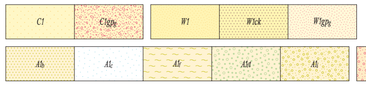
PHANEROZOIC

CENOZOIC

QUATERNARY

Lacustrine unit

$L_{p}c$ Lacustrine deposits; clay, silt, and silty sand; playa (saline) and claypan (freshwater) deposits



Colluvial units, third generation

C1 Colluvial sand, silt, and gravel in outwash fans; scree and talus; proximal moss-wasting deposits; unconsolidated

$C1_{gr}$ Quartzofeldspathic sand, silt, and gravel on outwash fans; derived from moss-wasting of granitic rocks

Sheetwash units, second generation

W1 Silt, sand, and pebbles in distal sheetwash fans; no defined drainage

W1ck Sheetwash deposits of calcareous clay and silt adjacent to, and derived from, older calcrete deposits

$W1_{gr}$ Quartzofeldspathic sand and quartz pebbles in sheetwash fans; derived from mass-wasting of granitic rocks

Alluvial units, third generation

Ab Sand, silt, and gravel in the beds of major active drainage channels; unconsolidated

Ac Sand, silt, and gravel in active drainage channels; includes clay, silt, and sand in poorly defined drainage courses on floodplains

Ar Floodplain deposits; sand, silt, clay, and gravel adjacent to main drainage channels

Am Pebbles, cobbles, and sand; proximal overbank deposits and gravel bars

Al Mixed floodplain deposits; sand, silt, and clay adjacent to main drainage channels; numerous small claypans

Residual or relict units, third generation

$R1_{gr}$ Residual quartzofeldspathic sand, with quartz and rock fragments; overlying and derived from mass-wasting of granitic rocks

$R1_{fe}$ Dark brown-weathering iron sulfides: in veins with grey to white chert and quartz

Colluvial units, second generation

C2 Partly consolidated colluvial sand, silt, and gravel in proximal outwash fans; scree and talus; dissected by present-day drainage

C2f Ferruginous colluvium; partly consolidated sand, silt, clay, and rock fragments in proximal outwash fans and scree; dissected by present-day drainage

$C2_{gr}$ Variably consolidated quartzofeldspathic sand, silt, clay, and rock fragments derived from granitic rocks; dissected by present-day drainage

Alluvial unit, second generation

A2 Partly consolidated alluvial sand, silt, and gravel; dissected by present-day drainage

Residual or relict units, second generation

$R2_{gr}$ Variably consolidated eluvial and colluvial sand, gravel, and silt overlying, and derived from granitic rocks; dissected by present-day drainage

R2k Residual calcrete: massive, nodular, and cavernous limestone; variably silicified; dissected by present-day drainage

R2c Siliceous duricrust; includes silcrete, massive nodular silica, and duricrust; locally with clasts of chert and angular quartz; dissected by present-day drainage

PALEOGENE–NEOGENE

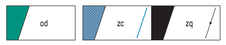
MIOCENE

ROBE PISOLITE: pisolitic limonite, goethite, and hematite deposits; developed along paleodrainage lines; dissected by present-day drainage

Residual unit, first generation

R3f Ferruginous duricrust and ferruginous colluvium; locally includes ferruginous alluvium; consolidated to partly consolidated; related to Hamersley Surface; dissected by present-day drainage

PROTEROZOIC



od Dolerite dykes, sills, or plugs; fine- to medium-grained dolerite; age uncertain

zc Blue-black, and grey and white hydrothermal chert; in dykes and veins; metamorphosed

zq Quartz vein or pod; massive, crystalline, or brecciated; age uncertain

c. 755 Ma [1]

EMW-od **Mundine Well Dolerite Suite:** dolerite dykes, sills, and small intrusions with locally abundant xenoliths and potassic alteration of wallrocks; includes minor quartz diorite, syenite, tonalite, and biotite monzogranite

ERH-od **Round Hummock Dolerite Suite:** dolerite dyke, fine to medium grained

AFO-od Dolerite dyke or sill

FORTESCUE BASIN

2727–2715 Ma [2 3]

2766–2752 Ma [2 3]

Mount Bruce Supergroup

Fortescue Group

TUMBIANA FORMATION

Mingah Member: basaltic to andesitic volcaniclastic sandstone and siltstone (common accretionary lapilli), and local quartz sandstone, shale, and thin lenticular stromatolitic carbonate units; locally thick basalt flows

HARDEY FORMATION

AFOh-sq Pebble to cobble conglomerate interbedded with medium- to coarse-grained sandstone, wacke, and siltstone

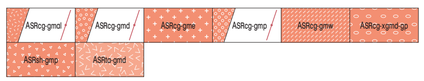
AFOh-sp Thickly bedded sandstone, pebbly sandstone, and conglomerate

AFOh-sr Coarse to pebbly sandstone; minor pebble conglomerate; thickly bedded

c. 2772 Ma [4]

Black Range Dolerite Suite: dolerite dyke; local gabbro; weakly metamorphosed

Fortescue Rifting event (c. 2775 Ma)



c. 2850 Ma [5]

Split Rock Supersuite

COOGLEGONG MONZOGRANITE

ASRcg-gmal Leucocratic monzogranite; fine to medium grained; equigranular

ASRcg-gmd Coarse-grained to pegmatitic monzogranite

ASRcg-gme Coarse-grained, equigranular biotite monzogranite

ASRcg-gmp K-feldspar-porphyritic to megacrystic biotite monzogranite

ASRcg-gmw Blue-grey, mesocratic, K-feldspar-megacrystic monzogranite; characteristic vertical flow lineation

ASRcg-xgmd-gp Coarse-grained monzogranite with common pegmatitic patches

ASRsh-gmp **SPEAR HILL MONZOGRANITE:** coarse-grained to K-feldspar-porphyritic biotite monzogranite

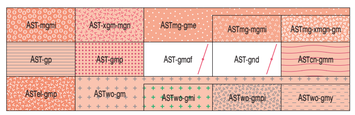
ASRtn-gmd **TAMBOURAH MONZOGRANITE:** pegmatitic to coarse-grained granite; generally as irregular patches in foliated biotite granodiorite (?A-CEko-mggb)

c. 2851 Ma

c. 2908 Ma

Callindoona Supersuite

BAMBOO SPRINGS MONZOGRANITE: biotite monzogranite; K-feldspar porphyritic; coarse grained; magmatic foliation



c. 2928 Ma [6]

c. 2929 Ma

Sisters Supersuite

AST-mgmi Schlieric, and locally migmatitic, metamonzogranite and K-feldspar megacrystic monzogranite (A-STmg-gme); local remobilized tonalitic orthogneiss (Callina Supersuite; A-CL-mgti)

AST-xgm-mgn Sheets of grey, foliated, biotite monzogranite (MULGANDINNAH MONZOGRANITE; A-STmg-gme) and pegmatite dykes in tonalitic orthogneiss and leucogranite

ASTmg-gme **MULGANDINNAH MONZOGRANITE:** fine- to medium-grained, magnetite-bearing biotite monzogranite; weakly foliated

ASTmg-mgmi Schlieric, and locally migmatitic, leucocratic metamonzogranite and monzogranite with augen after K-feldspar megacrysts (A-STmg-gme); local monzogranitic orthogneiss

ASTmg-xmgn-gm Sheets of homogeneous grey monzogranite and K-feldspar megacrystic monzogranite (A-STmg-gme) in tonalitic orthogneiss (Callina Supersuite; A-CL-mgtn)

AST-gp Pegmatite

AST-gmp Biotite monzogranite with K-feldspar and local quartz phenocrysts; leucocratic; massive to weakly foliated; weakly metamorphosed

AST-gmaf Micromonzogranite dykes; local flow banding; silicified and weakly recrystallized

AST-gnd Pegmatitic granite; as dykes and small intrusions in amphibolite

ASTcn-gmm **COONDINA MONZOGRANITE:** biotite monzogranite; leucocratic; medium grained to weakly porphyritic

ASTel-gmp **ELEY MONZOGRANITE:** K-feldspar-porphyritic biotite monzogranite; weakly foliated

ASTwo-gm **WOODSTOCK MONZOGRANITE:** biotite monzogranite; equigranular to feldspar porphyritic; weakly to moderately foliated; locally abundant pegmatite and granodiorite dykes; magnetite-bearing leucogranite pods

c. 2933 Ma

ASTwo-gmi Biotite monzogranite; equigranular to feldspar porphyritic; weakly to moderately foliated; with abundant greenstone and granitic gneiss xenoliths

ASTwo-gmpi K-feldspar-porphyritic monzogranite with common rafts and inclusions of tonalitic orthogneiss (PETROGLYPH GNEISS; A-TApe-mgtn)

c. 2927 Ma

ASTwo-gmy Biotite monzogranite with characteristic mafic layering and schlieren; medium grained, equigranular, and K-feldspar porphyritic

PILBARA CRATON

North Pilbara Orogeny (2950–2930 Ma)

De Grey Supergroup

Croydon Group

LALLA ROOKH SANDSTONE

ACDl-sg Pebble to boulder conglomerate and interbedded pebbly to coarse-grained sandstone; metamorphosed

ACDl-sp Coarse-grained to pebbly sandstone and pebble conglomerate; minor siltstone and grey shale; metamorphosed

LALLA ROOKH BASIN

DE GREY SUPERBASIN

Prinsep Orogeny (c. 3070 Ma)

AmlsP Quartz–sillimanite–biotite–muscovite–garnet schist (highly metamorphosed shale) and psammitic paragneiss; includes quartzofeldspathic schist

AmtqP Quartzite, including metamorphosed quartz arenite

AxmwaP Amphibolite with abundant granitic dykes and veins; local interleaved meta-ultramafic rocks

AmwzP Amphibolite after basalt or dolerite; metasomatized; local amphibolite schist

AmwsP Actinolite–chlorite schist after mafic rock

AxmwsP Mafic and ultramafic schist

AmaxP Metapyroxenite

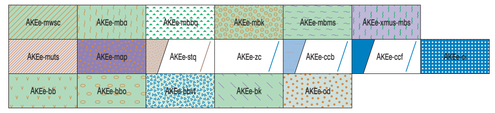
AmapP Metaperidotite

ARCHEAN

3350–3335 Ma

Pilbara Supergroup

Kelly Group



EURO BASALT

AKEe-mwsc Strongly sheared chlorite schist

AKEe-mba Amphibolite and metabasalt; includes local metadolerite and meta komatiitic basalt; locally schistose

AKEe-mbbq Silicified and sericitized metabasalt

AKEe-mbk Carbonate-altered mafic volcanic rock and derived mafic schist

AKEe-mbms Tremolite–chlorite–serpentine schist, derived from komatiitic basalt

AKEe-xmus-mbs Interlayered ultramafic and mafic schist derived from interbedded komatiitic and tholeiitic basalt.

AKEe-muts Serpentinized peridotite and komatiite; includes serpentinite and tremolite–chlorite–serpentine–carbonate schist

AKEe-map Metaperidotite

AKEe-stq Bedded to massive quartz-rich sandstone; local sandstone (lithic arenite); metamorphosed

AKEe-zc Blue-black hydrothermal chert; in veins

AKEe-ccb Chert; white, grey, and blue-black layered; locally massive blue-grey; metamorphosed

AKEe-ccf Massive or poorly bedded fuchsitic green chert; includes silicified flow-top breccia

AKEe-ci Banded iron-formation; includes jaspilite and ferruginous chert; metamorphosed

AKEe-bb Massive basalt; metamorphosed

AKEe-bbo Pillowed basalt; includes local massive basalt, dolerite, and komatiitic basalt; metamorphosed

AKEe-bbvt Basaltic volcaniclastic rocks; includes coarse-grained fragmental rock, bedded tuffaceous rocks, and pahoehoe flows; metamorphosed

AKEe-bk Komatiitic basalt; massive and pillowed lavas and subvolcanic intrusions; local pyroxene spinifex texture; metamorphosed

AKEe-od Dolerite; includes local gabbro; metamorphosed

<3426 Ma

<3433 Ma

STRELLEY POOL FORMATION

APIs-mtq Quartzite; weakly bedded

APIs-stq Quartz-rich sandstone or arenite; thickly bedded; with local cross-bedding; local chert; metamorphosed

APIs-zc Hydrothermal chert, in dykes

APIs-fnc Felsic volcaniclastic conglomerate and sandstone; minor felsic schist; locally silicified; metamorphosed

APIs-fnck Felsic volcaniclastic conglomerate and sandstone; minor felsic schist; carbonate cemented; metamorphosed

Warrawoona event (3430–3410 Ma)

AWA-xmbmq-zqx Silicified komatiitic basalt and associated quartz-vein breccia; metamorphosed

AWA-zc Hydrothermal chert

AWA-f Fine-grained felsic volcanic rock, bedded volcaniclastic rock, and agglomerate; metamorphosed

3449–3427 Ma [10 11]

c. 3433 Ma

Warrawoona Group

Salgash Subgroup

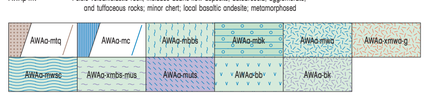
PANORAMA FORMATION

AWAp-mfs Metafelsic volcanic rock; schistose

AWAp-fnc Felsic volcaniclastic conglomerate and sandstone; minor felsic schist; locally silicified; metamorphosed

AWAp-fnp Porphyritic to aphanitic felsic dyke; metamorphosed

AWAp-fnv Felsic volcaniclastic rock; includes debris-flow deposits, autobreccia, agglomerate, and tuffaceous rocks; minor chert; local basaltic andesite; metamorphosed



c. 3428 Ma

c. 3451 Ma [9]

c. 3431 Ma [9]

APEX BASALT

AWAo-mtq Quartzite; white, medium grained; bedding locally preserved

AWAo-mc Metachert; blue-grey and white chert; recrystallized

AWAo-mbbs Strongly sheared chloritic schist after metabasalt

AWAo-mbk Carbonate-altered mafic volcanic rock and derived mafic schist

AWAo-mwa Medium-grained amphibolite and amphibolitic schist; derived from basalt and dolerite

AWAo-xmwo-g Interlayered amphibolite and granitic rocks; commonly schistose; includes granite and pegmatite veins

AWAo-mwsc Chlorite–actinolite schist

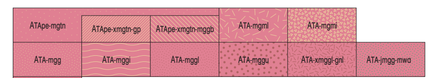
AWAo-xmbs-mus Interlayered mafic schist derived from metabasalt and ultramafic schist

AWAo-muts Talc- or serpentine-schist; local tremolite–chlorite–serpentine–carbonate schist

AWAo-bb Basalt; tholeiitic and massive; commonly pillowed and locally schistose; metamorphosed

AWAo-bk Komatiitic basalt, massive and pillowed lavas and subvolcanic intrusions; local pyroxene spinifex texture; weakly metamorphosed

Tambina Supersuite



ATApe-mgtn **PETROGLYPH GNEISS:** tonalitic orthogneiss with sheeted pegmatitic granitic veins and local white leucogranite

ATApe-xmgtn-gp Grey tonalitic gneiss (A-TApe-mgtn) and strongly foliated biotite granodiorite (KAVIR GRANODIORITE) with sheets and irregular patches of coarse-grained to pegmatite leucogranite (TAMBOURAH MONZOGRANITE)

ATApe-xmgtn-mggb Tonalitic orthogneiss (A-TApe-mgtn), with sheets of homogeneous grey metagranodiorite (KAVIR GRANODIORITE) and leucogranite

ATA-mgmi Schlieric, foliated leucocratic metamonzogranite and local dioritexite; as sheets in tonalitic orthogneiss (Callina Supersuite)

ATA-mgmi Meta hornblende monzogranite and metagranodiorite; migmatitic, and locally porphyritic with plagioclase phenocrysts

ATA-mgg Orthogneiss derived from granodiorite; leucocratic; fine to medium grained

ATA-mggi Metagranodiorite, meta quartz diorite and metatonalite; migmatitic and foliated

ATA-mggl Equigranular, leucocratic metagranodiorite with leucogranite sheets and dioritexite veins

ATA-mggu Meta biotite granodiorite with foliation; foliated

ATA-xmggl-gnl Equigranular, leucocratic metagranodiorite with leucogranite sheets and dioritexite veins

ATA-jmgg-mwa Metagranodiorite with amphibolite xenoliths along contacts of amphibolite rafts; equigranular, meso- to melanocratic

ATA-gml Leucocratic monzogranite; inequigranular, medium to coarse grained; varies from homogeneous, to schlieric-textured, to locally gneissic; metamorphosed

Callina Supersuite

c. 3462 Ma

c. 3463 Ma [6]

c. 3468–3451 Ma [6]

ACL-mgia Meta hornblende diorite; medium-grained, equigranular; generally well foliated; local gneissic layering

ACL-mgna Partly melted orthogneiss, with hornblende porphyroblastic texture

ACL-mgnu Migmatitic orthogneiss with K-feldspar augen

ACL-mgti Migmatitic tonalitic orthogneiss and dioritexite; intrusive sheets of leucogranite and/or leucosome; common xenoliths of amphibolite; local xenoliths of quartzite

ACL-mgtn Heterogeneous, migmatitic, tonalitic to granodioritic orthogneiss with sheets of schlieric leucogranite (Tambina Supersuite)

ACL-xmgti-mg Heterogeneous, migmatitic, tonalitic to granodioritic orthogneiss and mixed metamorphosed granitic rock

Rifting of East Pilbara Terrane (3220–3165 Ma)

APl-mwa Amphibolite; metamorphosed mafic volcanic and intrusive rocks; locally schistose

APl-xmwo-g Amphibolite intruded by granite veins (50%)

APl-mws Amphibolite schist; derived from mafic volcanic and intrusive rocks

APl-xmus-mbs Interlayered metavolcanic ultramafic and mafic rocks with thin quartzite and chert units; schistose

APl-map Serpentinized metaperidotite and serpentine–chlorite schist

3252–3235 Ma [6]

Sulphur Springs Group

KANGAROO CAVES FORMATION

ASScp-ci **Pincunch Banded Iron Member:** banded iron-formation; jaspilitic; minor layered chert and shale; metamorphosed

ASSc-ccb White, grey, and black layered chert; includes felsic volcaniclastic sandstone and shale; metamorphosed

ASSc-fa Andesite and minor basalt; pillowed or massive; local dolerite sills; locally overlain by tuffaceous clastic to rhyolitic volcaniclastic rocks; metamorphosed

c. 3240 Ma

KUNAGUNARRINA FORMATION

ASSk-mbs Mafic schist derived from mafic volcanic rocks

ASSk-xmus-mbs Interlayered ultramafic and mafic schist; locally includes talc-schist

ASSk-ccb White, blue-black, and grey layered chert; metamorphosed

ASSk-xb-mbs Interlayered mafic volcanic rock and mafic schist

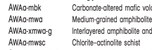
ASSk-bk Komatiitic basalt; massive and pillowed flows; metamorphosed

ASSk-bmvt Coarse-grained mafic volcaniclastic rocks; tuffaceous; locally carbonate-altered

ASSk-uk Komatiite, with pyroxene spinifex texture; local talc–carbonate rock; metamorphosed

ASSk-xuk-bk Komatiite and basaltic komatiite; local pyroxene spinifex texture; locally pillowed; metamorphosed

c. 3255 Ma [6]



LEILIRA FORMATION

ASSl-mfq Silicified fine-grained felsic volcaniclastic rocks; layered grey, white, and cream chert

ASSl-sw Wacke; local volcaniclastic sandstone, shale, and quartzite; metamorphosed

Emu Pool event (c. 3290 Ma)

Callina Supersuite

ACEgc-mgm **GARDEN CREEK MONZOGRANITE:** meta biotite monzogranite; tectonically foliated; leucocratic; minor pegmatitic granitic sheets

ACEgc-mgmm Meta muscovite–biotite leucogranite; heterogeneous, medium to coarse grained; local patches with garnet or with K-feldspar phenocrysts; some tourmaline pegmatite veins

ACEko-mggb **KAVIR GRANODIORITE:** meta biotite granodiorite and minor pegmatitic granite; fine to medium grained; foliated

EAST PILBARA TERRANE