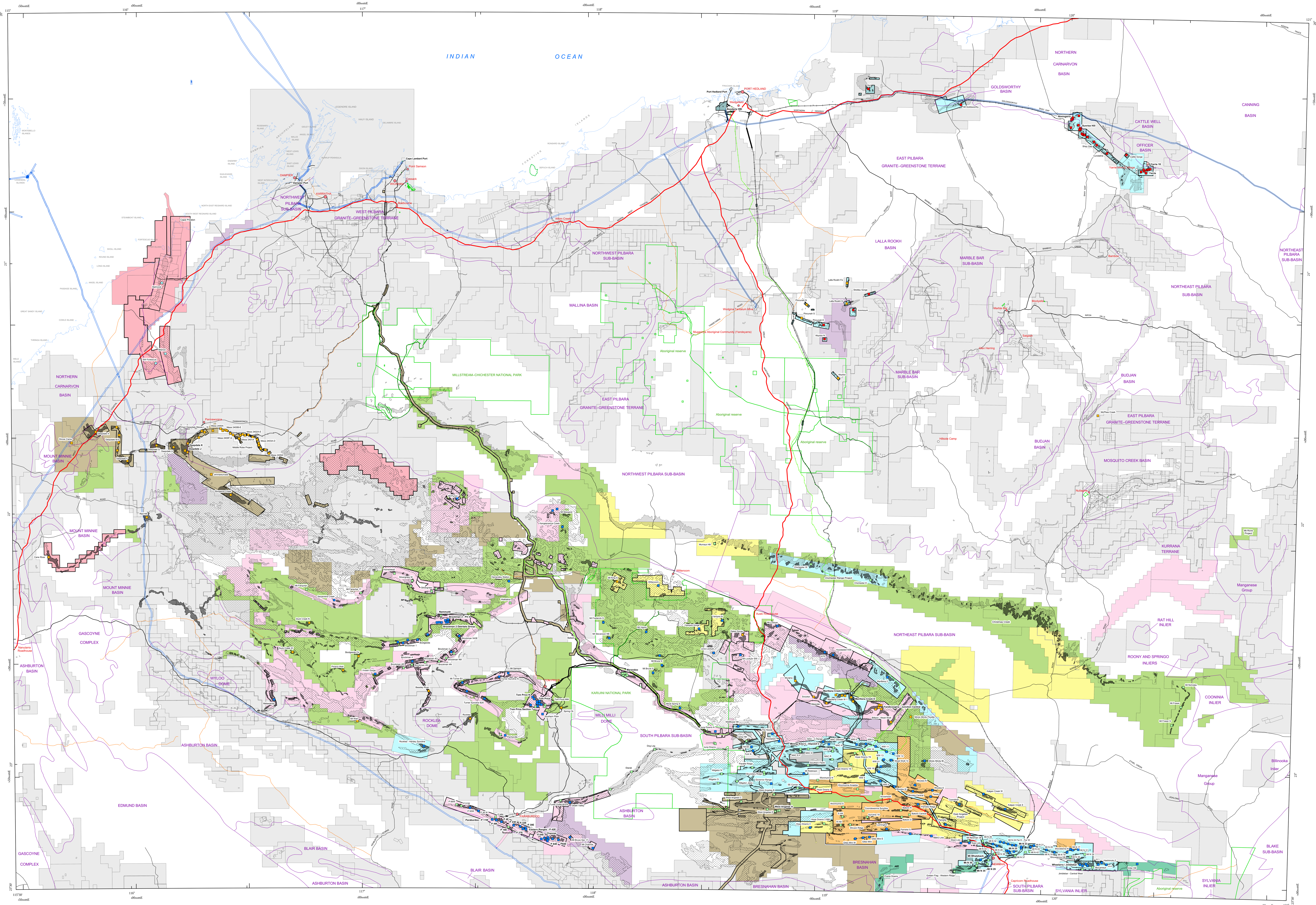
Iron ore deposits of the Pilbara region



LEGEND

Townsites

Population; more than 10 000	PORT HEDLAND
between 1 000 and 10 000	DAMPIER
less than 1 000	Roebourne
Locality	Salgash

- National parks and Aboriginal reserves
- Highway
- Road; sealed
- Road; unsealed
- Major track
- Railway
- Proposed railway (route not yet finalized)
- Conveyor
- Gas pipeline
- Coastline
- Tectonic unit boundary (includes faulted boundaries)
- State Agreement Act boundary

IRON ORE GEOLOGY

- Zones of supergene enrichment
- Robe Pisolite
- Brockman Iron Formation (Note: also includes some Weeli Wolli Formation)
- Marra Mamba Iron Formation
- Banded iron-formation in granite–greenstone terrane

IRON ORE MINERALIZATION STYLES

- Pisolitic and limonitic riverine palaeochannel mineralization or Channel Iron Deposits (CID) of the Cainozoic Robe Pisolite and Poondano Formation. Mineralization style is 'Regolith — alluvial to beach placer mineralization'
- Hematitic conglomerate of the Neoproterozoic Eel Creek Formation (Tarcunyah Group, Officer Basin), which formed in a near-shore environment. Mined at Yarrie 10. Mineralization style is 'Stratabound sedimentary — clastic-hosted'
- Supergene-enriched hematite and hematite–goethite mineralization hosted by banded iron-formation of the Brockman Iron Formation (Hamersley 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 (Hamersley 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 (Nimingarra Iron Formation and Cleaverville Formation) of the Archaean East Pilbara Granite–Greenstone Terrane. Includes nearby scree and detrital deposits. Mineralization style is 'Sedimentary — banded iron-formation (supergene enriched)'
- Unenriched magnetite-rich banded iron-formation or taconite. May be hosted by iron formations of the Archaean granite–greenstone terrane or late Archaean–Palaeoproterozoic Hamersley Basin. Mineralization style is 'Sedimentary — banded iron-formation (taconite)'

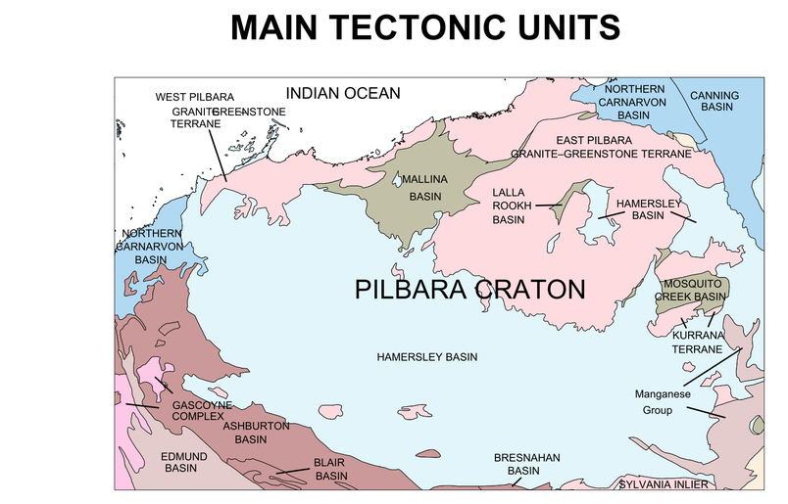
IRON ORE SITE TYPE AND STAGE OF DEVELOPMENT

- **Tom Price** — Operating mine. Note that on this map some operating processing plants and port handling facilities are labelled but not symbolized
- Mindy Mindy — Proposed mine, closed mine, and deposit. Exploration sites or prospects (without mineral resource estimates) are not shown

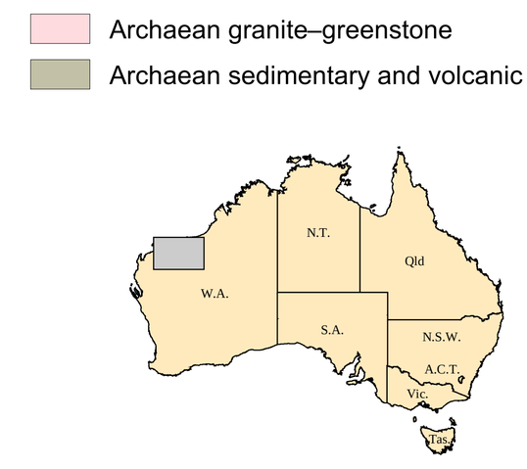
IRON ORE TENEMENTS AND MINISTERIAL RESERVES BY COMPANY GROUP

- BHP Billiton / CI Minerals – Itochu / Mitsui / POSCO JVs, and proposed JVs
- BHP Billiton / Renison JV
- Rio Tinto / CMIEC (Baosteel is a JV partner in Paraburdoo Eastern Ranges project)
- Rio Tinto / Hancock / Wright
- Hancock Prospecting (Kumba Resources is a JV partner in Hope Downs project)
- Robe River Iron Associates (Rio Tinto / Mitsui / Nippon / Sumitomo)
- Mineralogy (Balmoral – George Palmer deposit to be developed under Austeel Pty Ltd)
- Fortescue Metals Group and associates (includes Consolidated Minerals, Pilbara Iron Ore, and selected tenements of Talisman Mining, Derek Ammon, and Maincoast Pty Ltd)
- Other — iron ore
- Other — not being explored for iron ore

MAIN TECTONIC UNITS



- Phanerozoic sedimentary and volcanic rocks
- Neoproterozoic sedimentary and volcanic rocks
- Mesoproterozoic sedimentary and volcanic rocks
- Palaeoproterozoic igneous and metamorphic rocks
- Palaeoproterozoic sedimentary and volcanic rocks
- Neoarchaean–Palaeoproterozoic sedimentary and volcanic rocks
- Archaean granite–greenstone
- Archaean sedimentary and volcanic rocks



DATA DIRECTORY

Theme	Data Source	Data Currency	Agency
Tectonic units	GSWA	2001	Dept. of Industry and Resources
Iron ore geology	GSWA	1987	Dept. of Industry and Resources
Supergene enrichment	GSWA	1987	Dept. of Industry and Resources
Mines and deposits	MINEDEX	May 2004	Dept. of Industry and Resources
Cadastre	TENGRAPH	June 2004	Dept. of Industry and Resources
Topography	Department of Land Information	May 2004	Department of Land Information
Coastline	AUSLIG	1990	Geoscience Australia
Rail	BHP Billiton and Hamersley Iron	June 2004	

Department of Industry and Resources
CLIVE BROWN, M.L.A. MINISTER FOR STATE DEVELOPMENT
JIM LIMERICK DIRECTOR GENERAL
Geological Survey of Western Australia
TIM GRIFFIN DIRECTOR

SCALE 1:500 000

Kilometres 0 5 10 20 30 40 50

UNIVERSAL TRANSVERSE MERCATOR PROJECTION
HORIZONTAL DATUM: GEOCENTRIC DATUM OF AUSTRALIA 1994
Grid tics indicate 50 000 metre interval of the Map Grid Australia Zone 50

The Map Grid Australia (MGA) is based on the Geocentric Datum of Australia 1994 (GDA94). GDA94 positions are compatible within one metre of the datum WGS84 positions.

Compiled by D. J. Flint 2004

Edited by K. Greenberg, B. Williams and J.A. Mikucki
Cartography by S. Hamill

Information on mines, deposits, and processing plants was extracted from the Mines and mineral deposits information (MINEDEX) database, DoIR, in April 2004. More detailed information on sites, tenements, company groupings, and geology are available on an accompanying CD. The CD contains more accurate information on the distribution limits of the Brockman Iron Formation. For more up-to-date information see the online databases at www.doir.wa.gov.au

Topography from the Department of Land Information

Published by the Geological Survey of Western Australia. Digital and hard copies of this map, as well as the full digital data behind the map (separate CD), are available from the Information Centre, Department of Industry and Resources, 100 Plain Street, East Perth, WA, 6004. Phone (08) 9222 3459, Fax (08) 9222 3444

Web www.doir.wa.gov.au/gswa Email geological.survey@doir.wa.gov.au

The recommended reference for this map is:
FLINT, D. J., 2004, Iron ore deposits of the Pilbara region, June 2004 (1:500 000 scale): Western Australia Geological Survey

Iron ore deposits of the Pilbara region

JUNE 2004