

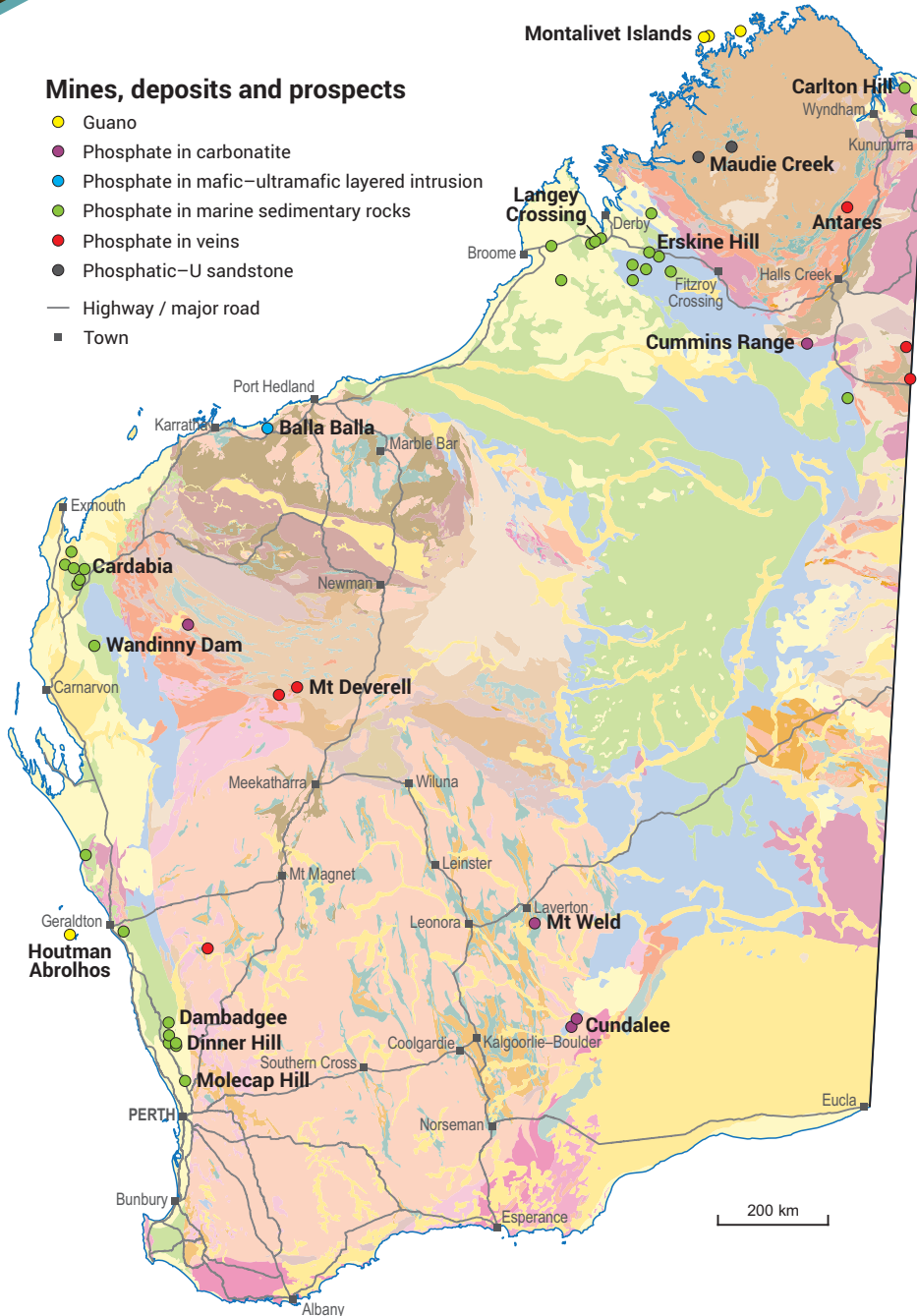
PHOSPHATE

INVESTMENT OPPORTUNITIES

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

Mines, deposits and prospects

- Guano
- Phosphate in carbonatite
- Phosphate in mafic-ultramafic layered intrusion
- Phosphate in marine sedimentary rocks
- Phosphate in veins
- Phosphatic-U sandstone
- Highway / major road
- Town



Western Australia has potential for phosphate discoveries

Currently, phosphate is supplied from Christmas Island (an Australian territory, located 2600 km northwest of Perth in the Indian Ocean). Phosphate Resources Ltd produces high-quality rock phosphate from guano deposits for export into the Asia-Pacific market as a premium fertilizer

In the past, there was minor phosphate production from islands off the northwest coast of Western Australia

Potential for phosphate

- Carbonatites: at Mt Weld (Yilgarn Craton) and Cummins Range (east Kimberley), apatite and monazite occur in the weathered regolith above carbonatite-hosted rare earth elements mineralization
- Phosphate-rich horizons in marine sedimentary rocks: significant phosphate mineralization, including the Dinner Hill deposit and the Dambadgee prospect, occurs in two glauconite-rich horizons with phosphate nodules in the Dandaragan Trough (Perth Basin). Phosphate nodule-rich horizons have also been intersected in drillholes in the Southern Carnarvon Basin in the Cardabia area
- Layered mafic-ultramafic intrusions: at Balla Balla (west Pilbara), an apatite-rich layer up to 15 m thick overlies the titanomagnetite ore into the hangingwall gabbro

In Australia, phosphate is considered a critical mineral due to its important use as a fertilizer. Australian soils are typically low in phosphorous and farming can cause further depletion. While our native vegetation has adapted to these soil conditions, introduced crops such as wheat, barley, oats and rye need phosphate to be added



Phosphate resources ranked by contained P₂O₅ (kt)

Resources estimated according to JORC (various codes)

Project	Status	Owner	Resources (Mt)	Av. grade P ₂ O ₅ (%)	Contained P ₂ O ₅ (kt)	Resource date
Dinner Hill	Inactive		630.0	1.89	11 910	26/09/2017
Christmas Island	Operating	Phosphate Resources	12.0 [#]	28.83	3 462	01/07/2014
Mt Weld	Operating*	Lynas Corporation	37.7	8.00	3 015	06/10/2004
TOTAL			679.7		18 387	

Resource estimates have been rounded

* Not currently producing phosphate

[#] Dry tonnes



Phosphate in marine sedimentary rock



Phosphate as Quaternary guano



Phosphate in carbonatite

Properties and uses

- Is an abundant and reactive element
- Forms a critical component of fertilizers
- Other uses include in the manufacture of matches and food supplements for animals



Phosphate rock mining continues at this quarry on Christmas Island, Australia

(Source: David Stanley, www.flickr.com/photos/davidstanleytravel/25509053072/, CC-BY-2.0)

For more information



Geological Survey of
Western Australia

www.dmirs.wa.gov.au/gswa



www.dmirs.wa.gov.au/minedex



www.dmirs.wa.gov.au/geoview

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