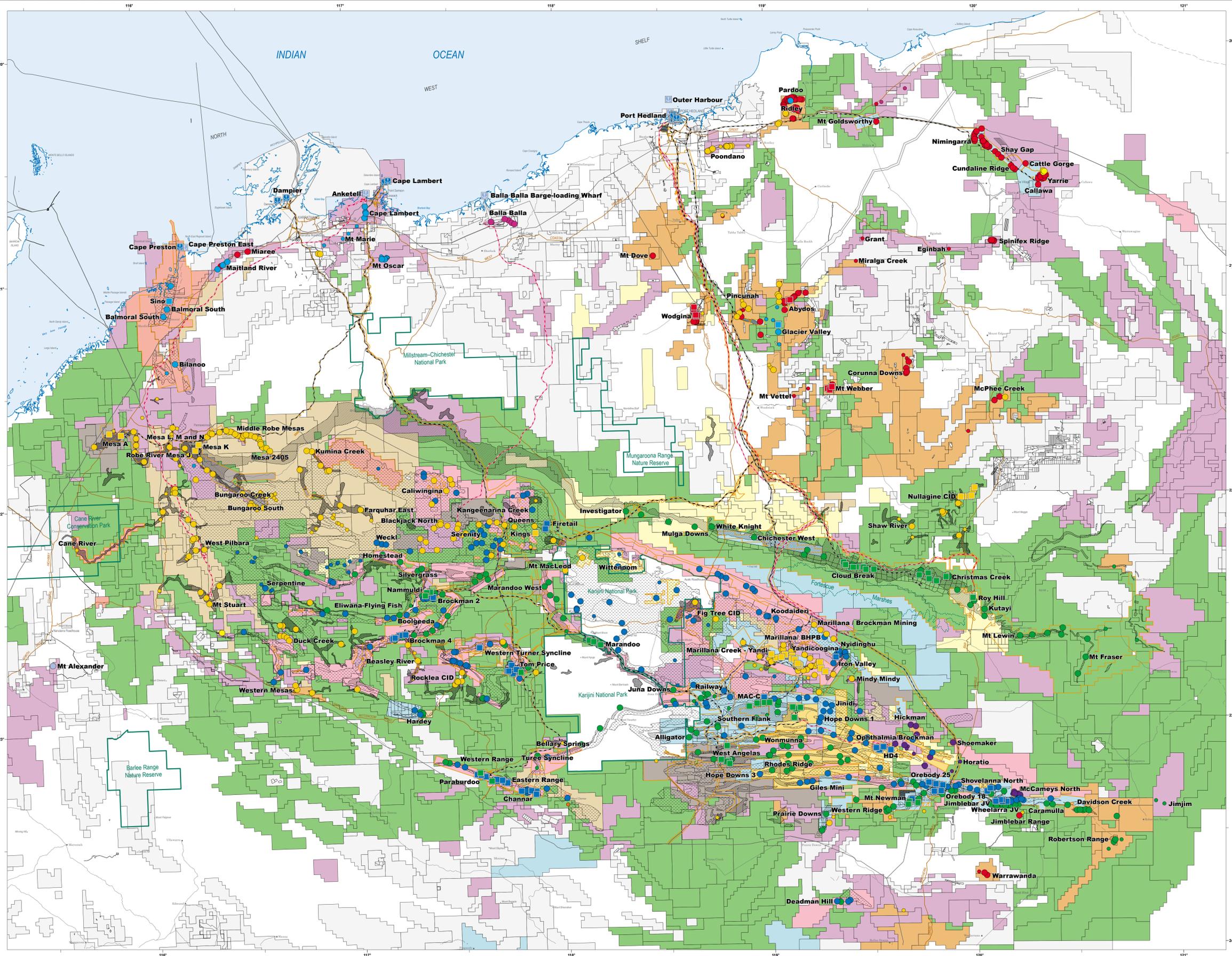


IRON ORE DEPOSITS OF THE PILBARA REGION — 2015



SITE TYPE AND STAGE OF DEVELOPMENT

- Operating mine (Symbol coloured by iron ore mineralization style)
- Proposed mine, closed mine, or mineral deposit — with a mineral resource estimate
- Prospect — without a mineral resource estimate

MINERALIZATION STYLES

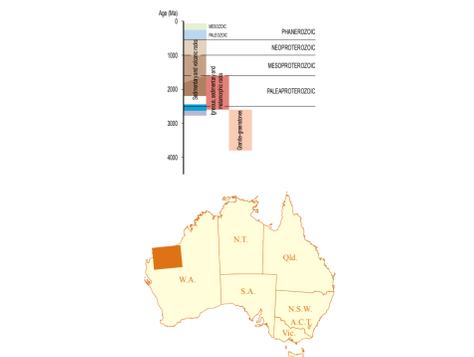
- Pfostic and impure hematite paleochannel mineralization or channel deposits (CID) of the Cenozoic **Robe Piastille** and **Poondano** Formations. Mineralization style is 'Ragolith-alluvial to beach placer mineralization'
- Hematitic conglomerates of the Neoproterozoic **East Creek Formation** (Taramuh Group, Officer Basin), which formed in a near-shore environment (mined as Yare 10) and hematitic conglomerates of the Palaeoproterozoic **Mount McGrath Formation** (upper Wyloo Group, Ashburton Basin). Mineralization style is 'Stratobound sedimentary - clastic-hosted'
- Magnetite-rich banded iron-formation or taconite, hosted by younger iron formations of the upper Wyloo Group of the Ashburton Basin. Mineralization style is 'Stratobound sedimentary - clastic-hosted'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the **Boodjega Iron Formation** or the **Wongarra Rhyolite** (Hammersley Basin). Includes nearby scree and detrital deposits derived from the Boodjega Iron Formation or the **Wongarra Rhyolite**. Mineralization style is 'Sedimentary - banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the **Weeli Wofli Formation** (Hammersley Basin). Mineralization style is 'Sedimentary - banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the **Brookman Iron Formation** (Hammersley Basin). Includes nearby scree and detrital deposits derived from the Brookman 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 **Marna Mamba Iron Formation** (Hammersley Basin). Includes nearby scree and detrital deposits. Mineralization style is 'Sedimentary - banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by banded iron-formation of the **Achean Pilbara Craton**. Includes nearby scree and detrital deposits. Mineralization style is 'Sedimentary - banded iron-formation (supergene enriched)'
- Supergene-enriched hematite and hematite-goethite mineralization hosted by iron formations of the **Achean granitite-gneiss terranes**, and the **Brookman Iron Formation** of the **Neoproterozoic Palaeoproterozoic Hammersley Basin**. Mineralization style is 'Sedimentary - banded iron-formation (supergene enriched)'
- Ophiolitic layered mafic intrusives targeted for both iron (magnetite) and V-Ti (ilmenite)

IRON ORE TENEMENTS AND MINISTERIAL RESERVES BY COMPANY GROUP

- BHP Billiton plus joint ventures (JVs) with Minerals (Itochu), Msa, POSCO, JFE Steel, and other Wheelara JV companies
- Rio Tinto plus JVs with CMEC (SinoSteel) and Baosteel
- Rio Tinto plus JVs with Hancock Prospecting and Wright Prospecting
- Hancock Prospecting
- Robe River Iron Associates (Rio Tinto, Msa, Nippon Steel, Sumitomo)
- Mineralogy group of companies
- Fortescue Metals Group plus JV with Consolidated Minerals, BC Iron Ltd, Cullen Resources Ltd, and Talsman Mining Ltd. Includes iron ore tenements of Fortescue Metals Group, FMS Pilbara, and FMS Chester
- Atlas Iron Ltd plus JVs with companies such as Global Advanced Metals Pty Ltd, De Grey Mining Ltd, Chalco Gold Mines Ltd. Includes subsidiary companies such as Gravel Resources, Ferasus Ltd, and Warrack Resources
- API Management Pty Ltd (50% Aquila Resources Ltd and 50% AMCI Holdings Australia Pty Ltd) with JV partners such as De Beers Australia Exploration Ltd, Red Hill Iron Ltd, Cullen Resources Pty Ltd, Gravel Resources NL, and Hela Resources Ltd
- Other — iron ore and Ministerial One Temporary Reserves. Some of these tenements may not be joint ventured with the company groups above. Includes pending tenements awaiting outcomes of bids.
- Other — not known as being explored for iron ore

IRON ORE GEOLOGY

- Channel iron deposits (CID) and pisolite (Robe Piastille and Poondano Formation)
- Brookman Iron Formation (note: also includes some Weeli Wofli Formation)
- Marna Mamba Iron Formation



Major road

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

Townsite

- population 10 000 – 15 000
- 1000 – 10 000
- less than 1000
- Homestead
- Locality
- Conservation estate boundary
- part of the proposed **Fortescue Marsh management area**
- Iron Ore State Agreement Act boundary

DATA DIRECTORY

Theme	Data Currency	Organization
Tectonic unit	2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Iron ore geology	2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Mines and deposits	MAR 2015	Geological Survey of Western Australia, Department of Mines and Petroleum
Mining tenements	MAR 2015	Mineral Titles Division, Department of Mines and Petroleum
Catchment	MAR 2015	Department of Mines and Petroleum
Topography	2015	Landgate, Department of Mines and Petroleum
Coastline	2015	Geoscience Australia
Rail	2015	Landgate

Compiled by RW Cooper 2015
 Information on mines, deposits, prospects, and processing plants was extracted from the DMP Mines and Mineral Deposits (MMDC) Database, viewed March 2015, www.dmp.wa.gov.au/dmp/.
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 Edited by SR White and K Greenberg
 Published by the Geological Survey of Western Australia
 This map is available in digital format (PDF) and is available online at www.dmp.wa.gov.au/dmp/.
 Copies of this map, and a detailed digital package, are available from:
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 Phone: +61 8 9222 3200
 Website: www.dmp.wa.gov.au/dmp/
 Fax: +61 8 9222 3444
 Email: geology@survey.wa.gov.au

Tenements are colour coded by company association or general group (designated 'Other'). Sources used to determine that a tenement is targeting iron ore (and/or other minerals) include the Iron Ore State Agreement Act, authorization to explore for iron ore granted or applied for under Section 111 of the Mineral and Petroleum (MPP) Act 1975, tenement record files (including GeV), and company public announcements. This includes tenements at the application stage. Inclusion of each tenement record does not imply that the tenement application will be granted or that iron ore authorization 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.
 Mineralogy labels have been added but do not give their specific company colour coding. The colour coding of the mineralogy 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 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 company digital product or from DMP's online mining tenement database (TMSDB).

Government of Western Australia
 Department of Mines and Petroleum

Geological Survey of Western Australia
 EXECUTIVE DIRECTOR

SCALE 1:500 000

ALBERS EQUAL AREA PROJECTION WITH CENTRAL MERIDIAN 121° AND STANDARD PARALLELS 17° 30' AND 31° 30' HORIZONTAL DATUM: GEOCENTRIC DATUM OF AUSTRALIA 1984 (GDA84)

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