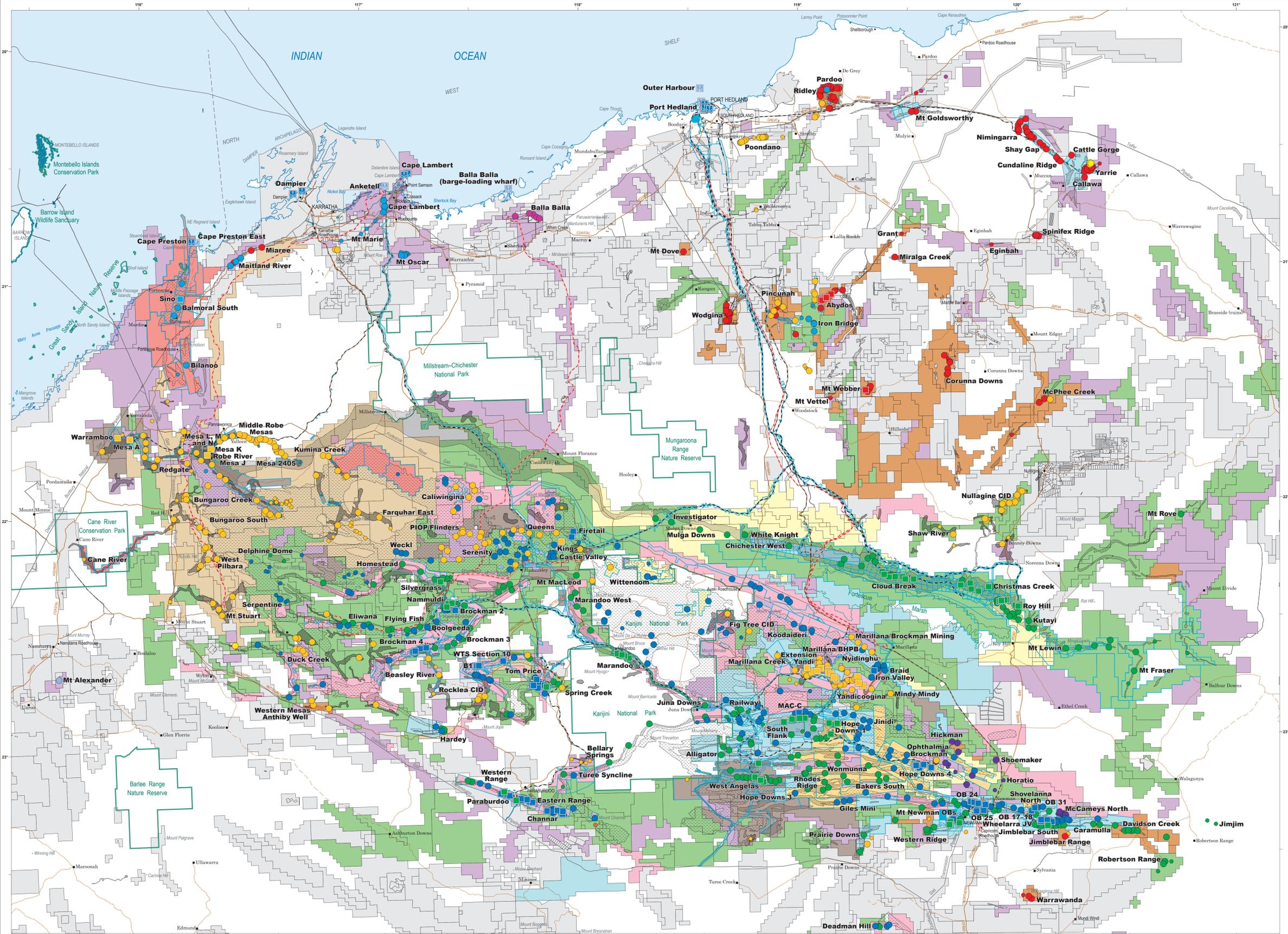


IRON ORE DEPOSITS OF THE PILBARA REGION — 2017



TENEMENTS BY COMPANY GROUP

- BHP Billiton plus joint ventures (JV) with CI Minerals (Techu), Mitsui, POSCO, JFE Steel, and other Wheelabrator JV companies
- Rio Tinto plus JVs with CMEC (SinoSteel) and BocoSteel
- Rio Tinto plus JVs with Hancock Prospecting Pty Ltd or Wright Prospecting Pty Ltd, or both
- Hancock Prospecting Pty Ltd
- Robe River Iron Associates (Rio Tinto, Mitsui, Nippon Steel, and Sumitomo)
- Mineralogy group of companies
- Fortescue Metals Group Ltd plus JVs with Consolidated Minerals, Cullen Resources Ltd, and Talsman Mining Ltd. Includes iron ore tenements of Fortescue Metals Group Ltd, including FMO Pilbara Pty Ltd, FMO Chichester Pty Ltd, and others
- Atlas Iron Ltd plus JVs with companies such as Global Advanced Metals Pty Ltd, Mineral Resources Ltd, and De Grey Mining Ltd. Includes subsidiary companies Global Resources NL, Fortuna Ltd, Warradale Resources Ltd, and others
- API Management Pty Ltd (Aquila Resources Ltd, MCI Holdings Australia Pty Ltd, BocoSteel, and POSCO) with JV partners such as Red Hill Iron Ltd, Cullen Resources Pty Ltd, Helix Resources Ltd, and others
- Other — iron ore and Mineralist Iron Ore Temporary Reserves. Some of these tenements may be joint ventured with the company groups above. Includes pending tenements awaiting outcomes of ballots.
- Other — not known as being explored for iron ore

SITE TYPE AND STAGE OF DEVELOPMENT

(Symbol coloured by iron ore mineralization style)

- Mine — operating or under development
- Mine — closed or proposed, or undeveloped deposit with a resource estimate
- Undeveloped prospect without a resource estimate

OB 24
Mine, deposit or prospect

IRON ORE MINERALIZATION STYLES

- Plastic and laminar rhyolite palaeochannel mineralization or channel deposits (CID) of the Cenozoic Robe Pileolite and Poondano Formation. Mineralization style is 'Regolith — alluvial to beach placer mineralization'
- Hematitic conglomerate of the Proterozoic Ed Creek Formation, which formed in a near-shore environment (mined at Yarie 10) and hematitic conglomerate of the Palaeoproterozoic Mount McGrath Formation (Wyloo Group, Ashburton Basin). Mineralization style is 'Stratiform sedimentary — classic-hosted'
- Magnetite-rich banded iron-formation or taconite, hosted by younger iron formations of the Wyloo Group of the Ashburton Basin. Mineralization style is 'Stratiform sedimentary — classic-hosted'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the Boolegeeda Iron Formation or Woongarra Rhyolite (Hemley Basin). Includes nearby scree and detrital deposits derived from the Boolegeeda Iron Formation. Mineralization style is 'Sedimentary — banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the Weeli Weeli Formation (Hemley Basin). Mineralization style is 'Sedimentary — banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the Brockman Iron Formation (Hemley Basin). Includes nearby scree and detrital deposits derived from the Brockman Iron Formation. Mineralization style is 'Sedimentary — banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the Marra Mamba Iron Formation (Hemley Basin). Includes nearby scree and detrital deposits derived from the Marra Mamba Iron Formation. Mineralization style is 'Sedimentary — banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the Archaean Pilbara Craton. Includes nearby scree and detrital deposits. Mineralization style is 'Sedimentary — banded iron-formation (supergene enriched)'
- Magnetite-rich banded iron-formation or taconite. May be hosted by iron formations of the Archaean granite-greenstone terranes, and the Brockman Iron Formation of the Neoproterozoic Palaeoproterozoic Hemley Basin. Mineralization style is 'Sedimentary — banded iron-formation (taconite)'
- Chromatitic layered mafic intrusives targeted for both iron (magnetite) and V-Ti (ilmenite)

IRON ORE GEOLOGY

- Channel iron deposits (CID) and pileolite (Robe Pileolite and Poondano Formation)
- Brockman Iron Formation
- Marra Mamba Iron Formation
- Banded iron-formation (BIF) in granite-greenstone terrane



Legend

- Major road
- Formed road
- Track
- Railway, operating
- Railway, proposed
- Gas pipeline, operating
- Gas pipeline, proposed
- Oil pipeline, operating
- Iron ore port, operating or under development
- Iron ore port, proposed

Townsite population: 10,000 – 15,000 (Karratha), 1000 – 10,000 (Newman, Nullagine), less than 1000 (Mulgina Downs, Aski Roadhouse).

Established conservation estate (national park, nature reserve, or conservation park)

Fortescue Marshes — Australian Nature Conservation Agency Wetlands (full extent not shown)

Iron Ore State Agreement Act external boundary

DATA SOURCES

Theme	Date/Currency	DATA SOURCES	Organisation
Tectonic units	2015	Geological Survey of Western Australia, Department of Mines and Petroleum	Geological Survey of Western Australia
Iron ore geology	2017	Geological Survey of Western Australia, Department of Mines and Petroleum	Geological Survey of Western Australia
Mines and deposits	MAR 2017	Geological Survey of Western Australia, Department of Mines and Petroleum	Geological Survey of Western Australia
Mining tenements	MAR 2017	Mineral Titles Division, Department of Mines and Petroleum	Department of Mines and Petroleum
Coastline	MAR 2017	Landgate, Department of Mines and Petroleum	Landgate
Established conservation estate	AUG 2016	Landgate, Department of Parks and Wildlife	Department of Parks and Wildlife
Topography	2017	Landgate	Landgate
Coastline	2017	Geoscience Australia (Commonwealth)	Geoscience Australia
Rail	2017	Landgate	Landgate

Compiled by RW Cooper 2017

Information on mines, deposits, prospects, and processing plants was extracted from the GMP Mines and Mineral Deposits (MINEDEX) database, viewed March 2017. www.dmp.gov.au/mineindex/

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The recommended reference for this map is: Cooper, RW 2017. Iron ore deposits of the Pilbara region — 2017 (1:750,000 scale). Geological Survey of Western Australia.

Tenements are colour coded by company association or general groups (designated 'Other'). Sources used to determine that a tenement is targeted for iron ore (and/or other minerals) include iron ore State Agreement Acts, authorisation to explore for iron ore granted or applied for under Section 111 of the Mining Act 1978, tenement record files, and company public announcements. This includes tenements at the application stage. Inclusion of such tenements here does not imply that the tenement applications will be granted or that iron ore authorisation under Section 111 will be granted. Other tenements (shown in grey) may also be prospective for iron ore. Colour-coded iron ore tenements may also be prospective for other minerals.

Miscellaneous Licences have been plotted, but not given their specific company colour coding; the colour coding of the underlying tenements are shown instead.

The tenement layer consists of many tenements (both granted and pending applications) that overlap in time and space with complex relationships. However, the tenements are depicted as if they form a 2D layer.

Care should be taken when interpreting the colour coded tenements and, where necessary, further details should be obtained from the companion digital product or from DMP's online mining tenement database, TSDMP/MS.



Government of Western Australia

Department of Mines and Petroleum

Geological Survey of Western Australia

Scale: 1:750,000

ALBERS EQUAL AREA PROJECTION WITH CENTRAL MERIDIAN 121° AND STANDARD PARALLELS 17°30' AND 31°30'

HORIZONTAL DATUM: GEOCENTRIC DATUM OF AUSTRALIA 1994 (GDA94)

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