MANGANESE

INVESTMENT OPPORTUNITIES

WORLD-CLASS RESOURCE PROVINCE | SECURE INVESTMENT LOCATION
WORLD-LEADING GEOSCIENTIFIC DATA | GLOBAL MINING SERVICES INDUSTRY

Western Australia has a 50-year history of producing metallurgical-grade manganese

- The State has a long history of manganese mining, with a total of 14.22 Mt manganese ore produced since 1948. Woodie Woodie has been producing high-grade manganese since the 1950s
- Production in 2018 was 554 744 t, attributed to the Woodie Woodie and the Horseshoe Range mining operations
- Western Australia's current mineral resources contain 61.83 Mt manganese, which is an essential alloy in the steel-making process
- The Butcherbird Project is the largest onshore resource in Australia across seven deposits with a mine proposed at Yanneri Ridge
- Proposed mining at the South Woodie Woodie Project is currently on hold
- Further drilling at Bryah Basin has extended known mineralization of the Horseshoe South historical mine which is currently under review for redevelopment

$452 427 m	554 744 t	467	9th	7.5%
Sales value	Tonnes sold	Full-time employees	Production world ranking	Royalty rate

(2018 calendar year)

Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**

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Manganese projects with resources

Projects with resource grade > 5% — ranked by contained manganese

Project	Status	Project owner	Resources (Mt)	Grade (% Mn)	Contained Mn (kt)
Butcherbird	Pre-feasibility study	Element 25	262.8	9.9	26 130
Woodie Woodie	Operating	Consolidated Minerals†	48.5	30.6	14 841
Oakover	Feasibility study	Marindi Metals	64.0	10.0	6 418
Nicholas Downs	Care and maintenance	Hancock Prospecting	19.5	27.2	5 298
Balfour South	Proposed mining	Consolidated Minerals†	21.6	19.4	4 190
South Woodie Woodie	Proposed mining*	Bardoc Gold / Planet Mining	14.2	13.3	1 898
Mesa JV – Ant Hill	Care and maintenance	Mineral Resources / Mesa Minerals	9.6	19.4	1 862
Earaheedy	Exploration	Zenith Minerals	4.0	20.0	802
Elsa Mary	Proposed	Sinosteel Midwest	1.0	21.9	208
Horseshoe Range	Operating	Horseshoe Manganese	0.9	20.8	178
		TOTALS	424.4		61 825

Supergene/Residual Mn
Sedimentary or carbonate rock
Fe–Mn
Vein and hydrothermal

* Project on hold
† Parent — Ningxia Tianyuan Manganese Industry Co

Manganese mineralization — Pilbara and Capricorn region

- Supergene and residual Mn
- Hydrothermal Mn
- Fe–Mn associated with iron formation
- Sedimentary or carbonate hosted
- Mn associated with base metals
- Mine and deposit
- Prospect
- Occurrence
- Town
- Highway / major road
- Railway

For more information

Geological Survey of Western Australia — www.dmirs.wa.gov.au/gswa

MINEDEX — www.dmirs.wa.gov.au/minedex

GeoVIEW.WA — www.dmirs.wa.gov.au/geoview

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