PHANEROZOIC

CENOZOIC

QUATERNARY

PALEOGENE–NEOGENE

MIOCENE

Lacustrine unit
L_{pc} Lacustrine deposits; clay, silt, and silty sand; playa (saline) and claypan (freshwater) deposits

Eolian unit
Ed Eolian sand, typically adjacent to hilly areas of bedrock; no dunes

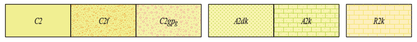
Colluvial units, third generation
Cl Colluvial sand, silt, and gravel in outwash fans; scree and talus; proximal mass-wasting deposits; unconsolidated
Clq Colluvial quartz debris in sand, silt, and clay; derived from proximal mass-wasting of quartz-veins; unconsolidated

Sheetwash units, second generation
Wl Silt, sand, and pebbles in distal sheetwash fans; no defined drainage; unconsolidated
W^{fg}_{gPe} Quartzofeldspathic sand and quartz pebbles in sheetwash fans; derived from mass-wasting of granitic rocks; unconsolidated

Alluvial units, third generation
Al_b Sand, silt, and gravel in the beds of major active drainage channels; unconsolidated
Al_c Sand, silt, and gravel in active drainage channels; includes clay, silt, and sand in poorly defined drainage courses on floodplains; unconsolidated
Al_r Floodplain deposits; sand, silt, clay, and gravel adjacent to main drainage channels; unconsolidated
$Al_{cs/v}$ Clay, silt, sand, and basaltic or doleritic gravel on floodplains; gilgai surface in areas of expansive clay; derived from ferromagnesian parent rock; unconsolidated
Al_l Mixed floodplain deposits; sand, silt, and clay adjacent to main drainage channels; numerous small claypans; unconsolidated

Sandplain unit, second generation
Sl Sandplain deposits; sand of mixed residual, sheetwash, and eolian origin; unconsolidated

Residual or relict unit, third generation
R^{fg}_{gPe} Residual quartzofeldspathic sand, with quartz and rock fragments; overlying and derived from mass-wasting of granitic rocks; unconsolidated



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; consolidated sand, silt, clay, and rock fragments in proximal outwash fans and scree; dissected by present-day drainage
$C2^{fg}_{gPe}$ Variably consolidated quartzofeldspathic sand, silt, clay, and rock fragments derived from granitic rocks; dissected by present-day drainage

Alluvial units, second generation
ΔDk Consolidated alluvial gravel, sand, and silt; local carbonate cement; dissected by present-day drainage
ΔDk Alluvial or lacustrine calcrete; massive, nodular, and cavernous limestone; variably silicified; dissected by present-day drainage

Residual or relict unit, second generation
R2k Residual calcrete; massive, nodular, and cavernous limestone; variably silicified; dissected by present-day drainage

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

Residual or relict 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

ARCHEAN

North Pilbara Orogeny (2950–2930 Ma)

Croydon Group

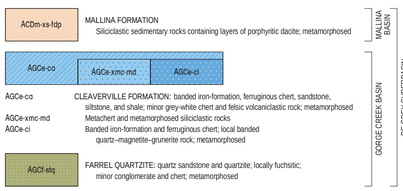
De Grey Supergroup

Gorge Creek Group

MALLINA BASIN

GORGE CREEK BASIN

DE GREY SUPERBASIN



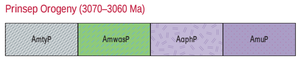
3022–3016 Ma

MALLINA FORMATION
Siliciclastic sedimentary rocks containing layers of porphyritic dacite; metamorphosed

AGCe-co CLEAVERVILLE FORMATION: banded iron-formation, ferruginous chert, sandstone, siltstone, and shale; minor grey-white chert and felsic volcaniclastic rock; metamorphosed
AGCe-xmc-md Metachert and metamorphosed siliciclastic rocks
AGCe-ci Banded iron-formation and ferruginous chert; local banded quartz–magnetite–grunerite rock; metamorphosed

AGCf-stq FARREL QUARTZITE: quartz sandstone and quartzite; locally fuchsitic; minor conglomerate and chert; metamorphosed

Prinsep Orogeny (3070–3060 Ma)



AmtyP Mylonitized metasandstone
AmwosP Amphibolite schist; includes actinolite schist
AophP Harzburgite; medium to coarse grained; metamorphosed
AmuP Meta-ultramafic volcanic rocks

zq Quartz vein or pod; massive, crystalline, or brecciated; age uncertain
od Dolerite dykes, sills, or plugs; fine- to medium-grained dolerite; 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

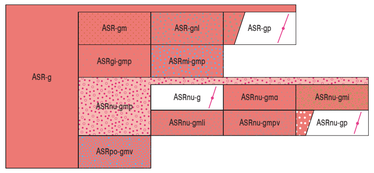
c. 2772 Ma[2]

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

FORTESCUE BASIN

Fortescue rifting event (2775–2760 Ma)

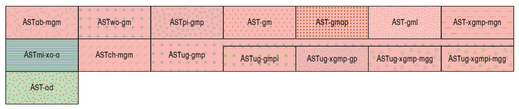
Split Rock Supersuite



2890–2830 Ma

ASR-g Undivided granitic rocks including monzogranite, syenogranite, and pegmatite
ASR-gm Biotite and muscovitebiotite monzogranite; massive to weakly foliated; forms pods and larger bodies in MOTHERIN MONZOGRANITE
ASR-gnl Seriate to porphyritic biotite leucogranite; massive to weakly foliated; metamorphosed
ASR-gp Pegmatite
ASRgi-gmp GILLAM MONZOGRANITE: weakly feldspar-porphyritic biotite(–muscovite) monzogranite; locally with magnetite phenocrysts; massive to weakly foliated; weakly metamorphosed
ASRmi-gmp MINNAMONICA MONZOGRANITE: quartz and K-feldspar porphyritic muscovite(–biotite) monzogranite; fine to coarse grained; massive to weakly foliated
ASRnu-gmp NUMBANA MONZOGRANITE: medium- to coarse-grained feldspar(–quartz) porphyritic monzogranite; massive to weakly foliated; local flow-aligned feldspar phenocrysts; local garnet-bearing pegmatite and granite dykes
ASRnu-g Granitic dyke
ASRnu-gmo Biotite(–muscovite) monzogranite; fine to medium grained; equigranular to feldspar porphyritic; weakly foliated
ASRnu-gmi Porphyritic to equigranular monzogranite, with greenstone and/or granodiorite xenoliths
ASRnu-gmli Biotitemuscovite(garnet) leucogranite with xenoliths and rafts of PINCUNAH MONZOGRANITE and banded granite
ASRnu-gmpv Porphyritic to equigranular muscovite–biotite monzogranite; weakly foliated; locally garnet bearing; locally abundant pegmatite
ASRnu-gp Pegmatite
ASRpo-gmv POOCATCHE MONZOGRANITE: muscovite–biotite monzogranite; seriate to porphyritic; massive to weakly foliated; locally abundant pegmatite

Sisters Supersuite



2933–2927 Ma

ASTob-mgm ABYDOS MONZOGRANITE: feldspar(–quartz) porphyritic, biotitetitanite metamonzogranite; moderate to strong foliation
ASTwo-gm WOODSTOCK MONZOGRANITE: biotite monzogranite; equigranular to feldspar-porphyritic; weakly to moderately foliated; locally abundant pegmatite and granodiorite dykes; magnetite-bearing leucogranite pods
ASTpi-gmp PINCUNAH MONZOGRANITE: feldspar(–quartz) porphyritic, (hornblende–)biotite monzogranite; weakly to moderately foliated with characteristic phenocryst alignment; minor pegmatite and leucogranite
AST-gm Biotite monzogranite; seriate to K-feldspar porphyritic; fine to medium grained; massive to weakly foliated; local strong flow-alignment; weakly metamorphosed
AST-gmop Micromonzogranite dykes; phenocrysts of quartz and feldspar; silicified and weakly recrystallized
AST-gml Leucocratic biotite monzogranite; massive to weakly foliated; weakly metamorphosed
AST-xgmp-mgn Sheets of porphyritic monzogranite in granitic gneiss
ASTmi-xo-a MILLINDINNA INTRUSION: gabbro, pyroxenite, and peridotite; metamorphosed
ASTch-mgm CHEEARRA MONZOGRANITE: metamonzogranite; weakly to strongly foliated; locally well developed banding; includes pegmatite and granite dykes
ASTug-gmp MUNGARINYA MONZOGRANITE: feldspar(–quartz) porphyritic biotite monzogranite; massive to weakly foliated; locally well developed flow alignment of phenocrysts and schlieren; locally ghost banded; weakly metamorphosed
ASTug-gmpi Feldspar(–quartz) porphyritic biotite monzogranite with greenstone xenoliths
ASTug-xgmp-gp Feldspar(quartz) porphyritic biotite monzogranite; locally abundant pegmatite and leucogranite of the NUMBANA MONZOGRANITE
ASTug-xgmp-mgg Porphyritic monzogranite and pegmatite intruding metagranodiorite (SIFFLEETES GRANODIORITE)
ASTug-xgmpi-mgg Porphyritic monzogranite and pegmatite intruding metagranodiorite (SIFFLEETES GRANODIORITE) with abundant greenstone xenoliths
AST-od Dolerite; metamorphosed

c. 2952 Ma
c. 2938 Ma

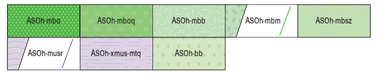
Elizabeth Hill Supersuite

AEH-mggn Interleaved banded and gneissic metagranodiorite, seriate to porphyritic monzogranite, and pegmatite; locally includes granitic dykes
AEH-jmggn-mw Interleaved banded and gneissic metagranodiorite, seriate to porphyritic monzogranite, and pegmatite; with abundant greenstone xenoliths

PILBARA CRATON

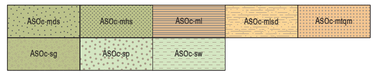
ARCHEAN

Soanesville Group



HONEYEATER BASALT
ASOh-mbo Amphibolite derived from basaltic rocks
ASOh-mboq Silicified amphibolite derived from mafic volcanic rock
ASOh-mbb Metabasalt
ASOh-mbm Metakomatiitic basalt
ASOh-mbsz Silicified mafic schist
ASOh-musr Tremolite–chlorite–talc schist
ASOh-xmus-mtq Interlayered ultramafic schist and quartzite
ASOh-bb Basalt; metamorphosed

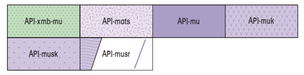
PADDY MARKET FORMATION
ASOp-mi Meta-iron formation
ASOp-cci Cherty banded iron-formation and chert; thinly bedded and partly jaspilitic; minor ferruginous shale; metamorphosed
ASOp-shz Silicified shale; grey- and white-layered secondary chert; metamorphosed



c. 3190 Ma[3]

CORBOY FORMATION
ASOc-mds Schistose metasedimentary rock; metamorphosed siliciclastic rocks
ASOc-mhs Psammitic and pelitic schist; includes mica schist, andalusite–garnet–mica schist, and quartzite
ASOc-mi Pelite; metamorphosed siltstone, mudstone, and shale
ASOc-mlsd Pelitic schist containing andalusite
ASOc-mtqm Muscovite-bearing quartzite; minor pelite
ASOc-sg Pebble and cobble conglomerate and minor coarse-grained arkosic sandstone; metamorphosed
ASOc-sp Sandstone and minor interbedded conglomerate; local siltstone and shale; metamorphosed
ASOc-sw Wacke and lithic arenite; local sandstone, conglomerate, shale; metamorphosed

East Pilbara Terrane rifting event (3220–3160 Ma)



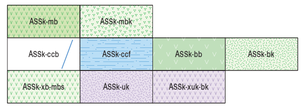
APl-xmb-mu Metamafic and meta-ultramafic rock; includes local schist
APl-mats Strongly sheared serpentine schist derived from intrusive ultramafic rocks
APl-mu Meta-ultramafic rock
APl-muk Metakomatiite
APl-musk Talc–carbonate and talc–carbonate–chlorite(–magnetite) schist
APl-musr Tremolite–chlorite–talc schist

Sulphur Springs Group

c. 3245 Ma

KANGAROO CAVES FORMATION
ASScp-ci Pincunah Banded-Iron Member: banded iron-formation; jaspilitic; minor layered chert and shale; metamorphosed
ASSc-mfr Metarhyolite
ASSc-ccb White, grey, and black layered chert; includes felsic volcaniclastic sandstone and shale; metamorphosed
ASSc-fq Andesite and minor basalt; pillowed or massive; local dolerite sills; locally overlain by tuffaceous dacitic to rhyolitic volcaniclastic rocks; metamorphosed
ASSc-fqt Andesitic volcanic sandstone; tuffaceous; local shale, and chert; metamorphosed

c. 3242 Ma



KUNAGUNARRINA FORMATION
ASSk-mb Metamafic volcanic rock
ASSk-mbk Carbonate-altered metamafic volcanic rocks; locally includes chlorite–sericite rock and mafic schist
ASSk-ccb White, blue-black, and grey layered chert; metamorphosed
ASSk-ccf Bright green, fuchsitic chert; includes local silicified komatiitic basalt flow tops; metamorphosed
ASSk-bb Basalt; metamorphosed
ASSk-bk Komatiitic basalt; massive and pillowed flows; metamorphosed
ASSk-xb-mbs Interlayered mafic volcanic rock and mafic schist
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

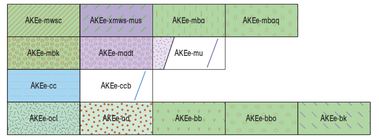
c. 3255 Ma[4]

LEILIRA FORMATION
ASSl-sw Wacke; local volcaniclastic sandstone, shale, and quartzite; metamorphosed
ASSl-fd Dacite; includes local minor felsic schist; metamorphosed
ASSl-fr Rhyolite and felsic volcaniclastic rocks; metamorphosed

Emu Pool event (3300–3290 Ma)

Pilbara Supergroup

Kelly Group



3350–3335 Ma

EURO BASALT
AKEe-mwsc Strongly sheared chlorite schist
AKEe-xmws-mus Mafic and ultramafic schist
AKEe-mbo Amphibolite and metabasalt; includes local metadolerite and meta komatiitic basalt; locally schistose
AKEe-mboq Silicified amphibolite and metabasalt
AKEe-mbk Carbonate-altered mafic volcanic rock and derived mafic schist
AKEe-modt Paragneiss; medium-grained, strongly recrystallized sedimentary rock
AKEe-mu Meta-ultramafic rock
AKEe-cc Chert; metamorphosed
AKEe-ccb Chert; white, grey, and blue-black layered; locally massive blue-grey; metamorphosed
AKEe-occ Pyroxene leucogabbro; metamorphosed
AKEe-od Dolerite; includes local gabbro; metamorphosed
AKEe-bb Massive basalt; metamorphosed
AKEe-bbo Pillowed basalt; includes local massive basalt, dolerite, and komatiitic basalt; metamorphosed
AKEe-bk Komatiitic basalt; massive and pillowed lavas and subvolcanic intrusions; local pyroxene spinifex texture; metamorphosed

<3426 Ma

STRELLEY POOL FORMATION: silicified carbonate rocks, sandstone, conglomerate, chert, and dolomite; stromatolitic; metamorphosed

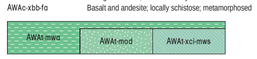
Warrawoona event (3430–3410 Ma)

Warrawoona Group

Coonterunah Subgroup

3515–3498 Ma[5]

COUCAL FORMATION
AWAc-mwa Amphibolite and mafic schist; locally silicified
AWAc-cci Ferruginous chert; includes cherty banded iron-formation and layered chert; metamorphosed
AWAc-xbb-fo Basalt and andesite; locally schistose; metamorphosed



AWAt-mwa TABLE TOP FORMATION: amphibolite; metamorphosed mafic volcanic and intrusive rocks; locally schistose
AWAt-mod Metadolerite
AWAt-xci-mws Banded iron-formation and interleaved mafic or ultramafic schist

Dalton Suite

c. 3185 Ma

ADA-xmos-g Schistose meta-ultramafic rock intruded by granitic rock
ADA-mo Meta-ultramafic intrusive rock
ADA-mots Serpentinite, schistose
ADA-mod Metadolerite

SOANESVILLE BASIN

Cleland Supersuite

c. 3240 Ma

ACE-xmg-mgn Mixed metagranitic rock; tectonically foliated to gneissic; minor banded granitic gneiss (Callina Supersuite)
ACE-gpi Pegmatite with xenoliths of banded to gneissic granodiorite, seriate to porphyritic monzogranite, and greenstone; locally with granite dykes; metamorphosed
ACE-jg-mw Mixed granite, gneiss, and leucogranite, with abundant greenstone and gneiss xenoliths
ACExo-mggb KAVIR GRANODIORITE: meta biotite granodiorite and minor pegmatitic granite; fine to medium grained; foliated
ACEsf-mgg SIFFLEETES GRANODIORITE: meta biotite–hornblende granodiorite; locally common amphibolite and diorite xenoliths; moderately to strongly foliated

Tambina Supersuite

c. 3421 Ma
c. 3428 Ma

ATAyo-mgto YALLINGARRINTHA TONALITE: meta biotite–hornblende tonalite to metagranodiorite; moderately to strongly foliated
ATApe-mgtn PETROGLYPH GNEISS: tonalitic orthogneiss with sheeted pegmatitic granitic veins and local white leucogranite
ATApe-jmgn-mw Foliated to gneissic granitic rock with abundant mafic and ultramafic xenoliths

Callina Supersuite

c. 3469 Ma
c. 3475 Ma

ACL-gmi Biotite–hornblende monzogranite; leucocratic; medium grained, seriate to weakly porphyritic; weakly metamorphosed
ACLmo-xmgm-mgg MOTHERIN MONZOGRANITE: interleaved metamonzogranite, metagranodiorite, gneiss, and pegmatite; moderately to strongly foliated; intruded by abundant sheets of massive to weakly foliated muscovite-bearing metamonzogranite and pegmatite
ACLmo-jmgm-mwo Interleaved seriate to porphyritic metamonzogranite, hornblende–biotite metagranodiorite, and pegmatite; strongly foliated and banded, locally gneissic; contains greenstone enclaves and pendants

East Pilbara Terrane

PILBARA CRATON