



Australian Mineral Exploration Review 2011

FEBRUARY 2012

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OVERVIEW

- Australian exploration expenditure in 2010–2011 rose by \$718 million to \$2951 million, an increase of 32%.
- All jurisdictions except Victoria recorded substantial increases in exploration expenditure.
- Western Australia dominated exploration spending in Australia with 54% of total expenditure, followed by Queensland (22%) and South Australia (9%).
- Exploration spending on the search for mineralisation in greenfields districts rose by 22%.
- Iron ore exploration received the largest expenditure, followed by gold.
- Exploration results were announced for a wide range of commodities from across the country including initial resource estimates for many iron ore deposits.

EXPLORATION REVIEW

Total mineral exploration expenditure for the 2010–11 financial year was \$2951 million, an increase of 32% compared to the 2009–2010 financial year (\$2233 million). Exploration expenditure increased for most commodities including coal (up 62% to \$520 million), copper (up 60% to \$323 million), lead, zinc and silver (up 46% to \$76 million), nickel and cobalt (up 33% to \$271 million), iron ore (up 27% to \$665 million) uranium (up 27% to \$214 million), and gold (up 13% to \$652 million). Minor falls were recorded for diamond (down 14% to \$9 million) and minerals sands (down 8% to \$26 million). Minor falls were observed in diamond exploration expenditure which was down 14% to \$9 million, and mineral sands expenditure decreased to \$26 million. Iron ore exploration received the largest expenditure followed by gold. Exploration expenditure for other commodities, including manganese, molybdenum, phosphate, tungsten and vanadium, collectively increased by 33% to \$196 million.

An increase in exploration expenditure was seen in all jurisdictions except Victoria. Tasmania witnessed an increase of 80% to \$37 million, Queensland was up by 52% to \$664 million, South Australia jumped 52% to \$225 million, Northern Territory was up by 31% to \$195 million, Western Australia increased by 28% to \$1590 million and New South Wales was up by 17% to \$153 million. Victoria recorded a reduction in exploration spending, down by 31% to \$58 million. Western Australia dominated exploration spending with 54% of total spending in Australia, followed by Queensland (22%) and South Australia (9%).

Increases in exploration spending were recorded in both near-mine (brownfields) areas and in the search for undiscovered mineralisation in new districts and provinces (greenfields). Brownfields exploration spending rose by 39% to \$1914 million, whereas greenfields expenditure rose by 22% to \$1037 million.

Drilling in brownfields and greenfields exploration programs increased by 17% to 9 699 000 m, with drilling in brownfields areas dominant, increasing by 19% to 6 263 000 m.

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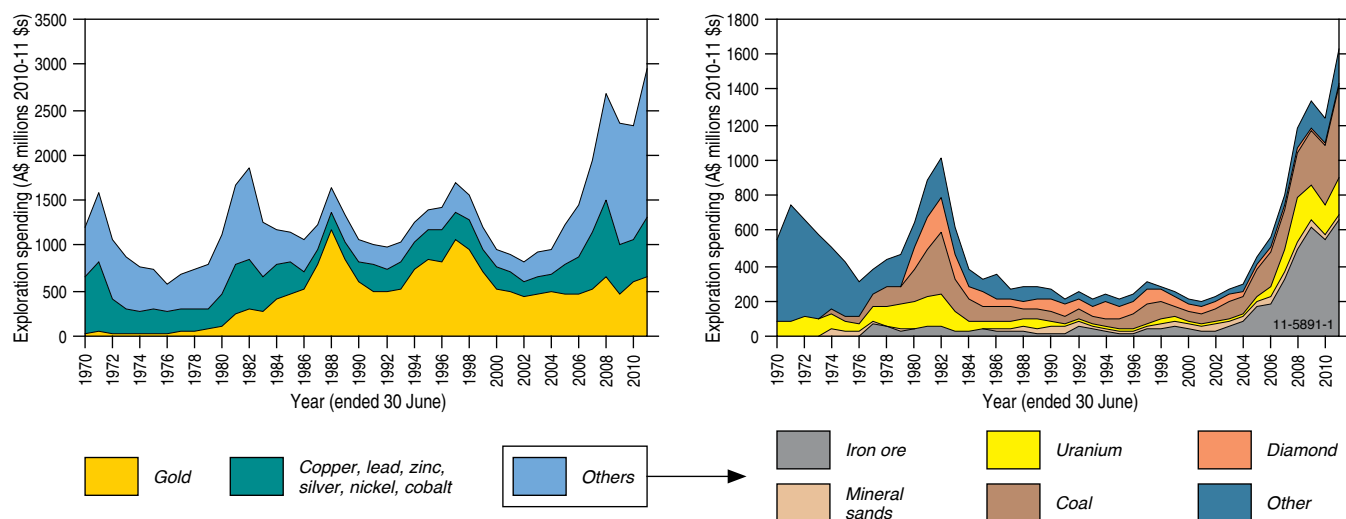


Figure 1. Australian mineral exploration expenditure in constant 2010–2011 dollars (Based on Australian Bureau of Statistics data deflated by Consumer Price Index).

Geoscience Australia provides pre-competitive geoscientific information that supports and facilitates onshore energy and mineral exploration in Australia. This is achieved through integrated programs of data gathering and assessment, conducted at the national and regional scales. The results are delivered as digital data and in detailed reports. Recent reports include:

- **Energy Security Program Achievements Report:** The agency undertakes activities of national strategic importance, such as the five-year Onshore Energy Security Program, which was completed in mid 2011. Examples of achievements of this program include the discovery of the Millungera Basin in north Queensland, which has potential for petroleum, geothermal and other resources, and the Radiometric Map of Australia, the first for an entire continent, being used widely by energy and mineral explorers.
- **The Major Rare-Earth-Element Deposits of Australia: Geological Setting, Exploration, and Resources:** This report describes the distribution, geological characteristics, and resources of Australia's major rare-earth-elements (REE) deposits as a stimulus for further exploration for undiscovered resources. The information is intended to inform the public, students, and professional geoscientists.
- **Australian Energy Resource Assessment:** examines the nation's identified and potential energy resources ranging from fossil fuels and uranium to renewables. The assessment reviews the factors likely to influence the use of Australia's energy resources to 2030, including the technologies being developed to extract energy more efficiently and cleanly from existing and new energy sources.

www.ga.gov.au

SELECTED EXPLORATION RESULTS

COPPER (INCLUDING COPPER-GOLD)

New South Wales

YTC Resources Ltd announced that ongoing drilling at **Nymagee** copper mine, Nymagee, extended copper mineralisation to the north with an intersection of 31 m @ 1.7% Cu and 0.12 g/t Au from 430 m, including 10 m @ 2.4% Cu from 430 m in the Main Lode. The same drill hole intersected footwall lodes with intersections of 7 m @ 1.6% Cu from 354 m and 7 m @ 1.2% Cu from 409 m. A wedge hole off this hole to test the continuity of copper mineralisation between the parent and an adjacent hole returned mineralisation in the Main Lode of 36 m @ 2.5% Cu and 11 g/t Ag from 381 m, which included 5 m @ 4.0% Cu and 8 g/t Ag from 393 m, and 7 m @ 6.7% Cu, 0.16 g/t Au and 30 g/t Ag from 405 m.

Alkane Resources Ltd reported the discovery of new porphyry style gold-copper mineralisation at the **Bodangora** project, 15 km northeast of Wellington. Alkane's initial target in the area was structurally controlled gold similar to the historic Bodangora mine. North of the Bodangora mine Alkane reported several targets, which include skarn mineralisation and extensive zones of alteration at Comobella. Drilling at the Glen Hollow Prospect returned 45 m @ 0.9 g/t Au and 0.24% Cu from 50 m that included 21 m @ 1.5 g/t Au and 0.41% Cu from 84 m. This hole ended in mineralisation.

Table 1. A selection of Australian mineral discoveries since 2001

Year	State	Deposit/Project	Commodities	Status
2001	NSW	Caloma	Au	Exploration with feasibility study in progress; July 2011 resource: 0.84 Mozs Au
2001	SA	Prominent Hill	Cu, Au	Mine; June 2010 resource: 2.54 Mt Cu, 7.2 Moz Au, 22.0 Moz Ag
2002	WA	Jaguar	Cu, Pb, Zn, Ag	Mine; July 2010 resource: 0.823 Mt @ 4.2% Cu, 0.7% Pb, 8.8% Zn, 124 g/t Ag
2002	WA	Copernicus	Ni, Cu, Co	Mine not currently operating; June 2010 resource: 6164 t Ni, 4401 t Cu, 255 t Co
2004 and later	WA	Alec Mairs orebodies	Ni	Mine with production from AM1 orebody; July 2004 resource: 36 Mt @ 0.74% Ni
2004	WA	Trident	Au	Mine; January 2010 resource: 0.9 Mozs Au
2004	SA	Jacinth & Ambrosia	Mineral sands	Mine; December 2007 resource: 239 Mt @ 4.0% HM
2005	WA	Tropicana	Au	Feasibility studies; December 2009 resource: 5.01 Mozs Au
2005	SA	Four Mile	U	Decision to mine Four Mile West; January 2010 resource: 5.7 Mt @ 0.34% U ₃ O ₈
2005	SA	Tripitaka	Mineral sands	Feasibility study; September 2006 resource: 28 Mt @ 2.3% HM
2005	SA	Carrapateena	Cu, Au	Exploration; 905 m @ 2.17% Cu, 0.9 g/t Au, 11.5 g/t Ag
2005	WA	Caliwingina	Fe	Exploration; November 2010 resource: 1540 Mt @ 57.25% Fe
2006	SA	Gullivers	Mineral sands	Exploration; part of Eucla Basin Mineral Sands Project
2006	QLD	Mount Carlton	Au, Ag, Cu	Feasibility study; October 2009 resource: 22.8 Mt @ 1.60 g/t Au, 51 g/t Ag, 0.3% Cu
2006	NSW	McPhillamys	Au	Feasibility study; July 2010 resource: 3 Mozs Au, 61 000 t Cu
2006	WA	Cooljarloo North	Mineral sands	Scoping study; December 2005 resource: 230 Mt @ 2.4% HM
2006	QLD	Rocklands	Cu	Feasibility study; September 2010 resource: 0.51 Mt Cu, 43 160 t Co, 0.34 Mozs Au
2007	WA	Spotted Quoll	Ni	Mine; December 2010 resource: 108 120 t Ni
2007	SA	Dromedary	Mineral sands	Exploration; Eucla Basin
2007	WA	Cyclone	Mineral sands	Exploration; January 2012 resource: 136 Mt @ 2.3% HM
2008	VIC	Chewton	Au	Exploration; June 2008 resource: 0.57 Mozs Au
2008	VIC	Stavely	Cu, Pb, Zn, Ag, Au	Exploration; June 2010 resource: 480 300 t Cu
2008	QLD	Merlin	Mo, Re	Exploration; August 2010 resource: 6.7 Mt @ 1.34% Mo, 23.2 g/t Re
2008	WA	Bentley	Cu, Pb, Zn, Ag, Au	Developing mine; November 2010 resource: 3.05 Mt @ 2.0% Cu, 9.8% Zn, 0.6% Pb, 139 g/t Ag, 0.7 g/t Au
2008	NT	Mount Peak	V, Fe, Ti	Exploration; October 2011 resource: 160 Mt 0.3% V ₂ O ₅ , 5.0% TiO ₂
2009	WA	DeGrussa	Cu, Au, Ag	Pre-feasibility study; November 2010 resource: 10.67 Mt @ 5.6% Cu, 1.9 g/t Au, 15 g/t Ag and 3.74 Mt @ 1.2% Cu and 0.5 g/t Au
2010	SA	Maldorky	Fe	Advanced Exploration; December 2011 resource: 147 Mt @ 30.1% Fe
2010	NT	Barrow Creek	P	Advanced Exploration; December 2011 resource: 97 Mt @ 18% P ₂ O ₅

HM = Heavy minerals

Resource = Mineral resource (measured, indicated or inferred). Please refer to company reports for full details.

STATE AND TERRITORY GOVERNMENT INITIATIVES SUPPORTING MINERAL EXPLORATION

Northern Territory



In May 2010, the Northern Territory Government announced a three year extension to the BRINGING FORWARD DISCOVERY initiative, bringing total investment in the initiative to \$25.8 million over seven years (2007–2014). Bringing Forward Discovery includes extensive regional gravity surveys and field-based geological mapping and prospectivity assessments, with an emphasis on under-explored greenfields regions such as the Arunta region and Amadeus Basin in central Australia. The initiative also provides funding for collaborative drilling with explorers, along with collaborative funding for regional-scale geophysical surveys and improving web-based delivery of information.

www.minerals.nt.gov.au/ntgs

Western Australia



In April 2009, the Western Australian Government announced funding for the Geological Survey of Western Australia (GSWA) to implement a five-year, \$80 million Exploration Incentive Scheme (EIS) to encourage mineral and energy exploration in Western Australia. Most of the six broad programs under the EIS are focused in under-explored regions. Major components of the EIS are the completion of the State's coverage of airborne magnetic surveys at 400 m or less line spacing, a major expansion of the area covered by gravity surveys, Government co-funding of innovative exploration drilling by companies in under-explored areas, stratigraphic drilling, deep seismic lines, 3D geological mapping, and improving access to Aboriginal land for exploration. Using EIS and Commonwealth Government (Carbon Capture and Storage Flagships Program) funding, GSWA will drill in early 2012 a 2500+ metre stratigraphic well (GSWA Harvey 1), 110 km south of Perth, to test the potential of the Lesueur Formation for CO₂ storage. As part of the Western Australian Government-initiated Kimberley Science and Conservation Strategy, GSWA has been provided \$3 million over three years beginning in 2011–12 to undertake baseline geophysical surveys (gravity and magneto-telluric) and regolith mapping and soil geochemistry surveys over the northwestern Kimberley region. www.dmp.wa.gov.au



Map above: Grey-scale magnetics

South Australia



PACE 2020 builds on the globally recognised Plan for Accelerating Exploration initiative (2004–2011; \$30.9M) by providing an additional \$10.2 million specifically designed to drive forward mining development, unlock new areas of South Australia for exploration, further streamline the process from exploration to mine development, and provide first class data delivery services to the resources industry. PACE 2020 will continue to act as the primary mechanism in building South Australia's international profile and strengthening investor confidence in the State's resources sector. Anticipated 2012 releases include new mapping from the Musgraves province and Statewide paleochannel map, a 3D cover sequence reconstruction and depth to basement map of the Eastern Gawler Craton plus the release of a Statewide ASTER dataset. The new release of SARIG will be expanded to include new infrastructure layers; seismic imagery and more diversified geophysical data layers. PACE 2020 will also benchmark the states exploration and mining policies, guidelines and approvals processes to ensure world's best practice for South Australia. Collaborative opportunities are diversified through PACE 2020 with PACE Targeting (collaborative geophysics) and PACE Geochronology (mineral system dating) joining the highly successful PACE Discovery Drilling program. www.pir.sa.gov.au



Queensland



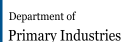
2011 saw the Geological Survey of Queensland undertake a range of activities to attract and support exploration in that State. These included petroleum, geothermal and mineral land releases, providing grants for innovative exploration activities under the Collaborative Drilling Initiative, the collection and release of new gravity, magnetic, and radiometric geophysical data over the Thomson and Galilee Basins, numerous publications including a major report on the North West Queensland Mineral and Energy Province, and the completion of a ten hole drilling program to investigate the State's geothermal prospectivity under the Coastal Geothermal Energy Initiative. During 2012 new magnetic and radiometric survey data will be released for the Thomson and Galilee Basins, further mineral and petroleum land will be released, and a new monograph and map of the geology of Queensland will be published in association with the 34th International Geological Congress to be held in Brisbane in August. www.deedi.qld.gov.au

New South Wales



The NEW FRONTIERS initiative is an exploration enhancement to further stimulate mineral and petroleum investment in under-explored terranes of New South Wales. New Frontiers builds on the successes of the Exploration NSW initiative. New Frontiers has been extended by three years (2008–2011) to continue the government program of pre-competitive funding of geophysical surveys, data compilation, mapping, data interpretation, and data delivery. The New Frontiers program focuses on applying new technologies and interpretative processes to the remote and under-explored regions of the State. These leading edge geophysical, geochemical, and modelling technologies will lower risk and challenge the exploration frontier. www.dpi.nsw.gov.au/minerals

Victoria



The three-year, \$9 million Gold Undercover initiative was completed in 2009. It delivered new geoscientific information to help explorers to search for gold deposits under the sedimentary cover in northern Victoria. The program aimed to: (a) capture and interpret new data on geophysics, crustal architecture, geochronology, geochemistry, mineralogy, and gold deposit models in central and western Victoria; (b) estimate probable undiscovered gold endowment; and (c) improve geological databases and provide better access to geoscience data. Reports and associated data may be downloaded at www.dpi.vic.gov.au/minpet/store. The four year (until June 2011), \$5 million Rediscover Victoria initiative comprises a drilling grant project that reimburses exploration companies a proportion of approval drilling costs, and the 3D Victoria project that will produce a 3D model of the State. www.dpi.vic.gov.au/minpet

Tasmania



2009–2010 was the final year of the four year, \$5.5 million TasExplore project, a highlight of which was the identification and mapping of formations in the Ordovician to Devonian Mathinna Supergroup and definition of major structures. Highly detailed 3D modelling of gold-bearing regions is well advanced. This will substantially increase the effectiveness of gold exploration in northeast Tasmania. www.mrt.tas.gov.au

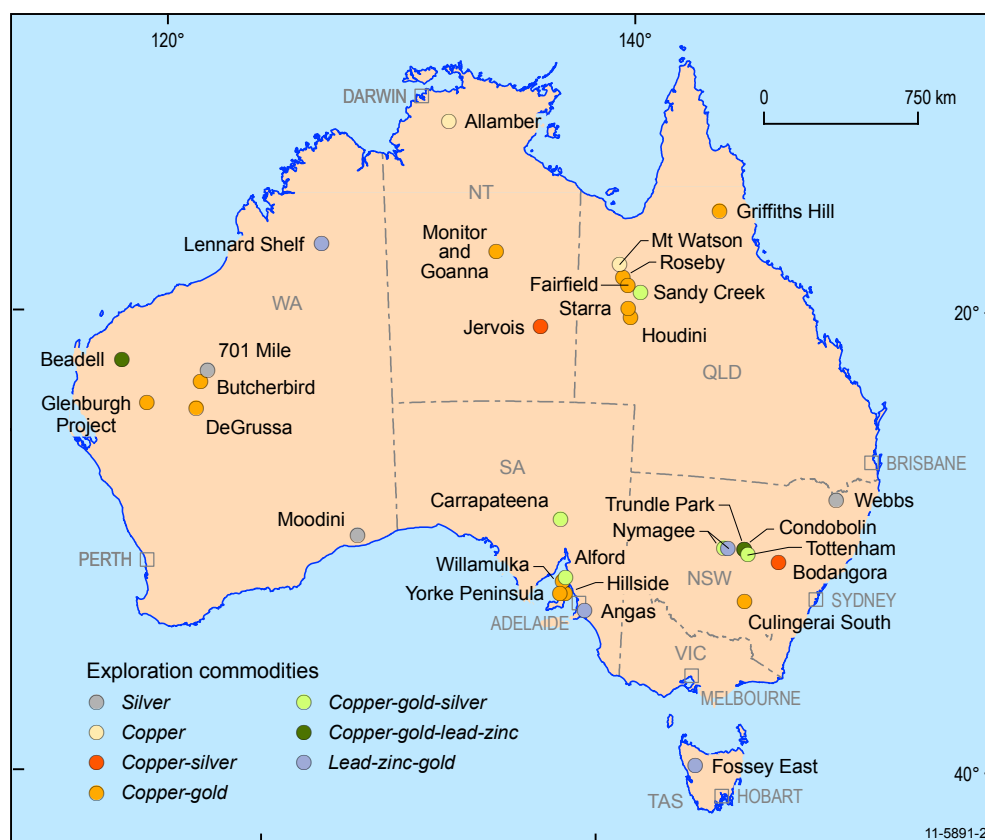


Figure 2: Selected base metal (excluding nickel) exploration projects 2011.

Clancy Exploration Ltd announced that high-grade copper and gold mineralisation was intersected in drilling at the **Trundle Park** prospect, 50 km west of Parkes. Eight of the ten holes drilled gave encouraging mineralisation including: 2 m @ 20 g/t Au, 6.97% Cu, and 81 g/t Ag from 64 m; and 42 m @ 0.45 g/t Au from 32 m, which included 6 m @ 0.99 g/t Au. Copper-gold skarn was also intersected and results included: 58 m @ 0.44 g/t Au and 0.17% Cu from 22 m, which included 4 m @ 1.19 g/t Au and 0.41% Cu.

Clancy Exploration Ltd's *Condobolin* project returned high-grade gold, silver and base metal mineralisation from several targets which remain open at depth and along strike. Gold-copper-silver-lead lodes were intersected below historic workings at the Phoenix prospect with intersections of: 8 m @ 3.7 g/t Au, 7.1 g/t Ag and 0.62% Pb, which included 2 m @ 9.8 g/t Au, 13.5 g/t Ag, and 1.54% Pb; and 8 m @ 3.73 g/t Au, 17 g/t Ag, and 0.47% Cu including 2 m @ 10.35 g/t Au, 10.75 g/t Ag, 0.57% Pb and 0.64% Zn. At the Potters prospect a broad zinc halo returned: 24 m @ 0.9% Zn, 0.8% Pb and 8.9 g/t Ag, including 6 m @ 2.7% Zn, 2.7% Pb and 30 g/t Ag. Moderate grade zinc-silver-lead-gold was intersected at the Mascotte prospect including: 18 m @ 1.1% Zn, 0.36 g/t Au, 3.5 g/t Ag and 0.19% Pb, which included 4 m @ 3.7% Zn, 1.3 g/t Au, 12 g/t Ag and 0.64% Pb. At the Bluebell prospect an intersection of 4 m @ 0.29 g/t Au, 1.14% Cu and 8.17 g/t Ag was recorded.

Mincor Resources NL announced that drilling at its *Tottenham* copper project, 120 km west of Dubbo, yielded a massive sulphide intersection below the existing copper resource at the Carolina prospect. It returned 2.18 m @ 11.17% Cu, 2.77 g/t Au and 9.47 g/t Ag from 184.6 m down-hole. A hole 200 m away returned 3.35 m @ 3.42% Cu and 0.79 g/t Au. The original hole was drilled to intersect a consistent electromagnetic anomaly that extends down-dip from the old Carolina mine workings where previous work by Mincor in 2007–08 resulted in an Indicated Resource estimate of 1.34 Mt @ 1.2% Cu.

Goldminco Corporation reported further copper-gold intersections at the Temora Project from ***Culingerai South*** and on the north margin to the Culingerai porphyry system. Intersections reported included: 46 m @ 0.42% Cu, 0.20 g/t Au and 24 g/t Mo from 82 m; 218 m @ 0.20% Cu, 0.19 g/t Au and 24 g/t Mo, including 31 m @ 0.34% Cu, 0.41 g/t Au and 28 g/t Mo. The company noted that this 218 m intersection is the longest complete porphyry intersection reported to date at Culingerai.

Queensland

Altona Mining Ltd announced results from drilling at the **Roseby Copper** project near Mt Isa, targeting the Little Eva copper-gold sulphide deposit, one of the larger deposits at Roseby. The program returned a number of shallow mineralised intersections, including 24 m @ 0.91% Cu and 0.08 g/t Au from surface, and 233 m @ 0.70% Cu and 0.05 g/t Au from 5 m, including 28 m @ 1.96% Cu.

Breakaway Resources Ltd reported further significant copper-gold intersections from a drill program at *Sandy Creek* copper-gold prospect within the Eloise Exploration Project, 70 km southeast of Cloncurry. The results confirmed the internal continuity of the shear-hosted mineralisation and highlighted strong potential for extensions to the mineralised zone along strike and down dip. Intersections reported included 45 m @ 0.66% Cu, 14 g/t Au and 2.7 g/t Ag from 36 m, and 2 m @ 4.64% Cu, 0.69 g/t Au and 46.3 g/t Ag from 44 m.

Ivanhoe Australia Ltd announced that drilling had identified a zone of copper-gold mineralisation at the *Houdini* prospect, 20 km northwest of the Osborne mine. The new intersections show that this zone extends at least 200 m down-dip of the initial Houdini intercept from 2008 drilling by Barrick Australia Ltd. Diamond drill intersections reported included: 6 m @ 5.07% Cu and 0.23 g/t Au from 144 m; 23 m @ 1.51% Cu and 0.25 g/t Au from 239 m; and 12.5 m @ 1.95% Cu and 0.31 g/t Au from 353.5 m.

Ivanhoe Australia Ltd announced that the *Starra* line drilling near Cloncurry intersected additional high-grade copper-gold mineralisation adjacent to the Starra 222 ore body. These results extend the mineralised zone up-plunge by at least 200 m and they are expected by Ivanhoe to lead to an increase in the resources at Starra 222. Intersections reported were 19.4 m @ 1.98% Cu and 4.27 g/t Au from 384.6 m and included 13 m @ 2.92% Cu and 3.9 g/t Au from 390 m, and 1.4 m @ 0.06% Cu and 21.1 g/t Au. The mineralisation is adjacent to the Starra 222 decline.

Kagara Ltd reported encouraging drilling results from the new *Griffiths Hill* copper zone, beneath the historic Red Dome open pit near Chillagoe. The zone was previously referred to as the 'Red Dome Copper Zone'. Intersections reported have included: 17.0 m @ 4.3% Cu, 0.60 g/t Au and 114 g/t Ag from 297.6 m, including 8.4 m @ 7.4% Cu, 0.93 g/t Au and 192 g/t Ag from 297.6 m; 12.9 m @ 7.8% Cu, 0.99 g/t Au and 56 g/t Ag from 421.9 m; and 8.7 m @ 7.9% Cu, 0.05 g/t Au and 191 g/t Ag from 578.3 m.

CuDeco Ltd reported that a drill hole at its *Fairfield* prospect near Cloncurry returned encouraging results that confirm mineralisation first encountered in 2009. New intersections included 22 m @ 0.74% Cu and 454 ppm Co, which included 5 m @ 2.37% Cu, 1210 ppm Co from 89 m depth. The hole also intersected a gold-rich zone above this main copper zone with 45 m @ 0.45 g/t Au, 0.01% Cu and 48 ppm Co.

Ishine International Resources Ltd announced results from drilling at the *Mount Watson* project, 115 km north-northeast of Mt Isa. Drilling revealed a highly anomalous copper zone with intersections of: 90 m @ 0.21% Cu from 18 m, including 2 m @ 0.73% Cu from 36 m; and 8 m @ 0.40% Cu from 46 m. The intersection occurs in a black shale unit of the Surprise Creek Formation—the same host stratigraphy at the Mount Watson prospect.

Northern Territory

Emmerson Resources Ltd announced results from drilling of HeliTEM anomalies at the newly discovered *Monitor* and *Goanna* prospects in the Gecko mine corridor near Tennant Creek. This identified broad zones of copper-gold mineralisation along a mineralised shear zone without significant iron oxides, and represents a different mineralisation style to the typical ironstone-hosted deposits at Tennant Creek. Drilling at Goanna revealed intersections including 15 m @ 4.19% Cu and 8.13 g/t Au from 288 m, and 21 m @ 2.63% Cu from 297 m, including 7 m @ 4.96% Cu. At Monitor, 2 km to the east, intersections included: 12 m @ 2.00% Cu and 16.9 g/t Au from 437 m, including a high-grade gold zone of 4 m @ 37.4 g/t Au and 27 m @ 1.75% Cu from 291 m, including 6 m @ 3.53% Cu.

Kentor Gold Ltd purchased the *Jervois* copper-silver-gold project in the Arunta region from Reward Minerals, and defined a maiden JORC-compliant resource of 8.8 Mt @ 1.3% Cu and 26.7 g/t Ag. Follow-up drilling during 2011 intersected high-grade copper-silver-gold, including 72 m @ 3.27% Cu, 1.16 g/t Au and 51.3 g/t Ag from Reward, and 6 m @ 3.18% Cu, 0.45 g/t Au and 23.55 g/t Ag from Bellbird. Kentor Gold has commenced a pre-feasibility study at Jervois.

Thundelarra Exploration Ltd announced copper intersections from their *Allamby* uranium project north of Pine Creek, including 7 m @ 9.69% Cu from 13 m at the Lucas prospect, and 19 m @ 1.94% Cu from 43 m, including 2 m @ 6.07% Cu from the Hatrick prospect.

South Australia

OZ Minerals Ltd purchased the *Carrapateena* project, a copper-gold-uranium deposit of the same style as the Olympic Dam and Prominent Hill orebodies and which occurs in the same iron oxide copper-gold province in the Gawler Craton. Subsequently OZ Minerals reported an Inferred Resource for the southern part of the deposit of 203 Mt @ 1.31% Cu, 0.56 g/t Au, 270 ppm U₃O₈ and 6.0 g/t Ag, for a contained metal content of 2.7 Mt Cu, 3.7 Mozs Au, 54 839 t U₃O₈ and 39.2 Mozs Ag.

Rex Minerals Ltd reported further shallow drilling results from its *Hillside* project on the Yorke Peninsula. These results continue to show the broad extent of the shallow and high-grade mineralisation associated with the Parsee structure. Drilling results included: 27 m @ 1.0% Cu and 0.5 g/t Au, from 90 m down hole, which included 6 m @ 1.5% Cu and 0.8 g/t Au; 8 m @ 1.4% Cu from 54 m down hole; and 31 m @ 1.0% Cu and 0.1 g/t Au from 73 m down hole. A total resource of 217 Mt @ 0.7% Cu, 0.2 g/t Au and 12.4% Fe was reported in July 2011, and a pre-feasibility study is currently underway.

Adelaide Resources Ltd reported additional significant gold and copper intersections at its *Willamulka* prospect northeast of Kadina on the Yorke Peninsula. Intersections reported were: 18 m @ 2.48 g/t Au and 1.02% Cu from

18 m downhole, including 2 m @ 20.85 g/t Au and 6 m @ 2.30% Cu. An adjacent hole gave an intersection of 18 m @ 0.32 g/t Au and 1.02% Cu, including 6 m @ 2.32% Cu.

Argonaut Resources NL announced further results from drilling at its **Alford** project, near Alford, on the Netherleigh Park target. The drill core had a variety of copper sulphide minerals including chalcocite, bornite and chalcopyrite. Intersections included: 122 m @ 0.63% Cu and 18.4 g/t Ag from 95 m, which included 14 m @ 2.26% Cu from 111 m; and 98 m @ 0.64% Cu and 6.2 g/t Ag from 88 m.

Western Australia

Sandfire Resources NL announced that it approved the development of its 100%-owned **DeGrussa** copper-gold project, subject to completion of a Definitive Feasibility Study and project funding package. The company reported a maiden Probable Ore Reserve estimate for the DeGrussa underground zone of 8.02 Mt @ 5.2% Cu and 18 g/t Au (415 000 t contained Cu and 456 000 ozs Au). This reserve was derived from an updated Measured, Indicated, and Inferred Resource of 14.33 Mt @ 4.6% Cu and 1.6 g/t Au for 652 000 t of contained Cu and 742 000 ozs of Au. Subsequently the company announced an initial open pit Probable Reserve of 368 000 t @ 13.6% Cu and 2.4 g/t Au for 50 000 t of contained copper and 29 000 oz of contained gold.

Montezuma Mining Company Ltd reported drill results from its **Butcherbird** copper prospect, 110 km south of Newman. The drilling aimed to test the depth extension of an earlier intersection of 4 m @ 6.97% Cu and 566 ppm Co. Better intersections reported included: 18 m @ 0.63% Cu and 859 ppm Co from 154 m, including 1 m @ 2.43% Cu and 0.55% Co; 10 m @ 0.82% Cu and 581 ppm Co from 180 m, including 3 m @ 1.94% Cu and 0.12% Co; and 10 m @ 0.77% Cu and 167 ppm Co from 10 m.

Cauldron Energy Ltd completed a drilling program targeting base metals at its 80% owned **Beadell** project, 35 km east of Newman. A number of significant drill results were returned including individual narrow high-grade zones of copper and gold associated with broad zones of anomalous lead and zinc mineralisation. Significant results reported included: 1 m @ 7840 ppm Cu and 8.55 g/t Au; 28 m @ 1794 ppm Pb and 2045 ppm Zn; and 4 m @ 2 070 ppm Zn.

Aurora Minerals Ltd undertook a maiden RC drill program at the **Glenburgh** project to test copper in soil anomalies. Copper mineralisation in the drilling encountered was identified from near surface to 145 m down hole and intersections include 19 m @ 0.6% Cu and 21 m @ 0.5% Cu.

ZINC, LEAD, SILVER

New South Wales

YTC Resources Ltd announced that drilling at **Nymagee**, has identified additional copper sulphide mineralisation,

and intersected a high-grade lead-zinc-silver lens that was identified in historic mining. Intersections reported included: 5 m @ 6.0% Pb, 10.9% Zn, 55 g/t Ag, and 0.8% Cu from 112 m; 8 m @ 5.7% Pb, 10.2% Zn, 57 g/t Ag, and 0.5% Cu from 127 m; and 8 m @ 3.0% Pb, 4.7% Zn, 24 g/t Ag, and 0.2% Cu from 117 m.

Silver Mines Ltd reported results from drilling at its **Webbs** silver project, near Tenterfield, which targeted deep mineralisation beneath the old workings. Intersections in the new holes returned included: 3.95 m @ 916 g/t Ag, 0.9% Cu, 0.16% Pb, and 3.42% Zn from 94.6 m; 3.0 m @ 408 g/t Ag, 0.59% Cu, 2.54% Pb and 1.93% Zn from 81.7 m; and 6.0 m @ 275 g/t Ag, 0.39% Cu, 0.39% Pb and 2.19% Zn from 96.15 m.

Western Australia

Laconia Resources Ltd completed a program of 751 auger holes and 384 soil samples over the **701 Mile** project, 80 km southeast of Newman. This program yielded encouraging results including silver up to 23.9 g/t. A silver anomaly was identified to extend over a strike length of 15 km. This area is also prospective for base metals, gold and uranium.

South Australia

Terramin Australia Ltd confirmed a new zone of mineralisation referred to as the Sunter Shoot at its **Angas** mine, 45 km southeast of Adelaide. A new hole intersected two zones: an Upper Zone, containing 16.2 m @ 1.31% Pb, 2.18% Zn, 9 g/t Ag, 0.02% Cu and 0.01 g/t Au and which included 2.2 m @ 7.66% Pb, 12.06% Zn, 54 g/t Ag, 0.03% Cu and 0.06 g/t Au; and a Lower Zone of 40.8 m @ 0.77% Pb, 1.34% Zn, 7 g/t Ag, 0.03% Cu and 0.04 g/t Au, which included 3.8 m @ 3.60% Pb, 7.76% Zn, 32 g/t Ag, 0.08% Cu and 0.07 g/t Au.

Tasmania

Bass Metals Ltd reported the highest grade intersection recorded to date at the **Fossey East** deposit, near the Hellyer mine, of 8.6 m @ 23.3% Zn, 12.1% Pb, 2.0 g/t Au, 184 g/t Ag and 0.8% Cu. A second intersection was 20.1 m @ 14.7% Zn, 7.5% Pb, 1.4 g/t Au, 114 g/t Ag and 0.5% Cu, which included 4.45 m @ 19.4% Zn, 9.7% Pb, 1.8 g/t Au, 128 g/t Ag and 0.5% Cu. The company released the first mineral resource estimate for the Fossey East discovery which, at uncut grades, is an Indicated and Inferred Resource of 650 000 t @ 4.1% Zn, 2.0% Pb, 51 g/t Ag, 1.4 g/t Au and 0.2% Cu.

Western Australia

Meridian Minerals Ltd reported new intersections from drilling in the Cadjebut Splay and Kapok West Mineral Resources areas of its **Lennard Shelf** project. All holes aimed to follow up northwest-trending structural targets and all intersected potentially economic thicknesses and grades of mineralisation including: 15.06 m @ 3.72% Zn, 8.29% Pb,

10.76 g/t Ag (including 3.34 m @ 8.19% Zn, 7.76% Pb, 5.86 g/t Au and 7 m @ 4.02% Zn), 13.8 m @ 4% Pb and 19.06 g/t Ag; 6.6 m @ 0.17% Zn, 9.58% Pb, 21.67 g/t Ag (including 3.4 m @ 0.27% Zn, 16.86% Pb and 39.53 g/t Ag); and 17.5 m @ 5.73% Zn, 2.59% Pb and 3.9 g/t Ag (including 8.2 m @ 10.04% Zn, 3.87% Pb and 5.5 g/t Ag).

Venus Metals Corporation Ltd reported drill results from the **Moodini** prospect approximately 500 km northeast of Esperance, just west of the South Australian border. Initial drill results were an intersection of 120 m of a pyrite-pyrrhotite-rich alteration zone in altered granitoids from 356 m, which were up to 31.9 g/t Ag over 1 m. The company noted that the results suggest drilling has intersected the edge of a mineralised system.

GOLD

New South Wales

YTC Resources Ltd announced that high-grade gold and base metal mineralisation was intersected during its drilling at the **Hera** project, 5 km south-southeast of Nymagee, aimed at extending the existing resource. Ongoing drilling the Far West Lens returned high-grade intersections outside the existing resource including in the Far West 'Footwall' Lens: 10.2 m @ 68.3 g/t Au, 19 g/t Ag, 3.2% Pb and 3.8% Zn from 520.2 m, which included 4.2 m @ 164 g/t Au, 25.1 g/t Ag, 7.0% Pb and 5.0% Zn from 522 m; and 8.0 m @ 1.15 g/t Au, 18.2 g/t Ag, 0.48% Cu, 1.8% Pb and 0.8% Zn. The Far West Lens intersections included: 3.0 m @ 15.1 g/t Au, 0.7% Pb and 1.0% Zn from 484 m; and 7.2 m @ 0.78 g/t Au, 19.2 g/t Ag, 2.3% Pb and 3.1% Zn from 508 m.

Cortona Resources Ltd reported drill results from several near-mine prospects at its **Dargues Reef** gold project east of Canberra located within 600 m of the Dargues Reef deposit. At the Ruby Lode, 150 m north of the Main Lode, intersections extend the mineralised structure by a further 100 m bringing the known strike length to over 250 m. Intersections from the Ruby Lode included: 2 m @ 8.28 g/t Au from 132 m, and 2 m @ 3.74 g/t Au from 34 m. Other new mineralised zones identified were: Hughen with 2 m @ 2.60 g/t Au; Carmine with 3 m @ 3.67 g/t Au from 24 m; and Chinaman's where a gold structure has been identified extending for more than 100 m and returned 1 m @ 103.0 g/t Au from 47 m and 1 m @ 6.28 g/t from 28.0 m.

Hill End Gold Ltd's Hargraves Project is located 30 km southwest of Mudgee. In late 2010 the company announced that the **Big Nugget Hill** deposit contained a combined Inferred and Indicated resource of 1.439 Mt @ 5.1 g/t Au for 234 400 ozs Au. Subsequent drilling has continued to yield encouraging results including very high-grade intersections from holes at the southern end of the deposit including: 0.8 m @ 672.5 g/t Au from 40 m; 0.3 m @ 694.5 g/t Au from 48.8 m; and 0.2 m @ 132.8 g/t Au from 38 m.

Northern Territory

Tanami Gold NL reported further encouraging drill intersections from its **Central Tanami** project some 650 km northwest of Alice Springs. Diamond drilling returned high-grade gold intersections beneath the Hurricane open pit, including 30.2 m @ 3.8 g/t Au from 144 m down hole including a higher grade zone of 5.2 m @ 10.1 g/t Au. Drilling at the Groundrush deposit included numerous high-grade intersections, including 16.0 m @ 10.4 g/t Au from 302 m. The company also reported a substantial increase in resources at the Central Tanami Project. The revised resource estimate is a Measured, Indicated and Inferred Resource of 23.0 Mt @ 2.8 g/t Au for a contained 2.07 Mozs Au. Of the total resource 1.34 Mozs is in the Measured or Indicated category.

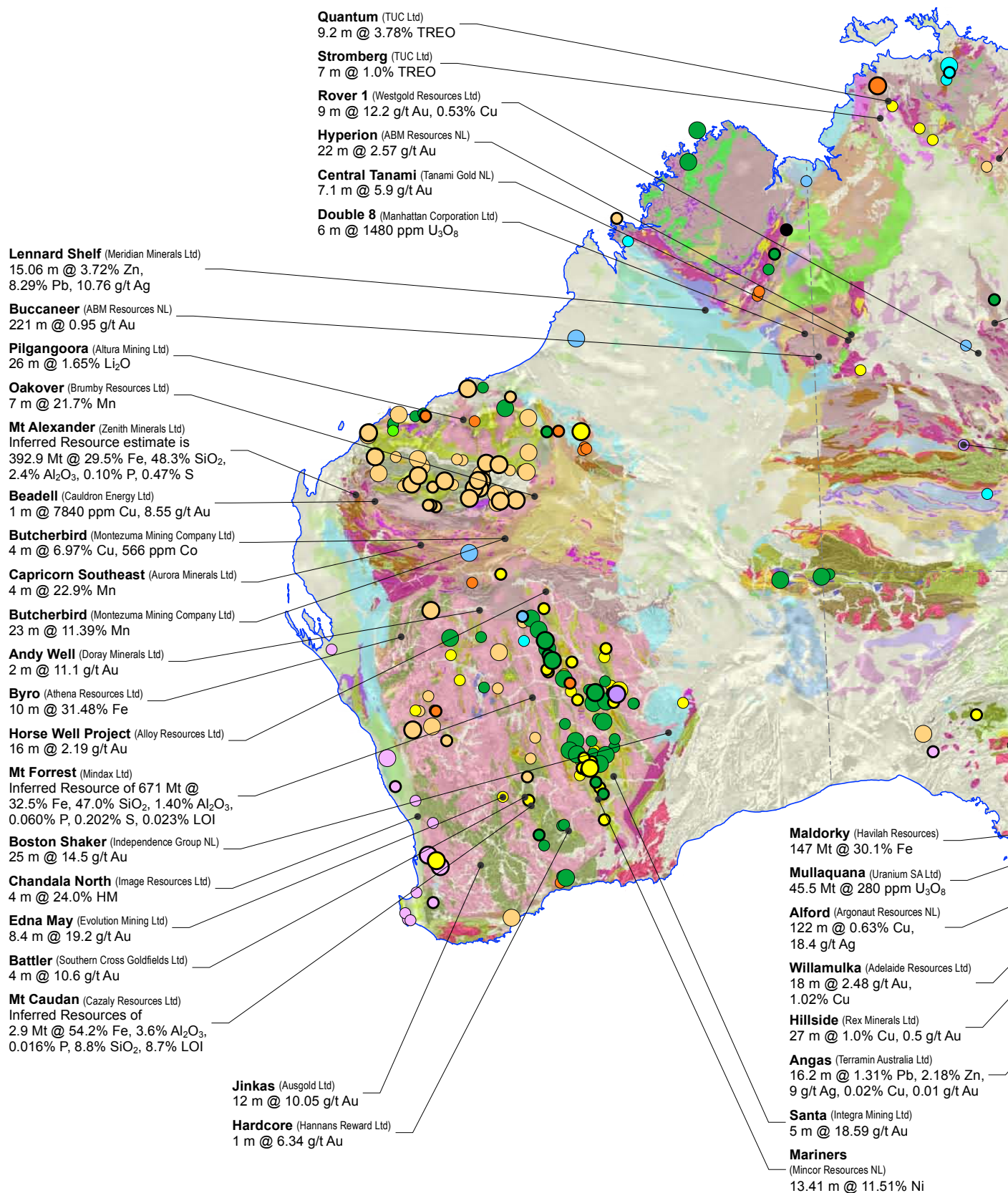
ABM Resources NL announced the results of an independent resource estimate for its **Buccaneer** prospect some 630 km northwest of Alice Springs. The estimate is an Inferred Resource of 65.8 Mt @ 0.79 g/t Au for a contained 1.67 Mozs Au at a cut-off grade of 0.2 g/t Au. At a 0.5 g/t Au cut-off the Inferred Resource is 36.9 Mt @ 1.01 g/t Au for a contained 1.19 Mozs Au. Drill intersections from Buccaneer included 221 m @ 0.95 g/t Au from 60 m, which included 172 m @ 1.11 g/t Au. During 2011, ABM Resources NL identified high-grade extensions to the north of Buccaneer at the Carribean and Cypress prospects. Drill intersections included 26 m @ 5.53 g/t Au from 163 m, including 7m @ 20.13 g/t Au at Cypress.

ABM Resources NL also reported results from reconnaissance drilling at its **Hyperion** prospect, 18 km north-northeast of the Groundrush Gold Mine. Intersections reported include: from Hyperion South, 22 m @ 2.57 g/t Au, including 11 m @ 4.29 g/t Au; and from Hyperion Central, 8 m @ 2.86 g/t Au; 5 m @ 3.65 g/t Au; and 7 m @ 2.26 g/t Au.

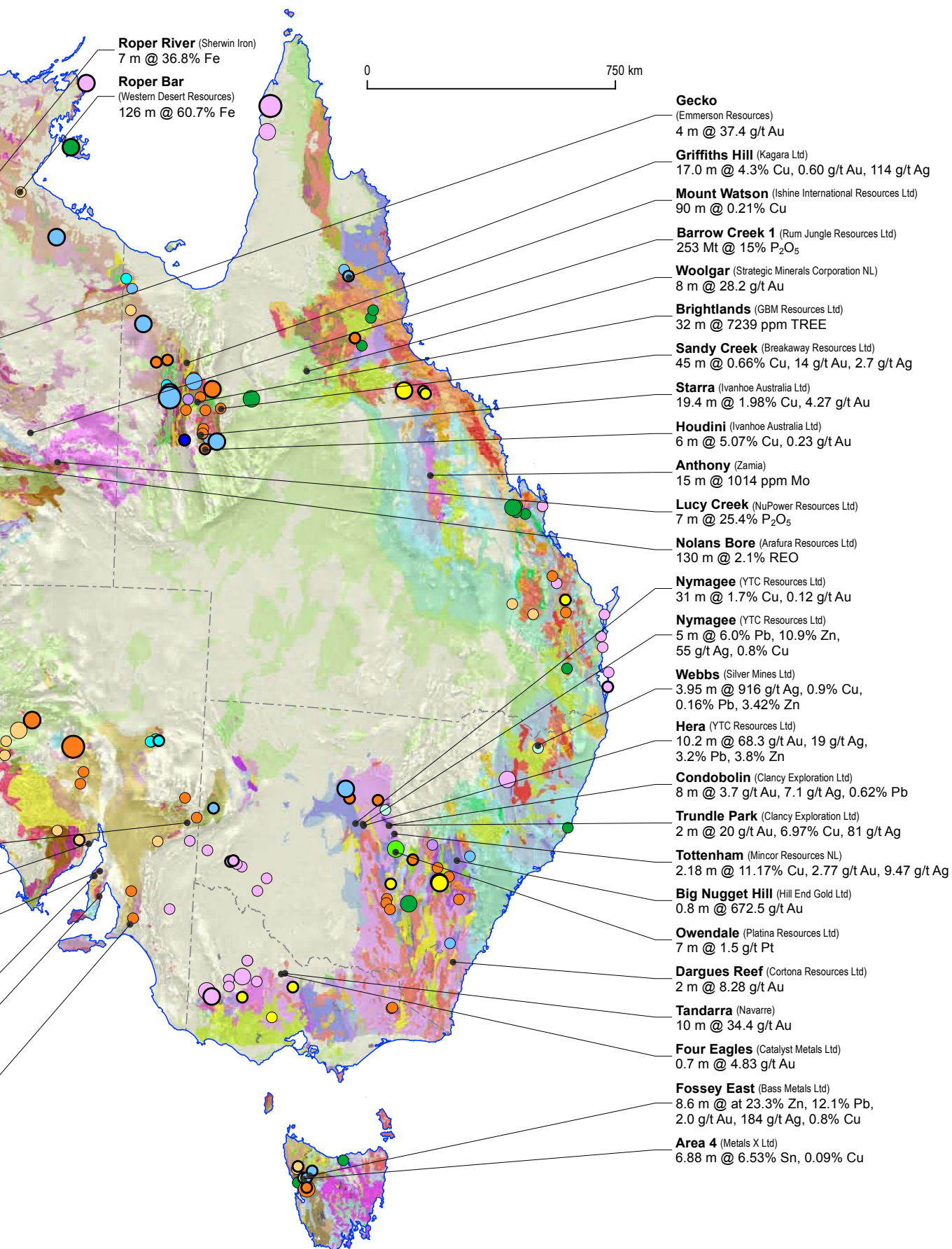
ABM Resources NL reported results from their first drilling program at the **Kroda** prospect near Barrow Creek, 250 km north of Alice Springs. The project consists of four individual prospects (Kroda 1 to 4) with a combined anomalous strike length of 14 km. Drilling at Kroda 3 intersected broad high-grade gold intersections including 57 m @ 3.83 g/t Au.

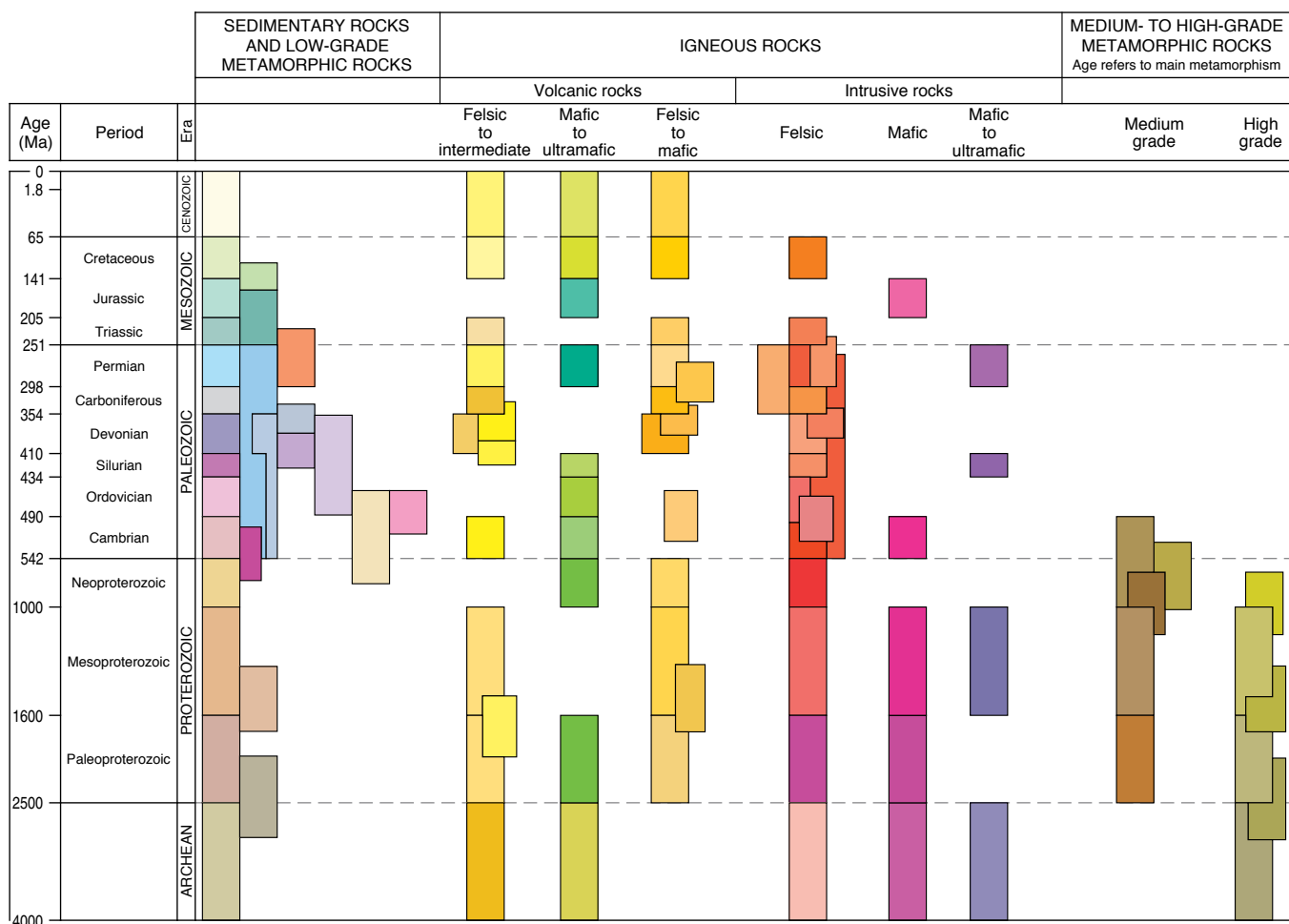
Westgold Resources Ltd announced that drilling into the Jupiter Deeps lode at **Rover 1**, 98 km west-southwest of Tennant Creek, returned further high-grade results which extended the down plunge continuity and mining potential. Drilling returned: 9 m @ 12.2 g/t Au and 0.53% Cu from 939 m, including 5 m @ 20.0 g/t Au. The company noted that this intersection confirmed the potential continuity of high-grade gold mineralisation approximately 190 m down plunge from previous high-grade gold mineralisation of 5 m @ 9.2 g/t Au, 2 m @ 26.1 g/t Au and 7 m @ 7.8 g/t Au in the Jupiter Extended area and beyond the limits of the current resource model. Other intersections at Rover 1 included 20 m @ 6.13 g/t Au and 3.26% Cu from 935 m, which included 6 m @ 15.14 g/t Au and 6.02% Cu.

EXAMPLES OF MAJOR MINERAL EXPLORATION RESULTS 2011



Map above: Major mineral deposits (circles) superimposed on generalised surface geology (colour) and aeromagnetics (greyscale, 0.5 vertical derivative). See legend (on page 12).





COMMODITY TYPE

- Iron ore - Fe
- Precious metals - Au, Ag
- Base metals - Cu (Zn, Pb, Ag, Au)
- Base metals - Zn, Pb (Cu, Ag)
- Steel metals - Ni, Cr, V, Co, Mo, Mn
- Energy metals - U, Th
- Light metals - Al, Li, Ti, Mg, Zr
- Rare-earth elements - REE
- Platinum-group elements - Pt, Pd
- Diamond
- Phosphate - P
- Other metals - Sn, As, Sb, Sc, W, Ta

- Drill intersection/ resource estimate
- Operating mine
- Deposit (non-operating mine)

SIGNIFICANCE OF DEPOSIT Size based on the value of the remaining in-ground resource

- Giant resource
- Very major resource
- Major resource

Map legend: pages 10 and 11

Emmerson Resources Ltd discovered a new gold zone within the Tennant Creek Mineral Field. Diamond drill on the **Gecko** structural corridor intersected high-grade gold mineralisation of up to 93.7 g/t Au, and includes 4 m @ 37.4 g/t Au and 1.64 g/t Ag.

Queensland

Strategic Minerals Corporation NL reported the results of drilling in the Mowbray area of the **Woolgar** project. The highest-grade intersections of 8 m @ 28.2 g/t Au and 2 m @ 13.6 g/t Au were in the Big Vein prospect. At Big Vein South intersections included 21 m @ 2.81 g/t Au (including 9 m @ 4.73 g/t Au) and 7 m @ 2.49 g/t Au. At the Big Vein 2 prospect 9 m @ 2.59 g/t Au was obtained beneath an intersection of 5 m @ 1.32 g/t Au reported in 2008.

Victoria

Catalyst Metals Ltd announced that initial assay results from the upper section of a diamond drill hole at the companies **Four Eagles** gold project some 80 km north of Bendigo returned three significant intervals of gold mineralisation. These were: 0.7 m @ 4.83 g/t Au from 170.3 m; 0.8 m @ 17.50 g/t Au from 173.2 m; and 0.4 m @ 2.08 g/t Au from 176.2 m.

Navarre Minerals Ltd announced high-grade gold intercepts at the west **Tandarra** prospect at their Bendigo North Gold project from a 1542 m drill program to confirm potential mineralised quartz reef targets below shallow cover. Of 18 holes drilled, seven returned gold intercepts including 10 m @ 34.4 g/t Au with an assay range of 17.9 g/t Au to 44.3 g/t Au from 37 m down hole in an air core drill hole. Together with additional drilling by the previous owner, Navarre has now defined a corridor of high-grade gold mineralisation over 2 km in length.

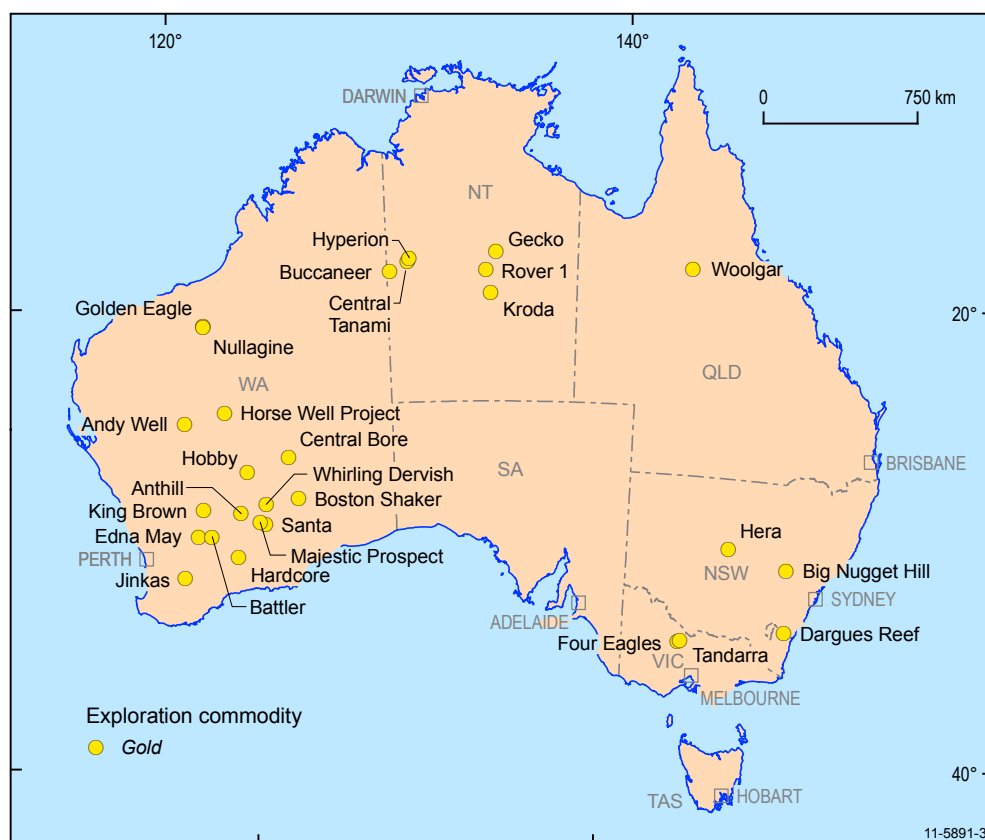


Figure 3: Selected gold exploration projects 2011.

Western Australia

Independence Group NL announced more encouraging drill intersections from the Tropicana Joint Venture (AngloGold Ashanti 70%, Independence 30%), 340 km northeast of Kalgoorlie. Drill intersections at the **Boston Shaker** prospect included: 25 m @ 14.5 g/t Au; 25 m @ 5.0 g/t Au; and 14 m @ 4.1 g/t Au. An earlier defined Inferred Resource of 6.1 Mt @ 2.5 g/t Au (for a contained 480 000 ozs Au) does not include these recently reported intersections.

Metaliko Resources Ltd reported that drilling at its **Anthill** gold project in the Eastern Goldfields, 55 km northwest of Kalgoorlie, intersected broad zones of gold mineralisation. Encouraging intersections included: 44 m @ 2.40 g/t Au from 56 m, which included 1 m @ 32.4 g/t Au from 75 m; 42 m @ 2.10 g/t Au from 50 m, which included 3 m @ 11.59 g/t Au from 69 m; and 38 m @ 1.93 g/t Au from 52 m.

Doray Minerals Ltd announced an initial resource estimate for the Wilber Lode, in its **Andy Well** project. The company reported a combined Inferred and Indicated Resource for the Wilber Lode of 311 000 t @ 17.5 g/t Au for 174 000 contained ounces of gold. This estimate includes the high-grade Wilber quartz lode (211 000 t @ 25.3 g/t) and shear zone hosted mineralisation. The resource extends to a known depth of approximately 270 m below the surface and is open at depth and down-plunge. Doray continued to announce encouraging drill intersections from the Wilber South Zone including: 1 m @ 8.07 g/t Au; 2 m @ 11.1 g/t Au; and 2 m @ 21.8 g/t from 57–59 m.

Gold Road Resources Ltd (previously Eleckra Mines Ltd) reported more encouraging results from drilling at the **Central Bore** prospect, 150 km northeast of Laverton. Intersections included: 1.5 m @ 15 g/t Au from 68 m, including 0.5 m @ 38.70 g/t Au; 1 m @ 76.94 g/t Au from 72.5 m, including 0.5 m @ 152 g/t Au; and 1.5 m @ 25 g/t Au from 88.5 m. The company also announced that core from a later hole contained abundant visible coarse- and fine- grained gold. An initial resource estimate released for Central Bore is a combined Measured, Indicated and Inferred Resource of 595 000 t @ 7.9 g/t Au for a contained 150 300 ozs Au. Drilling also revealed new mineralisation 500 m north of Central Bore with intersections of: 1 m @ 8.62 g/t Au; 1 m @ 1.79 g/t Au; and 4 m @ 1.47 g/t Au from 45 m.

Integra Mining Ltd reported high-grade drill intersections from the **Santa** prospect located 16 km east of the company's gold processing facility and some 60 km southeast of Kalgoorlie. Intersections reported included: 5 m @ 18.59 g/t Au; 6 m @ 6.85 g/t Au; 19.30 m @ 2.82 g/t Au, including 2.30 m @ 10.62 g/t Au; and 22 m @ 2.72 g/t Au, including 3 m @ 6.17 g/t Au. Integra also continued to report high-grade intersections from its Majestic prospect including: 50 m @ 1.73 g/t Au, including 18 m @ 3.91 g/t Au; 72 m @ 1.41 g/t Au, including 23 m @ 3.07 g/t Au; and 76 m @ 1.05 g/t Au, including 13 m @ 3.67 g/t Au.

Navigator Resources Ltd continued exploration at its Leonora project approximately 30 km northeast of Leonora. Drilling at the **Hobby** prospect returned intersections

including: 9 m @ 3.88 g/t Au from 31 m, including 3 m @ 10.34 g/t Au; 7 m @ 3.75 g/t Au from 26 m including 1 m @ 24.58 g/t Au; and 19 m @ 1.49 g/t Au from 14 m, including 11 m @ 2.27 g/t Au.

Evolution Mining Ltd reported drill results from a program aimed at testing the potential of the *Edna May* gold project at Westonia. The drilling targeted lateral extensions to high-grade gold mineralisation beneath the existing Edna May open pit to upgrade the existing underground mineral resource. The first hole in the program intersected two main zones down-dip of the historical underground workings. An intersection of 8.4 m @ 19.2 g/t Au included 1.3 m @ 102.5 g/t Au from 272.1 m and 1.15 m @ 9.0 g/t Au from 250.50 m.

Saracen Mineral Holdings Ltd reported encouraging assays from drilling at its *Whirling Dervish* and *Karari* deposits adjacent to the Carosue Dam plant, 110 km northeast of Kalgoorlie. The intersections showed potential for down dip extensions to the existing resources at both deposits. At Karari, intersections included 9 m @ 5.6 g/t Au and 15 m @ 3.9 g/t Au, including 9 m @ 5.6 g/t Au. At Whirling Dervish intersections included 66 m @ 2.4 g/t Au and 7 m @ 7.2 g/t Au.

Ausgold Ltd reported additional encouraging assays from drilling on the *Jinkas* prospect, 220 km north of Albany in the Boddington South gold project, which suggest that the Jinkas mineralisation is continuous over a strike length in excess of 850 m. Intersections reported include: 12 m @ 10.05 g/t Au from 93 m; 28 m @ 4.08 g/t Au from 97 m; 6 m @ 12.63 g/t Au from 102 m; and 15 m @ 3.68 g/t Au from 75 m.

Millennium Minerals Ltd reported encouraging drill results from core drilling at the *Nullagine* project, near Nullagine. Intersections for the Golden Gate deposit included: 11 m @ 8.08 g/t Au from 50 m, including 4 m @ 11 g/t Au from 51 m, and 1 m @ 20 g/t Au from 56 metres; and 7 m @ 8.12 g/t Au from 32 m, including 3 m @ 17 g/t Au from 34 m. At the Bartons deposit intersections included 9 m @ 3.77 g/t Au from 57 m, including 1 m @ 8.45 g/t Au from 60 m and 2 m @ 10 g/t Au from 64 m.

Southern Cross Goldfields Ltd reported encouraging results from resource in-fill drilling at the *Battler* deposit, 15 km south of Southern Cross, aimed at increasing the current indicated and inferred resource of 504 000 t @ 2.3 g/t Au. Intersections included: 6 m @ 19.1 g/t Au, including 4 m @ 28.2 g/t Au; 6 m @ 6.3 g/t Au, including 3 m @ 10.6 g/t Au; and 11 m @ 4.5 g/t Au, including 4 m @ 10.6 g/t Au. The company also reported an intersection of 4 m @ 10.6 g/t Au, including 2 m @ 18.3 g/t Au in a previously untested area to the north of the planned open pit.

Southern Cross Goldfields Ltd reported encouraging results from in-fill drilling at the *King Brown* deposit located some 130 km north of Southern Cross and 25 km

west of its proposed plant at Marda. Drill results include: 2 m @ 77.5 g/t Au from 34 m, 4 m @ 69.7 g/t Au from 36 m and 14 m @ 6.6 g/t Au from 40 m in the same hole; 10 m @ 17.3 g/t Au from 24 m including 3 m @ 41.7 g/t Au; and 10 m @ 10.5 g/t Au from 10 m including 2 m @ 39.0 g/t Au. The current resource estimate for King Brown is 201 000 t @ 2.9 g/t Au.

Hannans Reward Ltd announced encouraging gold results from its *Hardcore* prospect in its Lake Johnston project area 110 km west of Norseman. Intersections reported include: 4 m @ 6.93 g/t Au, including 1 m @ 21.3 g/t Au; 1 m @ 6.34 g/t Au; and 3 m @ 4.44 g/t Au, including 1 m @ 11.4 g/t Au.

Millennium Minerals Ltd announced results from diamond drilling at its *Nullagine Gold* Project which twinned previous RC holes and had the aim of facilitating ongoing test work prior to completing detailed engineering design for construction. At *Golden Eagle*, 7 km south-southeast of Nullagine, intersections included 4 m @ 2.20 g/t Au from 15 m; 16 m @ 4.08 g/t Au from 12 m, including 2 m at 23 g/t Au from 20 m; and 4 m @ 25 g/t Au from 42 m. Gold mineralisation at Golden Eagle is hosted by bedding-conformable, thin quartz stringers within weakly metamorphosed siltstone and sandstone units of the Mosquito Creek Formation.

Alloy Resources Ltd announced results for an air-core drill program from *Horse Well* project. Drilling intersected strong gold mineralisation extending the known defined prospect of Filly South West by a further 250 m to a strike length of 800 m which is open at either end. Typical intersections included 16 m @ 2.19 g/t Au from 24 m, 15 m @ 3.61 g/t Au from 60 m and 8 m @ 2.32 g/t from 68 m.

IRON ORE

Northern Territory

Western Desert Resources Ltd announced high-grade drill results for the *Roper Bar* iron project in the Northern Territory. Drilling has revealed additional high-grade hematite mineralisation and has confirmed the continuity of the mineralisation. Drill intersections include 126 m @ 60.7% Fe and 57 m @ 60.1% Fe.

Sherwin Iron released an updated resource estimates for their *Roper River* iron project, with tonnage of oolitic hematite mineralisation increasing to 488.1 Mt @ 41.7% Fe, from the Hodgson Downs, Sherwin Creek and Mount Fisher deposits.

South Australia

Minotaur Exploration Ltd reported interim results of a detailed drill traverse through the *Mutooroo* magnetite deposit southwest of Broken Hill. It is part of a joint venture between Sumitomo Metal Mining Oceania Pty Ltd (59.1%) and Minotaur Exploration (40.9%). This drilling was the first



Figure 4: Selected iron ore, lithium, manganese, nickel, phosphate, tin, platinum group elements, bauxite and molybdenum exploration projects 2011.

in the Muster magnetic anomaly which represents laterally persistent, magnetite-rich strata over a strike length in excess of 10 km. The sequence at Muster Dam is a succession of siltstones and diamictites which have variable degrees of magnetisation. Drilling in the 300 m-thick central sequence returned wide intervals yielding 15–17% Davis Tube Recovery (DTR) that produced magnetite concentrates of 68–69% Fe. One hole intersected magnetite-bearing sedimentary rocks from surface recording a continuous 228 m averaging 15.35% DTR and a magnetite concentrate of 68.7% Fe.

Havilah Resources NL has released a resource statement for its **Maldorky** iron ore deposit, southeast of Broken Hill within the Braemar Iron Formation. Based on recent drill results the indicated resource is 147 Mt @ 30.1% Fe at an 18% Fe cut-off grade. The Maldorky ore body is flat lying and shallow (outcropping in places) with minimal waste and overburden, minable via open pit. Mineralisation was discovered in 2010 through drilling of a prominent magnetic anomaly.

Western Australia

Matsa Resources Ltd reported encouraging results of DTR tests on samples from a drilling program at its **Dundas** magnetite project near Norseman. The results included DTR of up to 49% with a concentrate grade of up to 70.7% Fe. Intersections reported included: 56 m @ a DTR of 31.78% with a concentrate grade of 67.81% Fe, 4.05% SiO₂, 0.35% Al₂O₃, 0.005% P and 0.03% S; 15 m @ a DTR of 34.97% and a concentrate grade of 68.18% Fe, 4.40% SiO₂, 0.14%

Al₂O₃, 0.007% P, and 0.14% S; and 15 m @ a DTR of 41.41% with a concentrate grade of 67.23% Fe, 6.02% SiO₂, 0.11% Al₂O₃, 0.014% P and 0.03% S.

Cazaly Resources Ltd announced an updated resource estimate for its **Mount Caudan** deposit in the Parker Range project located 15 km southeast of Marvel Loch. The resources, which contain minor detrital ore are: Measured Resources of 23.4 Mt @ 56.2% Fe, 2.6% Al₂O₃, 0.019% P, 6.0% SiO₂ and 8.9% Loss On Ignition(LOI); Indicated Resources of 7.3 Mt @ 56.8% Fe, 2.9% Al₂O₃, 0.023% P, 5.8% SiO₂, 9.0% LOI; and Inferred Resources of 54.2% Fe, 3.6% Al₂O₃, 0.016% P, 8.8% SiO₂ and 8.7% LOI.

Mindax Ltd reported an increase in resources at its **Mt Forrest** iron project in the Yilgarn Craton, 160 km northwest of Menzies. The magnetite resource is now an Indicated Resource of 82.9 Mt @ 32.4% Fe, 47.2% SiO₂, 1.60% Al₂O₃, 0.06% P, 0.127% S, 0.88% LOI above a 25% Fe cut-off, and an Inferred Resource of 671 Mt @ 32.5% Fe, 47.0% SiO₂, 1.40% Al₂O₃, 0.060% P, 0.202% S, 0.023% LOI above a 25% Fe cut-off. Davis Tube Recovery tests suggest that a magnetite concentrate averaging 68% Fe at a mass yield of 35.4% can be produced.

Zenith Minerals Ltd announced an initial Inferred Resource for the company's **Mount Alexander** magnetite project southeast of Onslow. The Inferred Resource estimate is 392.9 Mt @ 29.5% Fe, 48.3% SiO₂, 2.4% Al₂O₃, 0.10% P and 0.47% S. New DTR are not yet available, but DTR results from drilling in 2010 returned an average weight recovery of 31.8% at a concentrate grade of 69.9% Fe and 3.0% SiO₂.

Athena Resources Ltd reported magnetite intersections from drilling at their *Byro* project in the mid-west region. This drilling expanded the high-grade magnetite horizon at the Byro South and Whitmarsh Find prospects. Drill hole targeting was done from high definition aeromagnetic signatures and surface outcrop mapping. Magnetite intersections at Byro South included: 10 m @ 31.48% Fe from 58 m; 26 m @ 31.54% Fe from 80 m; and 36 m @ 31.73 Fe from 88 m. The mineralisation is matrix to massive localised seams that range in thickness from 10 m to up to 50 m and is steeply dipping to the west.

LITHIUM

Western Australia

Altura Mining Ltd announced the first results of detailed drilling on its *Pilgangoora* Lithium project, 120 km southeast of Port Hedland. The results have confirmed the presence of wide zones of mineralised spodumene pegmatites in the area. Intersections reported include: 26 m @ 1.65% Li₂O from 28 m, including 4 m @ 2.16% Li₂O; 20 m @ 1.62% Li₂O from 5 m, including 13 m @ 2.05% Li₂O; 32 m @ 1.31% Li₂O from 2 m, including 7 m @ 1.92% Li₂O; and 20 m @ 1.19% Li₂O from 31 m, including 5 m @ 2.11% Li₂O.

Galaxy Resources Ltd reported that the contained lithium oxide resource at its *Mt Cattlin* mine near Ravensthorpe rose by 14%. The total resource at Mt Cattlin increased by 14.6% or 2.31 Mt, while the Measured and Indicated Resource was up 12%, or 1.50 Mt to 13.8 Mt. The new estimate of contained mineral resources for the Mt Cattlin deposit is 197 000 t of Li₂O and 2 840 t of Ta₂O₅. The resource stands at: Measured Resource of 3.19 Mt @ 1.17% Li₂O, 149 ppm Ta₂O₅; Indicated Resource of 10.61 Mt @ 1.06% Li₂O, 168 ppm Ta₂O₅; and an Inferred Resource of 4.38 Mt @ 1.07% Li₂O, 132 ppm Ta₂O₅.

MANGANESE

Western Australia

Montezuma Mining Company Ltd reported exploration results from its *Butcherbird* project, 110 km south of Newman. Drill intersections from its Yanneri Ridge deposit included: 23 m @ 11.39% Mn from 3 m; 18 m @ 11.25% Mn from 8 m; 18 m @ 12.18% Mn from surface, and 20 m @ 13.37% Mn from 1 m, which included 8 m @ 17.06% Mn. Montezuma subsequently announced an initial Inferred Resource for Yanneri Ridge of 64.7 Mt @ 11.2% Mn, 43.6% SiO₂, 11.6% Fe, 0.28% P₂O₅ and 10.7% Al₂O₃ at an 8% Mn cut-off. The Company also reported the discovery of the Coodamudgi deposit, about 1.5 km north of Yanneri Ridge where drilling intersected 31 m @ 12.49% Mn from 3 m, including 11 m @ 15.41% Mn from 22 m.

Brumby Resources Ltd announced encouraging drill results from Stage 2 drilling at its *Oakover* Manganese Project, 80 km east of Newman. Initial interpretation of the latest results by the company indicate that the mineralisation at Karen, Sixty Sixer and Rohde SW prospects appears to be stratigraphically and regolith-controlled, relatively

flat-lying and continuous. Intersections from Karen included: 31 m @ 12.2% Mn from surface, including 7 m @ 21.7% Mn; 32 m @ 11.4% Mn from surface, including 5 m @ 18.1% Mn; and 25 m @ 14.6% Mn from surface, including 10 m @ 20.8% Mn. At Sixty Sixer Prospect intersections included: 21 m @ 12.0% Mn from surface; 17 m @ 15.1% Mn from 15 m, including 1 m @ 22.7% Mn; and 28 m @ 14.6% Mn from surface and 6 m @ 20.3% Mn.

Aurora Minerals Ltd reported assays from 2010 drilling at its *Capricorn Southeast* project in central Western Australia. Best intersections reported included: 6 m @ 19.8% Mn from 17 m depth, which included 4 m @ 22.9% Mn; 6 m @ 16.6% Mn from surface, including 4 m @ 23.6% Mn.

NICKEL

Western Australia

Barra Resources Ltd and its joint venture partner Fission Energy Ltd announced that infill drilling at *Mt Thirsty*, located 20 km north-northwest of Norseman had increased the cobalt nickel manganese oxide resource and a 10% increase in contained cobalt and nickel. The new resource is: an Indicated Resource of 16.6 Mt @ 0.14% Co, 0.60% Ni and 0.98% Mn and an Inferred Resource of 15.34 Mt @ 0.11% Co, 0.51% Ni and 0.73% Mn. In total the resource contains and estimated 177 000 t Ni, 40 000 t Co and 24 000 t Mn.

Mincor Resources NL reported new high-grade drill intersections from the Terrace mineralisation at its *Mariners* mine near Kambalda. Intersections reported included: 18.59 m @ 11.05% Ni (true width ~9.2 m); 13.41 m @ 11.51% Ni (true width ~7.1 m); and 7.60 m @ 5.64% Ni (true width ~3.1 m).

PHOSPHATE

Northern Territory

Rum Jungle Resources Ltd announced a resource for its *Barrow Creek-1* phosphate deposit, a near-surface sedimentary phosphorite discovered in 2010, 80 km east of the Alice Springs-Darwin railway. At a 10% P₂O₅ cut off the resource is 253 Mt @ 15% P₂O₅, whereas at a cutoff of 15% P₂O₅ the resource is 97 Mt @ 18% P₂O₅.

NuPower Resources Ltd announced that the assays of 1 m splits of 5 m composite samples from RC drilling confirms the existence of significant thicknesses of high-grade phosphate mineralisation at its Patanella Prospect in the *Lucy Creek* project, 260 km northeast of Alice Springs. Intersections reported include: 7 m @ 25.4% P₂O₅ from 31 m, including 4 m @ 30.00% P₂O₅ from 32 m; 5 m @ 28.0% P₂O₅ from 37 m, including 4 m @ 30.60% P₂O₅ from 37 m; and 12 m @ 29.5% P₂O₅ from 18 m and 8 m @ 34.2% P₂O₅ from 22 m in the same hole.

TIN

Tasmania

Stellar Resources Ltd holds a 60% interest in the *Heemskirk* tin project located near Zeehan. A mineral resource of 4.4 Mt @ 1.1% Sn for 49 000 t Sn has been estimated for the three deposits identified to date, namely Queen Hill, Montana and Severn. The indicated resource of 1.6 Mt @ 1.2% Sn for a contained 19 000 t Sn is entirely within the Queen Hill deposit.

Metals X Ltd reported high-grade tin intersections from drilling at *Area 4* at its Renison Bell project. Intersections reported from outside and down plunge of the existing resource included: 6.88 m @ 6.53% Sn, 0.09% Cu from 226 m and from the same hole 7.94 m @ 5.63% Sn and 0.2% Cu from 273.1 m. An intersection of 7.21 m @ 6.52% Sn and 0.6% Cu from 122 m was reported from another hole. Resource modelling to update the Northern Extension of the Area 4 resource is underway.

PLATINUM-GROUP ELEMENTS

New South Wales

Platina Resources Limited reported on significant assay results from their *Owendale* project. Mineralisation appears to be consistent between the drill holes which were spaced 50 m apart. Platinum and scandium mineralisation occurs near surface within a flat-lying laterite profile. The mineralisation is open in all directions and further drilling is planned. Drill hole assays included: 7 m @ 1.5 g/t Pt, 1 m @ 11.4 g/t Pt, 4 m @ 4.0 g/t Pt and 403 g/t Sc.

BAUXITE

Queensland

Cape Alumina has released a JORC compliant Inferred Resource for their *Bauxite Hill* project from the 2569-hole, 7000 m drilling program that was conducted across the Bauxite Hills project area. The resource currently totals 28 Mt of in-situ, high quality, and export grade bauxite. The recent drilling program at the site revealed the presence of near-surface, pisolitic, bauxite-rich units with average thicknesses of 2.4 m at BH1 deposit and 1.8 m at BH2 and BH6 deposits.

New South Wales

A high-grade bauxite discovery was made at **Australian Bauxite Limited's** *Guyra* project in northern New South Wales. Sixty-three drill holes intersected the gibbsite bauxite mineralisation beneath a thin clay horizon with an average thickness of 4.8 m, yielding 42.7% Al₂O₃, 2.6% SiO₂ and 24.7% Fe₂O₃.

Western Australia

Bauxite Resources Ltd announced an update to the bauxite resource base in its North Darling Range project area. Resource modelling has been completed on recent

drilling undertaken on the *Juturna* prospect that has produced a maiden Inferred Resource of 8.2 Mt. In addition, remodelling of the *Vallonia* prospect has delineated an Inferred Resource of 1.5 Mt.

MOLYBDENUM AND TUNGSTEN

Queensland

Zamia has announced that a recent drilling program has intersected extensive Mo intersections in the southern zone of its *Anthony* project in the Clermont district Central Queensland. Results included: 15 m @ 1014 ppm Mo from 105 m, 18 m @ 1364 ppm Mo from 84 m to 102 m and 15 m @ 1041 ppm Mo from 120 m to 135 m. Zamia plans to undertake additional drilling to test the extent of the resource at depth.

Northern Territory

Thor Mining NL announced drilling results from their *Molyhil* molybdenum-tungsten deposit, 220 km northeast of Alice Springs. Results included: 16.4 m @ 0.84% WO₃ and 0.56% MoS₂ from 43.6 m; 9.0 m @ 1.48% WO₃ and 0.10% MoS₂ from 48.0 m; and 16 m @ 0.81% WO₃ and 0.44% MoS₂ from 189 m. Thor Mining is currently undertaking a feasibility study on the Molyhil project, and are preparing an updated JORC-compliant resource estimate.

RARE-EARTH ELEMENTS

Northern Territory

TUC Resources Ltd reported Total Rare-Earth-Oxide (TREO) grades of up to 8.36% from further diamond drilling at its *Quantum* prospect, 115 km east-southeast of Darwin. The first of a six hole program returned a high-grade intersection of 9.2 m @ 3.78% TREO within a wider zone of 21.9 m @ 2.55% TREO. Within this intersection the average grade of neodymium plus praseodymium plus dysprosium was 13.66% of TREO. The company reported that ongoing drilling had extended into previously untested areas. Intersections from one hole were: 1.8 m @ 2.17% TREO from 266.2 m, including 0.8 m @ 4.51% TREO from 266.2 m; and 8.1 m @ 1.4% TREO from 330.8 m, including 3 m @ 2.34% TREO from 333.3 m and 0.7 m @ 5.97% TREO from 333.3 m.

TUC Resources Ltd announced a new sandstone-hosted heavy-rare-earth-element (HREE) discovery at *Stromberg*, 200 km south of Darwin. Reported drilling intersections included 7 m @ 1.0% TREO from surface, of which 95% of TREO are heavy-rare-earth-elements (including 7.41% Dy₂O₃ and 73.5% Y₂O₃). Mineralisation is hosted in the phosphate mineral xenotime, and is associated with potentially economic uranium (e.g., 7 m @ 567 ppm U₃O₈).

Kidman Resources Ltd reported further encouraging results from a second phase of sampling at its *Hale River* project, 150 km east of Alice Springs. The program has extended the

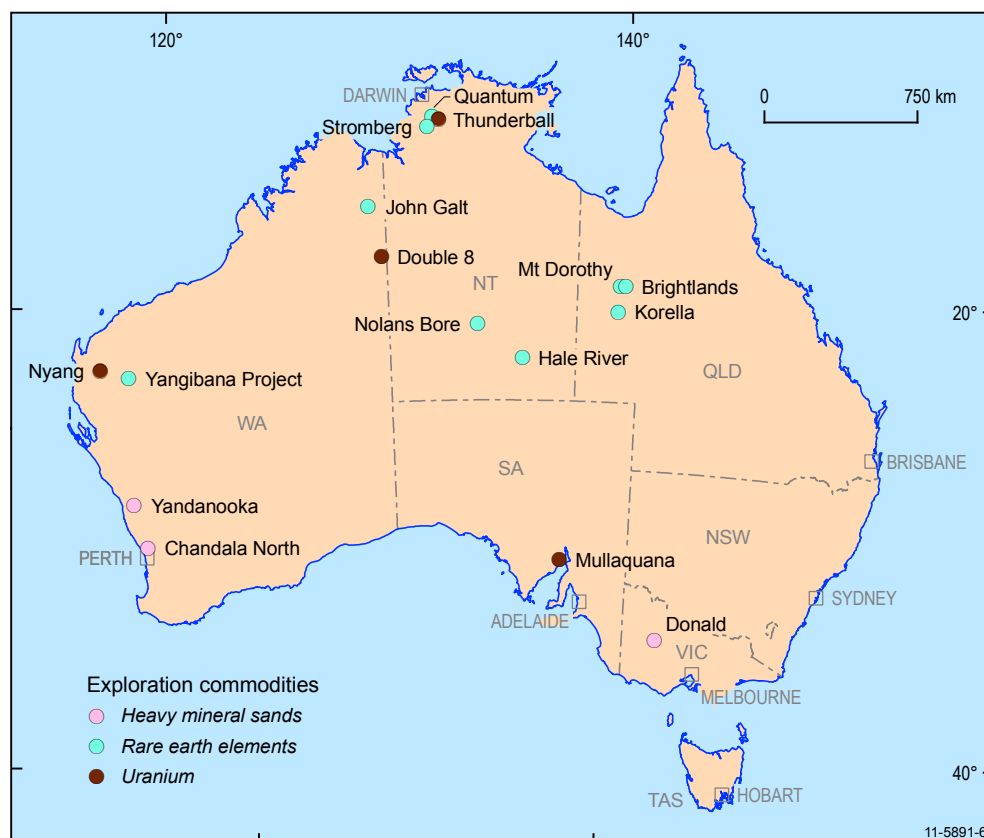


Figure 5: Selected rare earth elements, uranium and heavy mineral sands exploration projects 2011.

known rare-earth element anomalies. The best sample in the original survey returned a grade of 1.66% Rare-Earth Oxides (REO) including Y_2O_3 . In the second campaign, 19 out of 46 rock chip samples had REO grades of 0.3% or higher with a highest grade of 0.89% REO+ Y_2O_3 .

Arafura Resources Ltd reported on deep diamond core drilling at the Southern Zone of the **Nolans** deposit and noted that REE mineralisation is open at depth over large parts of the resource. This drilling identified a substantial north-south zone of strong rare-earth-element mineralisation in the central part of the Nolars Bore deposit. Some of the drill results include: 130 m @ 2.1% REO, 10.3% P_2O_5 and 0.16 kg/t U_3O_8 from 46 m; 124 m @ 3.1% REO, 16% P_2O_5 and 0.18 kg/t U_3O_8 from 30.0 m; 57 m @ 4% REO, 17.6% P_2O_5 and 0.25 kg/t U_3O_8 from 110 m.

Queensland

Krucible Metals Ltd announced an Inferred Resource for rare-earth-element-yttrium mineralisation associated with the **Korella** phosphate deposit, located near the Phosphate Hill Mine. The Inferred Resource is 4.2 Mt @ 746 g/t Y_2O_3 where the yttrium occurs as xenotime (YPO_4). The yttrium enrichment zone occurs as a consistent shallow dipping blanket above the phosphate zone (high-grade Inferred Resource of 5 Mt @ 30.8% P_2O_5) as well as adjacent to it in the west at shallower levels.

China Yunnan Copper Australia Ltd (now called Chinalco Yunnan Copper Resources Ltd) and its Joint Venture partner Goldsearch Ltd reported results of drilling targeting

copper-cobalt-yttrium-Heavy-Rare-Earth-Oxides (HREO) mineralisation at the **Mount Dorothy** prospect east-southeast of Mount Isa. Broad intersections of yttrium oxide (Y_2O_3) and TREO mineralisation were recorded. These included: 10 m @ 1099 ppm Y_2O_3 +TREO from 43 m of which 42% was Light-Rare-Earth Oxides (LREO) and 58% was HREO plus Y_2O_3 ; and in the same hole 1.6 m @ 1 475 ppm Y_2O_3 +TREO (89% LREO, 11% HREO+ Y_2O_3); and 6 m @ 1045 ppm Y_2O_3 +TREO (15% LREO, 85% HREO+ Y_2O_3).

GBM Resources Ltd announced a broad zone of REE mineralisation discovered at the **Milo** prospect at their Brightlands Cu-Au project in northwest Queensland. The mineralisation was identified from 3 RC drill holes. The REE mineralisation is dominated by lanthanum (La), neodymium (Nd) and cerium (Ce) with associated yttrium (Y). Significant results include 120 m @ 1911 ppm TREE and yttrium oxides, including 32 m @ 7239 ppm TREE and yttrium oxides, and 138 m @ 1792 TREE yttrium oxides including 16 m @ 9367 ppm TREE yttrium oxides.

Western Australia

Following analysis of historical data from the **John Galt** Project in the East Kimberley region, **Northern Minerals Ltd** reported that historical drilling confirmed the dominance of heavy REE. The historical exploration in the 1970s identified xenotime-hosted REE mineralisation at three different zones, of which only one was drilled. The John Galt Main Zone had nine diamond drill holes drilled in 1973 with

intersections of up to 17.9% TREO. Assessment of assay data from both rock chip and drill core samples, which were assayed for a suite of REE shows the presence heavy REE, including on average 67% Y and 9% Dy of TREO. The average heavy REE content of the TREO is 94%. The best historic drill intersections include: 2.05 m @ 5.98% TREO; 3.90 m @ 6.30% TREO; 3.48 m @ 3.48% TREO.

Hasting Rare Metals Ltd completed a sampling program over the *Yangibana Project* that confirmed the presence of rare-earth elements. A total of 38 samples were collected with the highest grade returning 12.8% TREO including 2.29% oxides of neodymium, europium, terbium, dysprosium and yttrium. The neodymium oxide content of the sample was 2.19%.

URANIUM

Northern Territory

Thundelarra Exploration Ltd reported the initial resource estimate for its *Thunderball* deposit in the Hayes Creek project, 140 km southeast of Darwin. The company noted that although a number of high-grade drill intersections were reported the drill hole spacing was considered to be insufficient to prove continuity of the high-grade mineralisation and as a result it adopted a cautious approach to the classification of the resource and applied a top cut to limit the influence of high-grade intersections. The reported estimate is an inferred resource of 1056 Mt @ 796 ppm U_3O_8 for a contained 840 t U_3O_8 at a 200 ppm U_3O_8 cut-off grade. An estimate using a cut-off grade of 400 ppm U_3O_8 was 829 000 t @ 924 ppm U_3O_8 for a contained 766 t U_3O_8 .

Alligator Energy Ltd reported the results of its first year of drilling at the *Caramal* uranium prospect in western Arnhem Land. Caramal is an unconformity-style uranium deposit with similarities in style to the giant Ranger and Jabiluka deposits. Reported intersections include 14 m @ 0.71% U_3O_8 , including 9 m @ 1.01% U_3O_8 , 14m @ 0.70% U_3O_8 from 33 m, and 18 m @ 0.34% U_3O_8 from 116 m.

Thundelarra Exploration Ltd announced the first discovery of significant paleochannel-hosted uranium mineralisation in the Northern Territory at their *Afghan Swan* prospect, 300 km northwest of Alice Springs. Mineralisation was identified along 15 km of a single paleochannel, with intersections including 7.1 m at 1408 ppm equivalent U_3O_8 (eU_3O_8) from 143 m and 1.6 m at 1174 ppm eU_3O_8 from 135 m.

South Australia

Uranium SA Ltd reported a resource inventory of 19 000 t U_3O_8 for its *Mullaquana* Uranium Project south of Whyalla. An initial Inferred Resource was announced for the Plumbush Deposit of 21.8 Mt @ 292 ppm eU_3O_8 for 6300 t U_3O_8 . This combines with the Inferred Resource of 45.5 Mt @ 280 ppm eU_3O_8 (12 700 t U_3O_8) at the Blackbush deposits for the total Mullaquana resource.

Western Australia

Energia Minerals Ltd reported high-grade drill intersections from the Carley Bore deposit including: 6 m @ 1480 ppm U_3O_8 ; 6 m @ 818 ppm U_3O_8 , and 3 m @ 1097 ppm U_3O_8 . Subsequently the company reported a 23% increase in the Inferred Mineral Resource for the Carley Bore Deposit, part of its *Nyang* Uranium Project in the Carnarvon Basin north-northeast of Carnarvon. An updated resource estimate prepared by a consultant gave an Inferred Resource of 13 Mt @ 320 ppm U_3O_8 for a contained 4173 t of U_3O_8 (100 ppm U_3O_8 cut-off). This was a 23% increase in contained uranium but it does not include all the area drilled in November 2010 to the south of the area of the initial Inferred Resource area.

Manhattan Corporation Ltd reported an Inferred Resource for its *Double 8* deposit located 180 km northeast of Kalgoorlie. The resource estimate is based on drilling by PNC Exploration in the mid-1980s and is 26 Mt @ 300 ppm U_3O_8 for a contained 7800 t U_3O_8 at a cut-off grade of 200 ppm U_3O_8 .

HEAVY MINERAL SANDS

Victoria

Astron Ltd announced an increase in resources from its *Donald* mineral sands project in the Murray Basin, Victoria. The announcement comes after inclusion of drilling results and remodelling of mineralisation from two exploration leases and a mining lease within the project area, increasing the resource by 15 Mt (8%) to 194 Mt.

Western Australia

Image Resource NL reported results from the *Chandala North* heavy mineral (HM) deposit, situated 2.5 km south and along strike from the Gingin South resource. These results confirm field estimates of a high-grade deposit with intercepts up to 15 m @ 11.1% HM from surface and 4 m @ 24.0% HM from 30 m (2.5% cut-off).

Sheffield Resources Ltd announced the results of a drilling program at *Yandanooka* heavy mineral sand project located 50 km northeast of Eneabba in Western Australia. Drilling outlined a zone of heavy mineral-bearing sand approximately 4 km long by 1 km to 1.6 km wide and between 3 m and 20 m thick. Within this is a coherent higher-grade zone (>3% HM) which is approximately 3.4 km long, 500 m to 800 m wide, and 3 m to 10 m thick. Yandanooka has a relatively high value mineral assemblage (average: 13.1% zircon, 2.9% rutile, 59.6% ilmenite (at 64.7% TiO_2) and 11.2% leucoxene).

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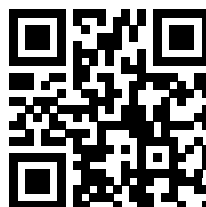
GeoCat: 73291

ISBN: 978-1-921954-66-5



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