PHANEROZOIC

CENOZOIC

QUATERNARY

Ed | Ep | Sgpk

Eolian units

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

Ep Mixed eolian and lacustrine deposits; clay, silt, and sand; vegetated swamps, numerous small claypans with fringing lunette dunes

Sandplain unit

Sgpk Mixed eolian and eluvial sand; red-brown quartz sand in sheets; overlying and derived from granitic rock

C1 | C1q | W1 | W1gpk | A1c | A1b | A1r

Colluvial units

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

C1q Colluvial quartz debris in sand, silt, and clay; derived from proximal mass-wasting of quartz-veins

Sheetwash units

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

W1gpk Quartzofeldspathic sand and quartz pebbles in sheetwash fans; derived from mass-wasting of granitic rock

Alluvial units

A1c Sand, silt, and gravel in active drainage channels; includes clay, silt, and sand in poorly defined drainage courses on floodplains

A1b Sand, silt, and gravel in the beds of major active drainage channels

A1r Floodplain deposits; sand, silt, clay, and gravel adjacent to main drainage channels

C2 | A2 | A2gpk | A2dk | A2k | R2gpk | R2k | R2z

Colluvial unit

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

Alluvial units

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

A2gpk Consolidated alluvial gravel, sand, and silt derived from granitic rock; dissected by present-day drainage

A2dk Consolidated alluvial gravel, sand, and silt; local carbonate cement; dissected by present-day drainage

A2k Alluvial or lacustrine calcrete; massive, nodular, and cavernous limestone; variably silicified; dissected by present-day drainage

Residual or relict units

R2gpk Variably consolidated eluvial and colluvial sand, gravel, and silt overlying, and derived from granitic rock; dissected by present-day drainage

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

R2z Siliceous duricrust; includes silcrete, massive nodular silica, and duricrust; locally with clasts of chert and angular quartz; dissected by present-day drainage

od | zq | zqi

od Dolerite dyke, sill, or plug

zq Quartz vein

zqi Gossanous quartz vein

PROTEROZOIC

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

EBG-gmh | EBG-gnph

c. 1803 Ma — EBG-gmh **Bridget Suite:** hornblende monzogranite and granodiorite, micromonzonite, microsyenite, and micromonzodiorite; in small stocks

EBG-gnph Hornblende–feldspar–biotite porphyry dykes; trachyandesite and lamprophyre

c. 1867 Ma [1] — Ep Kimberlite dyke

ARCHEAN

NEOARCHEAN

Mount Bruce Supergroup

Fortescue Group

AFO-od | AFO-odc | AFO-ow

AFO-od Dolerite dyke or sill

AFO-odc Pyroxene-rich dolerite dyke; tremolite–chlorite–quartz rock; weakly metamorphosed

AFO-ow Norite dyke; weakly metamorphosed

c. 2713 Ma [2] — AFOmk-bntt — **Kuruna Member:** basaltic to andesitic volcaniclastic rocks (common accretionary lapilli), sandstone, siltstone, shale, and local stromatolitic limestone

2718–2713 Ma [2] — AFOm-b — **MADDINA FORMATION:** massive, amygdaloidal, or vesicular basalt and basaltic andesite; local komatiitic basalt, dacite, and rhyolite

2729–2715 Ma [2 3] — **TUMBIANA FORMATION**

AFOtm-kts — **Meentheena Member:** lenticular units of stromatolitic dark-grey siliceous limestone or dolomite within laterally variable sequences of volcaniclastic sandstone and siltstone (accretionary lapilli), calcareous sandstone, shale, and basalt; local quartz sandstone and conglomerate

AFOt-bntt — Basaltic to andesitic volcaniclastic siltstone and sandstone; well bedded, with local cross bedding and accretionary lapilli; common welded matrix; local shale, quartz sandstone, and wacke

AFOt-bb — Vesicular, amygdaloidal, and massive basalt

2727–2721 Ma [2] — AFOti-bntt — **Mingah Member:** basaltic to andesitic volcaniclastic sandstone and siltstone (common accretionary lapilli), quartz sandstone, shale, and thin lenticular stromatolitic carbonate units; locally thick basalt flows

2749–2735 Ma [2] — AFOk-b — **KYLENA FORMATION:** massive, amygdaloidal, or vesicular basalt and basaltic andesite; local komatiitic basalt, dacite, and rhyolite

AFOkm-kts — **Mopoke Member:** grey carbonate rock; discontinuous, silicified microbial laminations and stromatolites; minor shale, siltstone, and sandstone

c. 2752 Ma [2] — AFOh-sfv — **HARDEY FORMATION**

Felsic volcaniclastic sandstone, siltstone, and shale; local pebbly sandstone, conglomerate, and thin carbonate units

AFOh-sta — Medium- to coarse-grained feldspathic sandstone, pebbly sandstone and conglomerate; minor fine-grained sandstone and siltstone

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

AFOhb-fr | AFOhb-frp

c. 2766 Ma — AFOhb-fr **Bamboo Creek Member:** rhyolite, rhyodacite, and dacite in flows and subvolcanic intrusions; alkali feldspar and quartz phenocrysts; volcanic breccia, welded ignimbrite, with accretionary lapilli; resedimented pyroclastic deposits

2765–2760 Ma — AFOhb-frp Porphyritic dacite, rhyodacite, and rhyolite; coarse- to fine-grained alkali feldspar and quartz phenocrysts; locally as dykes

AFOh-sgp — **HARDEY FORMATION**

Polymictic, matrix-supported cobble to boulder conglomerate; includes sandstone, siltstone, and wacke; discontinuous thick-bedded grey shale units in upper parts

c. 2772 Ma [4] — AFOr-b — **MOUNT ROE BASALT:** basaltic volcanic rocks; local volcaniclastic and siliciclastic rocks

AFOr-scp — Polymictic, poorly sorted pebble conglomerate; locally includes sandstone, wacke, siltstone, and shale

c. 2772 Ma [4] — ABL-od **Black Range Dolerite Suite:** dolerite dyke; local gabbro; weakly metamorphosed

FORTESCUE BASIN

Fortescue rifting event (*c.* 2775 Ma)

Unassigned

AodP | AmoaaP

AodP Dolerite; in dykes and sills; metamorphosed

AmoaaP Hornblende-rich amphibolite; metagabbro

MESOARCHEAN

Split Rock Supersuite

c. 2831 Ma — ASRmo-gm | ASRmn-gm

ASRmo-gm **MOOLYELLA MONZOGRANITE:** muscovite–biotite monzogranite, medium grained; massive to weakly foliated

ASRmn-gm **MONDANA MONZOGRANITE:** massive leucocratic monzogranite; very fine to medium grained; quartz-rich, minor biotite; equigranular to sparsely feldspar porphyritic; weakly metamorphosed

PILBARA CRATON

ARCHEAN

MESOARCHEAN

De Grey Supergroup

Gorge Creek Group

<3235 Ma

North Pilbara Orogeny (*c.* 2940 Ma)

AGC-xci-s — Undivided; banded iron-formation and siliciclastic sedimentary rock; metamorphosed (Section only)

AGCe-oa — **CLEAVERVILLE FORMATION:** chert and banded iron-formation; minor felsic volcaniclastic rock; metamorphosed

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

GORGE CREEK BASIN

Rifting event (*c.* 3180 Ma)

Pilbara Supergroup

Dalton Suite

c. 3180 Ma — ADA-mapt | ADA-mark

ADA-mapt Metaperidotite, and serpentine–chlorite schist

ADA-mark Carbonate–tremolite–chlorite rock

Sulphur Springs Group

<3228 Ma — ASSb-bbo | ASSb-fdt | ASSb-fnv

BUDJAN CREEK FORMATION

ASSb-bbo Basalt, generally pillowed; minor komatiitic basalt; metamorphosed

ASSb-fdt Tuffaceous volcaniclastic sandstone with quartz and feldspar phenocrysts; dacite composition; weakly metamorphosed

ASSb-fnv Felsic volcaniclastic sandstone, shale; local grey-, white-, and black-layered chert, minor dacitic tuffaceous rocks; metamorphosed

Cleland Supersuite

c. 3240 Ma — ACEbi-gm | ACEbu-gm

ACEbi-gm **BISHOP CREEK MONZOGRANITE:** biotite monzogranite to granodiorite and syenogranite; fine to coarse grained; locally seriate and porphyritic; rare pegmatite dykes; weakly metamorphosed

ACEbu-gm **BULLGARINA MONZOGRANITE:** biotite(–muscovite) monzogranite, medium to coarse grained; weakly metamorphosed

Emu Pool event (*c.* 3290 Ma)

Emu Pool Supersuite

AEMzu-gg | AEMzu-ggi | AEMch-gt | AEMch-gtih | AEMwa-gt | AEMml-gg

AEMmu-gm | AEMmu-gmi | AEMca-gmp | AEMca-gmh

AEMgo-gg | AEMgo-ggop | AEMco-gg | AEMco-ggi | AEMke-gg | AEMke-ggi

AEMdo-gr | AEMce-mgg | AEMjo-gg | AEMwi-gg

3299–3294 Ma — AEMzu-gg **ZULU GRANODIORITE:** metamorphosed biotite granodiorite; local tonalite and monzogranite; medium to coarse grained, weakly foliated

AEMzu-ggi Granitic rock with numerous mafic and ultramafic xenoliths; metamorphosed

AEMch-gt **CHIMINGADGI TRONDHJEMITE:** biotite trondhjemite; medium grained, massive, seriate textured; weakly metamorphosed

AEMch-gtih Hybrid amphibole-rich granitic rock with mafic and ultramafic xenoliths; metamorphosed

AEMwa-gt **WALGUNYA TRONDHJEMITE:** quartz-rich biotite trondhjemite; medium to coarse grained; metamorphosed

c. 3308 Ma — AEMml-gg **MULLUGUNYA GRANODIORITE:** biotite–hornblende granodiorite; medium grained, weakly foliated; metamorphosed

c. 3310 Ma — AEMmu-gm **MUNGANBRINA MONZOGRANITE:** monzogranite; banded, medium to coarse grained; locally seriate to porphyritic, weakly foliated and metamorphosed

AEMmu-gmi Granitic rock with mafic and ultramafic xenoliths; metamorphosed

c. 3311 Ma — AEMca-gmp **CARBANA MONZOGRANITE:** biotite monzogranite; feldspar porphyritic; common mafic xenoliths; weakly metamorphosed

AEMca-gmh Hornblende monzogranite, fine to medium grained, equigranular to slightly porphyritic; metamorphosed

c. 3313 Ma [6] — AEMgo-gg **GOBBOS GRANODIORITE:** biotite granodiorite and monzogranite, with minor hornblende; medium grained, seriate to locally porphyritic; metamorphosed

AEMgo-ggop Porphyritic quartz–plagioclase microgranodiorite, minor hornblende; metamorphosed

c. 3314 Ma [7] — AEMco-gg **COPPIN GAP GRANODIORITE:** biotite granodiorite and tonalite; medium grained, massive to seriate, weakly foliated; local mafic xenoliths; metamorphosed

AEMco-ggi Granitic rock with mafic and ultramafic xenoliths; metamorphosed

c. 3315 Ma [8] — AEMke-gg **KENNELL GRANODIORITE:** biotite–hornblende granodiorite; local monzogranite and tonalite; medium grained; weakly foliated; local mafic xenoliths and schlieren; weakly metamorphosed

AEMke-ggi Granitic rock with mafic and ultramafic xenoliths; metamorphosed

AEMdo-gr **DAVITT SYENOGRANITE:** muscovite–garnet syenogranite; medium grained, foliated; metamorphosed

3318–3314 Ma — AEMce-mgg **CHESSMAN GRANODIORITE:** metamorphosed biotite granodiorite and tonalite; medium- to coarse-grained; strongly foliated to gneissic

3321–3304 Ma [7] — AEMjo-gg **JOORINA GRANODIORITE:** biotite granodiorite; local tonalite and monzogranite; medium- to coarse-grained, locally porphyritic; weakly to moderately foliated; mafic xenoliths; weakly metamorphosed

3324–3310 Ma [9] — AEMwi-gg **WILINA GRANODIORITE:** quartz-rich biotite granodiorite and trondhjemite; medium grained; weakly metamorphosed

PALEOARCHEAN

Kelly Group

AKEc-bb | AKEc-bko | AKEc-od | AKEc-fntt | AKEc-cc

CHARTERIS BASALT

AKEc-bb Tholeiitic basalt; minor interlayered dolerite and komatiitic basalt; metamorphosed

AKEc-bko Pillowed and massive komatiitic basalt; minor basalt; metamorphosed

AKEc-od Metadolerite

AKEc-fntt Felsic volcanic siltstone; tuffaceous; metamorphosed

AKEc-cc Chert; metamorphosed

3325–3315 Ma [9] — AKEw-fr | AKEw-fnv | AKEw-xfnt-s | AKEw-cc

WYMAN FORMATION

AKEw-fr Porphyritic rhyolite and rhyodacite; local felsic volcaniclastic rocks; metamorphosed

AKEw-fnv Felsic volcaniclastic rocks; includes debris-flow deposits, autobreccia, volcanic breccia, and tuffaceous rocks; metamorphosed

AKEw-xfnt-s Felsic volcanic sandstone interbedded with siltstone, chert, carbonaceous mudstone, and basalt; metamorphosed

AKEw-cc Chert; metamorphosed

AKEe-b | AKEe-muq | AKEe-bbo | AKEe-bk | AKEe-ccb | AKEe-zc

AKEe-b **EURO BASALT:** basalt, komatiitic basalt, serpentinized peridotite; local dolerite sills; minor felsic volcaniclastic rocks and chert; metamorphosed (Section only)

AKEe-muq Silicified meta-ultramafic volcanic rock

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

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

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

AKEe-zc Blue-black hydrothermal chert; in veins

AKEs-cc — **STRELLEY POOL CHERT:** white, grey, and blue-black layered chert; local wavy laminated chert, partly silicified bedded carbonate rocks, sandstone, and felsic volcaniclastic rocks; chert and carbonate rocks are locally stromatolitic; metamorphosed

Warrawoona event (*c.* 3410 Ma)

Unassigned

AWA-mats | AWA-mkqn | AWA-mlsl | AWA-musr | AWA-mwa

AWA-mats Serpentinite; serpentine–talc schist

AWA-mkqn Calc-silicate gneiss; banded quartz–clinopyroxene–plagioclase–hornblende rock

AWA-mlsl Quartz–sillimanite–biotite–muscovite–garnet schist

AWA-musr Tremolite–chlorite–serpentine schist

AWA-mwa Amphibolite; includes amphibolite schist

Warrawoona Group

Salgash Subgroup

AWAp-f | AWAp-fnv | AWAp-fntt

AWAp-f **PANORAMA FORMATION:** felsic volcanic rock; local sedimentary rock; metamorphosed (Section only)

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

AWAp-fntt Felsic tuffaceous volcaniclastic rocks; minor agglomerate and volcanic breccia; metamorphosed

3428–3427 Ma [10] — *c.* 3435–3430 Ma

c. 3433 Ma — *c.* 3440 Ma

Tambina Supersuite

ATAlo-mggn | ATAft-mgtn | ATAft-mgni

ATAlo-mggn **LADY ADELAIDE ORTHOGNEISS:** orthogneiss derived from granodiorite; leucocratic; fine to medium grained

ATAft-mgtn **FIG TREE GNEISS:** banded tonalite, granodiorite and local trondhjemite, monzogranite, and syenogranite gneiss and migmatite

ATAft-mgni Banded tonalite, granodiorite, monzogranite and syenogranite gneiss and migmatite; numerous mafic xenoliths

AWAa-b | AWAa-uk | AWAa-mapt | AWAa-mwa | AWAa-xc-sd | AWAa-mod

AWAa-b **APEX BASALT:** basalt, komatiitic basalt, serpentinized peridotite; local dolerite sills; minor felsic volcaniclastic rocks and chert; metamorphosed

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

AWAa-mapt Serpentinite and tremolite–serpentine–talc–carbonate rock; after peridotite

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

AWAa-xc-sd Chert; white, grey, and blue-black layered; locally massive blue-grey; local banded iron-formation, fuchsitic quartzite, and graphitic schist; metamorphosed

AWAa-mod Metadolerite; fine- to coarse-grained amphibolite and amphibolite schist

Coongan Subgroup

AWAd-f | AWAd-mbms | AWAd-mfds | AWAd-mhs

c. 3465 Ma [11] — AWAd-f **DUFFER FORMATION:** felsic volcanic rock; local basalt, chert, and felsic schist; metamorphosed (Section only) — >3462 Ma

AWAd-mbms Mafic schist derived from komatiitic basalt

AWAd-mfds Quartzofeldspathic and quartz–muscovite–biotite–andalusite–staurolite schist; sheared dacitic lava and felsic volcaniclastic rocks — *c.* 3465 Ma

AWAd-mhs Interlayered psammitic and pelitic schist; metamorphosed shale, siltstone, and sandstone

Callina Supersuite

ACLun-mgtn | ACLho-gnap

ACLun-mgtn **UNDERWOOD GNEISS:** banded tonalite, granodiorite, and monzogranite gneiss and migmatite; strongly sheared, S–C mylonite fabric

ACLho-gnap **HOMEWARD BOUND GRANITE:** porphyritic microgranite and microgranodiorite; mainly in subvolcanic intrusions; euhedral feldspar and quartz phenocrysts, typically in a dark grey, fine-grained to glassy matrix; metamorphosed

AWAm-mba | AWAm-mut

MOUNT ADA BASALT

AWAm-mba Fine-grained amphibolite; locally schistose; metamorphosed basalt; includes minor metachert and metamorphosed ultramafic rocks

c. 3469 Ma — AWAm-mut Serpentinized komatiite and peridotite; includes talc–serpentine–tremolite–carbonate rock

East Pilbara Terrane

PILBARA CRATON