROCKY CAPE REGION

- €m — Polymict conglomerate, lithicwacke, siltstone and mudstone with rare marine fossils (Scopus Formation) (€m).
- Inferred disconformity

TULLAH - DIAL RANGE - FOSSEY MOUNTAINS REGION

- €ds — €dt, €dtl, €da, €dav, €davl, €dsv, €ds, €dsq — Dominantly sedimentary sequences with minor volcanic and volcaniclastic units (€ds). Upper sequence of felsic to intermediate volcaniclastic and volcanic rocks, with siliciclastic units, of Cambrian Series 3 age. Tyndall Group and correlates (€dt). Felsic lavas within Tyndall (€dtl).
- Andesitic lavas, breccias and intrusive rocks. Includes, Que-Hellyer Volcanics, Beulah andesite (€da).
- Dominantly volcano-sedimentary sequences with some felsic to intermediate volcanic rocks; Cambrian Series 3 fossils in places. Western Volcano-Sedimentary sequences. Mt Charter Group, Gog Range Greywacke (€dsv).
- Basaltic volcanics and minor intrusives (€db).
- Felsic lavas within Western Volcano-Sedimentary sequence (€dsvl).
- Dominantly felsic to intermediate volcanic rocks, typically massive, feldspar-phyric. Central Volcanic Complex (€dv).
- Dominantly felsic volcanic, volcaniclastic and intrusive rocks, typically quartz-feldspar-phyric. Eastern Quartz-Phyric Sequence and correlates (€dq).
- Siliciclastic sandstone-siltstone-conglomerate units of metamorphic derivation. Includes Sticht Range Beds, Animal Creek Greywacke (€dsq).

MT READ VOLCANICS

- €s — €l, €ls — Layered peridotite, serpentinite and associated rocks (€s); tonalite and associated rocks (€l); undifferentiated low-Ti tholeiitic and boninitic lavas (€ls). Structurally emplaced.
- €cw — €cwg, €cwb, €cwc — Mafic volcaniclastic sandstone-siltstone-mudstone-chert-minor carbonate sequences, with intercalated tholeiitic basalt flows. Considered allochthonous. Luina Group and correlates (€cw). Dominantly micaceous quartzose lithicwacke, including Crescent Spur Sandstone (€cwg). Tholeiitic basalt and picrite units (€cwb). Chert-rich sequences, including Barrington Chert (€ccwc).

ARTHUR METAMORPHIC COMPLEX

- Pzc — Chloritic schist, with minor phyllite, dolomite and magnesite (Pzc); lithologically diverse (Pzcb) with greenstone, dolostone, metamafics and talc, chloritic albite and amphibole schists. Includes magnetite ore and magnesian skarns (Pzcb); amphibolite (Paa).
- Pzp — Phyllite with minor pelitic schist, foliated quartzite and dolomite, and rare conglomerate (Pzp).
- Paf — Quartz mica schist, quartzite, phyllite and rare dolomite (Kath Schist and correlates) (Paf).

ARTHUR METAMORPHIC GROUP

KING ISLAND

- Pdv — Turbiditic volcaniclastic and mafic volcanic rocks (Crimson Creek Formation and correlates) (Pdv).
- Pds — Shallow marine quartz sandstone and siltstone with carbonate and chert beds (Success Creek Group and correlates) (Pds).
- Pyv — Tholeiitic basalt and picrite (Skipworth Subgroup) (Pyv).
- Pys — Shale, siltstone, diamictite, minor carbonate and basaltic lava (Pys).

OONAH FORMATION / GRASSY GROUP

TOUAMI GROUP-ARBERG GROUP

- Ps — Psr, Psd, Psb, Psc, Psc — Pale-weathering, thin bedded, laminated quartz siltstone with subordinate interbedded fissile shale, commonly silicified (Salmon River Siltstone) (Psr).
- Shallow marine dolomite and minor limestone (Smithton Dolomite and correlates) (Psd).
- Turbiditic mudstone, siltstone, lithic-wacke and diamictite with dominantly mafic detritus (Psv); tholeiitic basalt (Spinks Creek Volcanics, Bernafai Volcanics and correlates) (Psb).
- Shallow marine dolomite, chert, shale and diamictite (Black River Dolomite, Savage Dolomite and correlates) (Pss); basal siliceous conglomerate and sandstone (Forest Conglomerate and Quartzite, Donaldson Formation and correlates) (Psc).
- Low-angle unconformity or inferred disconformity.

TYENNAN AND SIMILAR REGIONS

- Pt — Pts, Pz, Ptgg, Pts — Undifferentiated metasedimentary sequences, with greenschist facies metamorphism (Pt). Dominantly quartzite sequences (Pts).
- Dominantly pelitic sequences, mainly phyllite (Ptp).
- Garnetiferous pelitic schist (Ptgg).
- Dominantly schistose conglomerate (Goat Island Conglomerate and correlates) (Pts).
- Pf — Pfb, Pfg — Micaceous quartzite, schist, phyllite and minor amphibolite (Pb) (Suprise Bay Formation); quartz siltstone and mudstone (Pf) (Fraser Formation); garnetiferous metamorphic equivalents (Pfg).

NEOPROTEROZOIC

CRYOGENIAN - EDIACARAN

NEOPROT-ERO-ZOIC(?) - TONIAN(?) - STENIAN(?)

MESOPROTERO-ZOIC - ECTASIAN - CALYMMIAN(?)

ROCKY CAPE GROUP

- Prs — Unassigned quartzite sequences (Prs).
- Prq, Pri, Prd, Prc, Prb, Prbs, Prt, Prp — Shallow marine to partistal, well-bedded, cross-bedded orthoquartzite, platy quartzite and siltstone (Jacob Quartzite) (Prq).
- Shallow marine laminated grey siltstone, mudstone and dolomite (Irby Siltstone) (Pri).
- Shallow marine to partistal, well-bedded, cross-bedded orthoquartzite and subordinate siltstone (Detention Subgroup) (Prd).
- Dominantly dark, laminated, commonly pyritic, marine siltstone and mudstone (Cowrie Siltstone and similar sequences) (Prc).
- Interbedded cross-bedded quartz sandstone and siliceous-carbonaceous siltstone, fining up to laminated chloritic siltstone (Balfour Subgroup) (Prb).
- Some areas of ± massive quartz sandstone indicated (Prbs).
- Parallel-to cross-bedded quartz sandstone with rare quartz-pebble conglomerate and shale (Lagoon River Quartzite) (Prt).
- Interbedded to interlaminated siltstone and quartz siltstone-sandstone with erosional structures, grading and cross-lamination (Pedder River Siltstone) (Prp).

IGNEOUS ROCKS

MESOZOIC CENOZOIC

PALEOGENE-NEOGENE

- Tb — Basalt (tholeiitic to alkalic) and related volcaniclastic rocks (Tb).

JURASSIC

- Jd — Dolerite (tholeiitic) with locally developed granophyre (Jd).

DEVONIAN - CARBONIFEROUS

LOWER DEVONIAN - NEOPROTEROZOIC

- Dgd, Dgsf, Dgsfs, Dgsa, Dgsas, Dg, Dgn — Undifferentiated granitic rocks (Dg); undifferentiated alkali-feldspar granite/granite/adamellite, I-type (Dga); S-type (Dgas); dominantly alkali-feldspar granite, I-type (Dgaf); S-type (Dgafs); dominantly adamellite/granite, I-type (Dgaa); S-type (Dgaas).
- Dgn — Dominantly granodiorite/adamellite, I-type (Dgn).

ORDOVICIAN

- €Ob — Tholeiitic basalt (Mt Tor area; upper Wilmot River) (€Ob).
- €Obt — Tholeiitic dolerite (Black Bluff Range) (€Obt).

CAMBRIAN SERIES 3 - FURONGIAN

CAMBRIAN SERIES 2

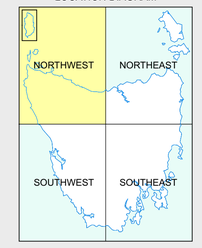
? TERRENEUVIAN - CAMBRIAN SERIES 2

- €dtl — Felsic lavas within Tyndall Group (€dtl).
- €dsvl — Felsic lavas within Western Volcano-Sedimentary Sequence (€dsvl).
- €db — Basaltic volcanics and minor intrusives (including Hellyer basalt) (€db).
- €da — Andesitic lavas, breccias and intrusive rocks (€da).
- €dai — Major andesitic to dacitic intrusives, including 'Beulah Granite' and Lobster Creek Intrusives (€dai).'
- €dv — Felsic to intermediate volcanic rocks (Central Volcanic Complex of Mt Read Volcanics) (€dv).
- €dq — Quartz feldspar porphyry (€dq).
- €gr, €grf — Granite, (includes Dove Granite) (€gr).
- €dd — Dolerite (Mt Charter area; upper Leven River); diorite (Wilmot and Riana areas) and basalt (Gog Range area) (€dd).
- €g — Gabbroic rocks (€g).
- €cbt, €cbl — Low-titanium tholeiitic lavas (€cbt); derived coarse-grained volcaniclastics (€cbv).
- €p — Picritic lava and brecia (€bp).
- €ba — Boninitic lavas (€ba).
- €t — Tonalite and associated rocks (€t).
- €sd, €sp — Layered peridotite, serpentinite and associated rocks (€s); dominantly serpentinised layered dunite and harzburgite ('LDH association') (€sd); dominantly layered pyroxenite and dunite ('LPD association') (€sp).
- €cwb — Tholeiitic basalt (within Luina Group and correlates; includes 'Motton Spilite') (€cwb).
- Pzb, Pyv — Tholeiitic basalt (Spinks Creek Volcanics, Bernafai Volcanics and correlates) (Pzb); with picrite (Skipworth Subgroup) (Pyv).
- Pyg — Subvolcanic andesitic intrusives (Grimes Intrusive Suite; on King Island) (Pyg).
- Pm — Tholeiitic dolerite dykes (Tayatea Dyke Swarm) (Pm).
- Pg, Pgl — Granitic rocks (on King Island) (Pg).
- Pob — Alkali basalt and dolerite (within Burnie and Oonah Formations; includes Cooee Dolerite) (Pob).
- Paa — Amphibolite (Paa).

CONTACTS IN PART AND FAULTS INTERPRETED

MT READ VOLCANICS (IN PART AND ASSOCIATED PLUTONISM)

LOCATION DIAGRAM



BASS STRAIT
KING ISLAND
CAPE WICKHAM
Cape Farewell
Disappointment Bay
PHOQUES BAY
New Year Is
Christmas Is
Whistler Pt
Lavinia Pt
Cowper Pt
Psb Councillor Island
SEA ELEPHANT BAY
Fraser Bluff
Bold Head
Grassy Bay
Fitzmaurice Bay
Cataraqui Pt
Seal Pt
Surprise Bay
Sea Bay
STOKES POINT
Albatross Island
Psc
CAPE KERAUDREN
NORTH WEST CAPE
CAPE ROCHON
THREE HUMMOCK ISLAND
CAPE ADAMSON
Coulomb Bay
HOPE CHANNEL
Cuvier Bay
Tb+Ts Black Pyramid
North Black Rock
Cuvier Pt
HUNTER ISLAND
Wallaby Pt
Cave Bay
Steep Island
Tb=s South Black Rock
Qpafsl Penguin Islet
HUNTER PASSAGE
CAPE BUACHER
CHANNEL
WALKER ISLAND
Trefoil Island
WALKER
BOULLANGER BAY
CAPE GRIM
ROBBINS ISLAND
Ransonnet Bay
Guyton Pt
CAPE ELIE
PASSAGE
ROBBINS
Shipwreck Pt
Big Bay
PERKINS BAY
PERKINS ISLAND
Duck Bay
SMITHTON
NORTH POINT
Half Moon Bay
Stanley
THE NUT
CIRCULAR HEAD
SAWYER BAY
ROCKY CAPE
Anniversary Pt
Rocky Cape
Sisters Beach
Boat Harbour Beach
Boat Harbour
TABLE CAPE
WYNYARD
Myalla
Forest
Christmas Hills
Irishtown
Ulverstone
Edith Creek
Ulleah
Trowutta
Redpa
Moriarty
Green Pt
Ann Bay
WEST POINT
Mawson Bay
Bluff Hill Point
Bluff Pt
Studland Bay
ARTHUR RANGE
Sundown Pt
Nelson Bay
Richardson Pt
Hazard Bay
Ordnance Pt
KENNETH BAY
SANDY CAPE
NORFOLK RANGE
MT SUNDAY
Rupert Pt
Pieman Head
Hardwicke Bay
Conical Rocks Pt
MT LIVINGSTONE
MT BERTHA
MT CLEVELAND
MT BISCHOFF
Waratah
MT PEARSE
MT MEREDITH
MT RAMSAY
MT REMUS
DUCK RIVER RIDGE
ST VALENTINES PEAK
CAMPBELL RANGE
Yolla
Ridgley
Somerset
COMMONWEALTH RANGE
MT EVERETT
HAIG-FENTON TRACK TIER
Lake Barrington
Lower Barrington
Barrington
Forth
Sprent
Paloona
Railton
Kindred
Sheffield
West Kentish
Kentish
Wilmot
Roland
Lake Rowallan
Lake Gordon
Lake Pedder
Lake Mackintosh
Weld River
Pieman River
Murchison Highway
Mole Creek
Chudleigh
Kimberley
Weegena
MT ROLAND
MT VANDYKE
MT CLAUDE
BLACK BLUFF RA
GOG RANGE
GREAT WESTERN TIER
WESTERN BLUFF
FISHER BLUFF
CRADLE MTN
MT EMMETT
DECEPTION PT
WRONSTONE MTN
Penguin Pt
Picnic Pt
ULVERSTONE
Mersey Bluff
DEVONPORT
Wesley Vale
Ulverstone
Heybridge
Sulphur Creek
Slowport
PENGUIN
Cooee Pt
BURNIE
Emu Bay
SOMERSET
Port Sorell
Latrobe
Turners Beach
Elizabeth Town
Wesley Vale
Spreyton
Quoiba
Riana
Sassafras
Moina
Upper Castra
Lower Castra
Sheffield
Kindred
Sprent
Paloona
Railton
Kimberley
Weegena
Mole Creek
Chudleigh
Deloraine
Meander
Liena
Golden Valley
Lemonthyme
Middlesex
Wilmot
Roland
Kentish
Forth
Ridgley
Yolla
Somerset
Cooee Pt
Emu Bay
Heybridge
Sulphur Creek
Penguin Pt
Picnic Pt
Mersey Bluff
Wesley Vale
Spreyton
Latrobe
Turners Beach
Elizabeth Town
Sassafras
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Upper Castra
Lower Castra
Quoiba
Riana