REFERENCE

CAINOZOIC — QUATERNARY

HOLOCENE

Qr | Qs | Ql | Qlg | Qg

- **Qr** Ningaloo Reef tract – living coralgal reef
- **Qs** Coastal dunes, beaches and beach ridges – calcarenite, variably quartzose
- **Ql** Coastal lacustrine deposits – calcareous and gypsiferous clay, silt and sand, evaporitic deposits
- **Qlg** Eolian clay and silt, in part gypsiferous, derived from lacustrine deposits (kopi) – clay, silt, minor sand
- **Qg** Bedded gypsum deposits – gypsum, anhydrite, halite, minor clay, silt and sand

PLEISTOCENE TO HOLOCENE

Q | Qa | Qw | Qe | Qep | Qp

- **Q** Deposits of mixed or uncertain origin – alluvial, colluvial, eluvial and eolian clay, silt, sand and gravel
- **Qa** Alluvium – clay, silt, sand and gravel, locally calcreted, associated with drainage lines
- **Qw** Diluvium and colluvium – clay, silt, sand and gravel, locally calcreted, no well defined drainage pattern
- **Qe** Eolian sand – reddish brown to yellowish quartz sand in dunes and sandplains
- **Qep** Mixed dune and playa terrain – alluvial, diluvial and eolian clay, silt, sand and gravel
- **Qp** Large playas – poorly sorted clay, silt, sand and gravel

PLEISTOCENE

Qb | Qbe | Qbc | Qbm

- **Qb** **BUNDERA CALCARENITE** : undifferentiated; eolian and marine
- **Qbe** Calcarenite with calcrete soils, dune shapes locally preserved ; eolian
- **Qbc** Calcirudite, minor coralgal reefs and ? beach sands ; coastal
- **Qbm** Coquinite, calcarenite, coralgal reefs ; marine

PLIOCENE TO PLEISTOCENE

Czk | Czn | Czc

- **Czk** Calcrete – authigenic limestone duricrust, locally obscures older sediments, includes valley calcrete in Precambrian areas
- **Czn** **NADARRA FORMATION** : micritic limestone and calcreted mudstone ; lacustrine
- **Czc** Older alluvial, colluvial and diluvial deposits – consolidated clay, silt, sand and gravel

CAINOZOIC — TERTIARY

MIOCENE

Tt | Tl

- **Tt** **TREALLA LIMESTONE** : calcirudite to calcilutite, commonly fossiliferous, quartzose in places ; shallow marine to littoral
- **Tl** **LAMONT SANDSTONE** : silicified quartz sandstone, moderately sorted, contains fossil wood ; shallow marine

OLIGOCENE

Czd

- **Czd** Ferruginous and siliceous duricrust – laterite, silcrete, some intensely ferruginized and/or silicified bedrock

EOCENE

Tg | Tm

- **Tg** **GIRALIA CALCARENITE** : calcarenite, commonly ferruginized and/or quartzose ; shallow marine
- **Tm** **MERLINLEIGH SANDSTONE** : sandstone, poorly sorted, locally fossiliferous ; fluviatile to shallow marine

PALEOCENE — Cardabia Group

TD | Tj | Tc | Tw

- **TD** Undifferentiated, mostly Tw and Tp
- **Tj** **JUBILEE CALCARENITE** : calcarenite, greenish brown ; shallow marine
- **Tc** **PIRIE** and **CASHIN CALCARENITES** : chalky calcisiltite and calcilutite, hard calcarenite, fossiliferous ; shallow marine
- **Tw** **WADERA CALCARENITE** : glauconitic, fossiliferous calcarenite ; shallow marine
- **BOONGEROODA GREENSAND** : friable, fossiliferous greensand ; shallow marine condensed sequence

MESOZOIC — LATE CRETACEOUS

MAASTRICHTIAN

Kk | Kt

- **MIRIA MARL** : fossiliferous chalky marl, locally glauconitic ; shallow marine, condensed sequence
- **KOROJON CALCARENITE** : calcarenite and calcisiltite, abundant *Inoceramus* ; shallow marine
- **TOOLONGA CALCILUTITE** : chalky calcisiltite to calcilutite, poorly exposed ; shallow marine

?TURONIAN

MESOZOIC — EARLY CRETACEOUS

ALBIAN — Winning Group

Kg | Kw

- **GEARLE SILTSTONE** : bentonitic siltstone, shale and radiolarite, poorly exposed ; low energy marine shelf
- **WINDALIA RADIOLARITE** : radiolarian siltstone, variably porcellanized ; low energy marine shelf

APTIAN — Winning Group

Km | Kb | Kn

- **MUDERONG SHALE** : variably glauconitic siltstone, claystone and shale ; low energy marine shelf
- **BIRDRONG SANDSTONE** : well-sorted quartz arenite, commonly cross-bedded ; high energy shallow marine
- **NANUTARRA FORMATION** and **YARRALOOLA CONGLOMERATE** : sandstone, siltstone and conglomerate ;

PALAEOZOIC — EARLY PERMIAN

ARTINSKIAN — Kennedy Group

PKb | PKm | PKc

- **BINTHALYA FORMATION** : ferruginized quartz wacke and siltstone ; offshore marine shelf
- **MUNGADAN SANDSTONE** : quartz arenite and quartz wacke, locally bioturbated ; shallow marine shelf
- **COOLKILYA SANDSTONE** : quartz wacke and siltstone, variably calcareous, locally fossiliferous ; shallow marine shelf

ARTINSKIAN — Byro Group

PB | PBk | PBn | PBw | PBq | PBu | PBb | PBm | PBc

- **BYRO GROUP** : undifferentiated, probably mostly PBu, PBb and PBm
- **BAKER FORMATION** : siltstone and fine quartz wacke, locally fossiliferous ; offshore and shallow marine
- **NALBIA SANDSTONE** : quartz wacke, bioturbated and fossiliferous, contains ferruginous concretions ; shallow marine
- **WANDAGEE FORMATION** : siltstone and fine quartz wacke, variably calcareous, very fossiliferous ; offshore and shallow marine
- **QUINNANIE SHALE** : carbonaceous shale, siltstone and fine quartz wacke, fossiliferous ; offshore marine
- **CUNDLEGO FORMATION** : quartz wacke, siltstone, carbonaceous siltstone and shale, locally fossiliferous ; shallow marine
- **BULGADOO SHALE** : shale, siltstone, minor quartz wacke, variably calcareous ; offshore marine
- **MALLENS SANDSTONE** : quartz wacke, minor quartz arenite, bioturbated, cross-bedded ; shallow marine
- **COYRIE FORMATION** : siltstone, claystone, quartz wacke, commonly thin-bedded ; offshore and shallow marine

ARTINSKIAN — Wooramel Group

PWb | PWm | PWc

- **BILLIDEE FORMATION** : quartz wacke and siltstone, commonly thin-bedded, fine-grained ; marine shelf
- **MOOGOOLOO SANDSTONE** : quartz arenite, medium-grained, commonly sparkling ; shallow marine, minor fluviatile
- **CORDALIA SANDSTONE** : quartz wacke and siltstone, fine to medium-grained, silty ; shallow marine

PALAEOZOIC — LATE CARBONIFEROUS

SAKMARIAN

Pc | CPl

- **CALLYTHARRA FORMATION** : calcareous siltstone and hard calcarenite, very fossiliferous ; marine shelf, shoaling in upper part
- **LYONS FORMATION** : quartz wacke, siltstone, shale and tillite, in part calcareous ; glacigene, continental to marine, includes minor CARRANDIBBY FORMATION

Cla | Clh

- **Austin Member** : quartz wacke to quartz arenite, moderately to poorly-sorted ; fluviatile, lacustrine, ? shallow marine
- **Harris Sandstone Member** : quartz arenite, minor quartz wacke, moderately sorted ; shallow marine to ? fluviatile. May correlate with AUSTIN MEMBER

PALAEOZOIC — EARLY CARBONIFEROUS

?VISEAN

Cy | Cw | Cm

- **YINDAGINDY FORMATION** : quartz wacke, oolitic and algal limestone, fossiliferous ; shallow marine to littoral
- **WILLIAMBURY FORMATION** : quartz wacke, conglomerate and siltstone ; fluviatile, alluvial fan
- **MOOGOOREE LIMESTONE** : calcarenite, calcilutite, dolomite, algal limestone, very fossiliferous in places ; shallow marine

TOURNAISIAN

PALAEOZOIC — DEVONIAN

FAMENNIAN

Dw | Dm

- **WILLARADDIE FORMATION** : conglomerate, quartz wacke, quartz arenite, siltstone ; fluviatile, alluvial fan
- **MUNABIA SANDSTONE** : quartz arenite, minor siltstone and dolomite ; fluviatile, minor marine incursions

FRASNIAN

Dg | Dn

- **GNEUDNA FORMATION** : siltstone, calcarenite, calcilutite, calcirudite, dolomite, very fossiliferous ; shallow marine
- **NANNYARRA SANDSTONE** : quartz arenite, quartz wacke, siltstone ; shallow marine and fluviatile

PROTEROZOIC

q | b | d

- Quartz vein (q), dolerite sill (b), dyke (d)

Ꝑdm

- Metamorphosed dolerite or gabbro

Bangemall Group

Ꝑ̶Mv | Ꝑ̶Md | Ꝑ̶Mj | Ꝑ̶Mk | Ꝑ̶Mi | Ꝑ̶Mi(a)

- **DEVIL CREEK FORMATION** : dolomite and dolomitic shale
- **DISCOVERY CHERT** : bedded and laminated, black and grey chert
- **JILLAWARRA FORMATION** : black shale with thin chert, siltstone and dolomite lenses
- **KIANGI CREEK FORMATION** : bedded and laminated quartz arenite, with minor siltstone and shale
- **IRREGULLY FORMATION** : laminated dolomite
- Arenite unit

Uaroo Group

Ꝑ̶Ur

- **ROUSE CREEK ARENITE** : quartz arenite, with minor dolomite

EARLY PROTEROZOIC

Ꝑgmt | Ꝑgmb | Ꝑgmv | Ꝑgml | Ꝑgbt | Ꝑgbr | Ꝑgbl | Ꝑgbm | Ꝑgt

- **Ꝑgmt** Muscovite-biotite granodiorite and adamellite ; medium to coarse-grained, some phases are inhomogeneous and xenolithic, other phases are more homogeneous
- **Ꝑgmb** Muscovite-biotite(-tourmaline) adamellite and granite ; most phases are homogeneous, but some are inhomogeneous
- **Ꝑgmv** Muscovite-tourmaline granite and adamellite, includes some zoned pegmatite phases
- **Ꝑgml** Porphyritic, muscovite-biotite granite
- **Ꝑgbt** Foliated, biotite(-hornblende) granodiorite and tonalite ; medium to coarse-grained
- **Ꝑgbr** Biotite granodiorite ; mainly coarse-grained
- **Ꝑgbl** Foliated, biotite granodiorite, adamellite and granite ; porphyritic
- **Ꝑgbm** Biotite-muscovite adamellite and granite ; medium to coarse-grained
- **Ꝑgt** Biotite granodiorite in late-stage dykes

Morrissey Metamorphic Suite

Ꝑsq | Ꝑsp | Ꝑsm | Ꝑsa | Ꝑsd

- **Ꝑsq** Quartzite ; fine-grained, finely-banded
- **Ꝑsp** Phyllite
- **Ꝑsm** Fine-grained, quartz-chlorite-epidote-calcite (-sericite) schist ; contains abundant feldspar and quartz porphyroclasts
- **Ꝑsa** Foliated, coarse-grained arkose, feldspathic arenite and granule conglomerate ; metamorphosed at low grade
- **Ꝑsd** Metamorphosed dolomite and siliceous or feldspathic dolomite

Ꝑls | Ꝑlu | Ꝑlb | Ꝑlr | Ꝑla

- **Ꝑls** Fine to coarse-grained, quartz-muscovite-chlorite (-biotite)-epidote-sericite schist ; metamorphosed wacke and pelite
- **Ꝑlu** Medium to coarse-grained, quartz-muscovite-biotite (-chlorite) schist
- **Ꝑlb** Dark-grey, fine-grained, quartz-biotite-muscovite-garnet schist
- **Ꝑlr** Metamorphosed, schistose conglomerate, with interlayered pelitic schist and quartzite
- **Ꝑla** Fine-grained, hornblende-quartz-epidote-magnetite- (biotite - chlorite) schist

Ꝑqm | Ꝑqi

- **Ꝑqm** Fine-grained, granoblastic-textured quartzite
- **Ꝑqi** Fine-grained, laminated quartz-magnetite rock

Ꝑng | Ꝑnp | Ꝑnc | Ꝑnm | Ꝑna | Ꝑmb

- **Ꝑng** Muscovite-biotite-granodioritic, or adamellitic paragneiss ; metamorphosed arkose ; retrograde varieties are phyllonitic, includes some mica schist
- **Ꝑnp** Biotite-muscovite (-garnet) - granodioritic microgneiss, with intercalated pelitic schist
- **Ꝑnc** Quartz-epidote-tremotite granofels or schist ; contains hornblende and clinopyroxene in places ; calc - silicate quartzite associated with marble and chlorite schist in places
- **Ꝑnm** Dolomite- Mg-chlorite - tremolite marble
- **Ꝑna** Hornblende - plagioclase amphibolite
- **Ꝑmb** Paragneiss migmatite