NSW DPI
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ontheoutcrop

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ontheoutcrop is a Geological Survey of New South Wales e-newsletter intended to notify clients of specific events, products and services that may be useful to them in their work.

More information about newsletter items is available through the Geological Survey of New South Wales (GSNSW) web page, 'Geological Survey News':http://www.dpi.nsw.gov.au/minerals/geological

The theme for **PROJECT HIGHLIGHTS** in this issue is **GEOLOGICAL MAPPING PROJECTS**.

CONTENTS

UPCOMING EVENTS

International island arc conference, Orange, 13–21 April 2009

Conference themes will be: island arc evolution, collision and metallogenesis. The conference includes overseas and local presentations and one day field trips to deposits and critical outcrops illustrating the evolution of the Macquarie Arc.

Contact: Dick Glen, Principal Research Scientist: dick.glen@dpi.nsw.gov.au

'Exploration in the House', Parliament House Theatrette, Sydney, 2 July 2008

The 'Exploration in the House' seminar will update the geological activities of GSNSW with special reference to new mapping and mineral deposit work. The program will highlight results of the *New Frontiers* initiative.

Contact: Diane Kemp, Geoscientist, MEA: diane.kemp@dpi.nsw.gov.au, 02 4931 6445

NEW PRODUCTS AND SERVICES

Download free Geophysical projects and products catalogue

The catalogue lists GSNSW geophysical products. It details types of product, prices and some of the information that can be obtained from the data with the appropriate software.

Download free Geoscience CD and DVD data packages catalogue

The catalogue lists GSNSW geoscience products including data sets on DVDs/CDs and maps that are available for both the state and individual projects.

Cargelligo 1:250 000 Geoscience Database V2

The Cargelligo 1:250 000 Geoscience Database V2 includes new surface & basement geology layers; point data layers from whole rock geochemical analyses, petrography & dating; structures; time-space plots; cross sections; geophysics; mineral & drill hole data.

Complimentary NSW Explorers Directory

The NSW Explorers Directory is a mini DVD which showcases mineral exploration in NSW and details over 50 junior and mid-tier exploration companies — many seeking partners. It has information on current hot prospects, prospective ground, and active mines and developments in NSW. It contains geology, mineral occurrences and geophysics as Google Earth KMZ files, ESRI shapefiles and Arc Reader PMF format.

Advanced Mineral Projects & Exploration Highlights in NSW map

The new January 2008 downloadable map includes source links to company websites.

Quarterly Notes Issue 126

Quarterly Notes Issue 126 is a fresh look at the Port Macquarie Block where the action of plate tectonic–convergent margin processes is apparent. The Ordovician ages of the blueschists and cherts provide an insight into the older parts of the southern New England Fold Belt/Orogen.

New DPI Publication predicts positive outlook for NSW minerals sector

The NSW Minerals Industry Annual 2006–07 includes information on mineral production and major exports; exploration, environmental management and mine safety initiatives; new projects and developments; and future industry trends and outlook. Significant mine dossiers and mineral statistics are included.

2007 DIGS New Open Reports List

View those annual and final reports, 1971–2007, which have recently changed status to open file.

See 'Products and Enquiries'and 'Subscriptions' to obtain copies of publications mentioned above.

PROJECT HIGHLIGHTS

GEOLOGICAL MAPPING PROJECTS

The Cobar–Bourke, Koonenberry–Tibooburra and Broken Hill mapping projects form part of the *New Frontiers* initiative and the Geological Survey's 10 year strategic mapping plan. (See Issue 2 for Geophysics projects).

Koonenberry–Tibooburra Mapping Project

Eight of the twelve 1:100 000 and four 1:25 000 map sheets in the project area are complete and available as provisional maps. A time–space plot is also available on request. The 1:250 000 Solid Geology and Koonenberry Belt Explanatory Notes are underway. The 1:100 000 maps are: Olive Downs, Tibooburra, Milparinka, Yantara, Mt Arrowsmith, Cobham Lake, Yancannia, Wonnaminta, Kayrunnera, Nuchea, Grasmere, Bunda. The 1:25 000 maps are: Mt Arrowsmith Inlier, Warratta Inlier, Tibooburra Inlier, Mt Browne/Mt Poole/ The Gorge Inliers.

Main exploration opportunities identified by the project are: shear zones and brecciated channel ways hosting gold and copper mineralisation; potential diamond-hosting diatreme pipes; copper associated with volcanism at Wertago and along the Koonenberry Fault; and Ni-anomalous ultramafic bodies outcropping at Macs Tank, Conns Creek, Mt Arrowsmith and Packsaddle.

Contact: John Greenfield, Senior Geologist: john.greenfield@dpi.nsw.gov.au, 02 4931 6728

Broken Hill Interpretive Mapping Project

The 'Interpreted Stratigraphy of the Proterozoic in the Broken Hill Region Project' aims to produce a revised stratigraphic map based on the latest geophysics and existing detailed GSNSW lithological mapping. The project will extend under cover and into Neoproterozoic sequences which surround the Curnamona Craton rocks. The interpretation will include regional structural components and use the latest stratigraphic nomenclature based on modern age dating.

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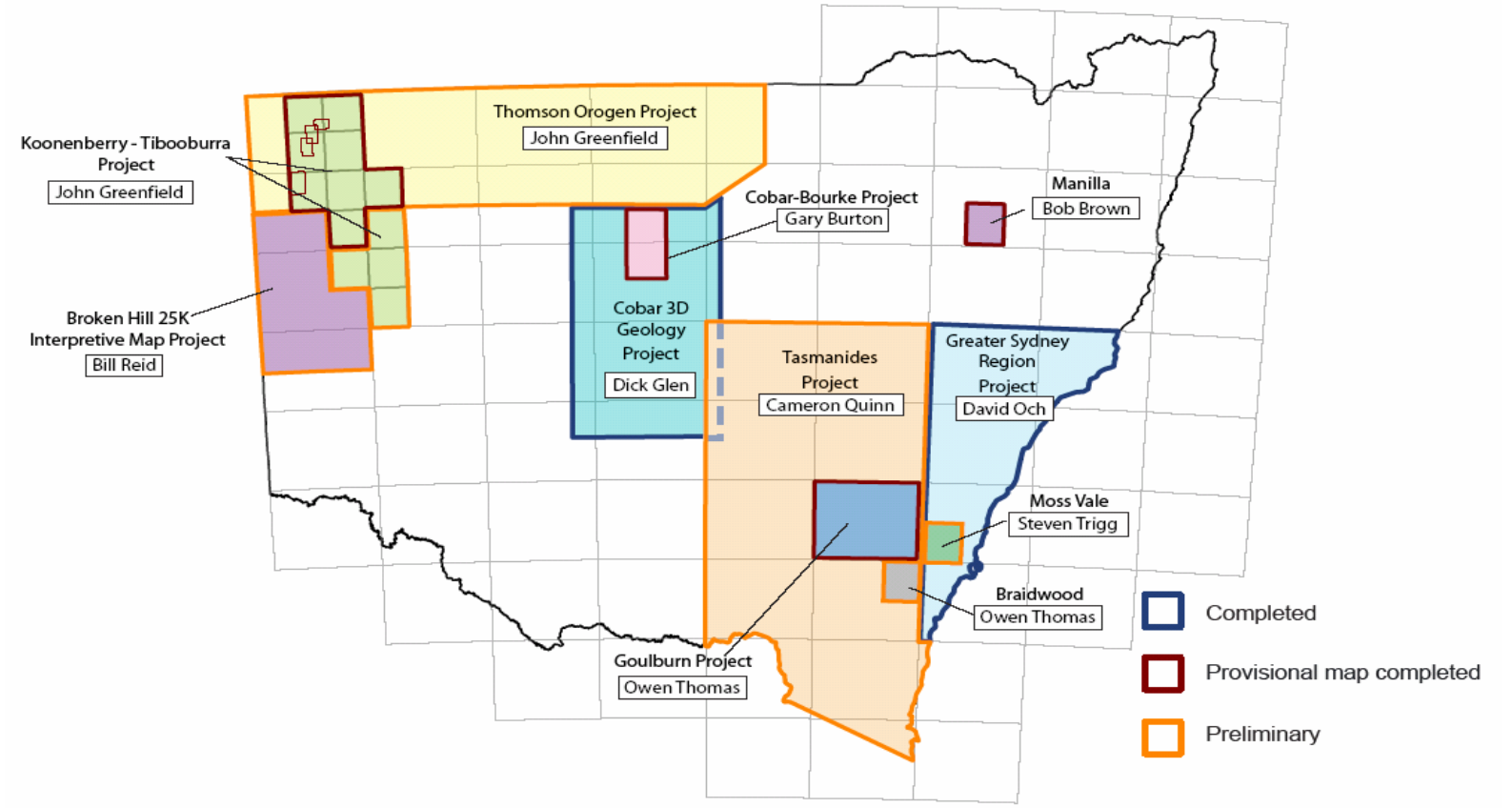
Geological Mapping Projects and Team Leaders



Thomson Orogen Project

A baseline geochemical survey by Geoscience Australia/CRCLEME 'NSW Thomson Orogen Project' found that elevated concentrations of base metals in catchment soils reflect proximity to known deposits and highlighted several areas that could warrant further investigation.

Contact: John Greenfield, Senior Geologist: john.greenfield@dpi.nsw.gov.au, 02 4931 6728

Regolith mapping covers eight 1:250 000 sheets: Urisino, Yantabulla, Enngonia, Bourke, Louth, White Cliffs, Angledool and Walgett. The program comprises the development and application of a computer-based technique that classifies regolith types using multiple datasets, such as Landsat TM, SPOT5, and radiometrics, amongst others.

Contact: Marta Vega Faundez, Geoscientist: marta.vega.faundez@dpi.nsw.gov.au, 02 4931 6677

Volcanic rocks and turbidites of possible Ordovician age, suggest a northeast-trending, 70km long fragment of a volcanic arc, may be present northeast of Bourke beneath Mesozoic and Quaternary cover. The presence of volcanic rocks of within-plate, possibly rift-related affinity, could indicate that a later extensional phase affected the arc. Implications are that porphyry, epithermal/mesothermal vein and skarn-type mineralisation could be present below shallow cover.

Contact: Gary Burton, Senior Geologist: gary.burton@dpi.nsw.gov.au, 02 6360 5330

The Cobar–Bourke Mapping Project

The mapping of the Sussex and Byrock 1:100 000 map sheet areas is complete. Provisional geological maps are available and a set of explanatory notes for both areas is in press.

A highlight is the recognition of faulted and highly strained synclinal keels of Cobar Supergroup rocks, which have potential for Au–Cu–Pb–Zn–Ag mineralisation. Other results are the stratigraphic revision of the Ordovician Girilambone Group which now includes the Mount Dijou Volcanic Member, and an improved understanding of the structural and metamorphic development and intrusive history of the area.

Contact: Gary Burton, Senior Geologist: gary.burton@dpi.nsw.gov.au, 02 6360 5330

Cobar Region 3D Geology Project

This collaborative project between DPI, *pmd**CRC and industry has assembled and integrated the available geoscientific data in the Cobar region into an integrated 3D model to help predict new target areas for mineral exploration. Results include new insights into the known orebodies and the introduction of new exploration concepts in the Cobar Region.

Contact: Dick Glen, Principal Research Scientist: dick.glen@dpi.nsw.gov.au, 02 4931 6722

Tasmanides Project

GSNSW and *pmd**CRC are producing a series of internally-consistent east–west sections to feed into a 3D model for the eastern Lachlan Orogen. The detailed study aims to understand the fundamental controls on the location of major ore deposits and to assist the mineral exploration industry to predict and discover new world class ore bodies in southeast Australia.

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Goulburn Geological Mapping Project

Six provisional 1:100 000 map sheets—Boorowa, Crookwell, Yass, Gunning, Goulburn and Taralga are completed and available as provisional print-on-demand maps. The Goulburn 1:250 000 provisional map is currently being finalised. Explanatory notes, including a 1:250 000 GIS package containing hot links to unit description data, will accompany the map.

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Braidwood 1:100 000 map sheet

Geology for the Braidwood sheet north is being compiled. The Late Silurian volcaniclastic rocks which host the Woodlawn ore body are less extensive to the south in the Mount Fairy area, but there are some small rhyolite (?) domes affected by strong chloritic and silica–sericite alteration. Correlation has been made between the Early Devonian volcanic rocks on the Braidwood sheet with previously mapped units on the Goulburn sheet to the north. The same units have been recognised over 90 kms of strike length.

Work on the Braidwood sheet south will focus on finding mappable alteration systems in the northern part of the Braidwood Granodiorite, host to significant gold mineralisation. In addition, the considerable geological complexity in Siluro-Devonian volcaniclastic rocks and granites in the southwest corner of the map sheet will be resolved.

Contact: Owen Thomas, Senior Geologist: owen.thomas@dpi.nsw.gov.au, 02 6360 5339

Preliminary metallogenic studies suggest that a number of deposits including Mulloon and Boro are orogenic in style rather than syngenetic or intrusion-related. These deposits are associated with steeply-dipping, northerly-trending structures that cross-cut the regional foliation(s).

Contact: David Forster, Geologist, david.forster@dpi.nsw.gov.au, 02 4931 6685

The Greater Sydney Region (GSR) Geoscience Audit and Gaps Analysis Report

The audit and gaps report on all geological data relevant to the Greater Sydney Region is completed. The study extends from Port Stephens in the north, to Batemans Bay to the south, and Katoomba in the west. It determined where deficiencies lie in existing geological coverage.

A key recommendation was that mapping would commence in the 1:100 000 Moss Vale map sheet area, particularly where the Sydney Basin onlaps the Lachlan Orogen. In addition, the Gosford and Lake Macquarie 1:100 000 map sheets are being updated. Basement granite within the Sydney Basin has been mapped.

Contact David Och, Senior Geologist: david.och@dpi.nsw.gov.au, 02 4777 0318

Moss Vale Project–GSR

The Moss Vale 1:100 000 map sheet area covers a relatively poorly known part of the western Sydney Basin and is an opportunity to understand the underlying basement rocks of the Lachlan Orogen. Fieldwork has commenced following an extensive literature survey.

Contact: Steven Trigg, Geologist; steven.trigg@dpi.nsw.gov.au, 02 6360 5361

RECENT EVENTS

International Investment Promotion

Regular events for this time of the year are the JOGMEC mineral exploration meetings in Japan and the PDAC Convention and Trade Show in Canada. Lindsay Gilligan, Director, and John Watkins, Manager, Regional Mapping and Exploration Geoscience, attend these events under the *New Frontiers* international exploration promotion initiative. NSW joins these events as part of the Team Australia delegation. This year, a highlight is the release of the NSW Explorers Directory, a DVD that showcases mineral exploration in NSW with an emphasis on junior and mid-tier exploration companies.

JOGMEC (Japan Oil, Gas and Metals Corporation) 25–26 February, Tokyo, Japan

PDAC (Prospectors and Developers Association of Canada) Convention, Trade Show and Investors Exchange, 2–5 March, Toronto, Canada.

Londonderry drill core library renamed after the 'Father of Australian Geology'

In December 2007, the Londonderry drill core library was renamed the W B Clarke Geoscience Centre in recognition of the broadening of the facility's functions. The library is accessed by about forty exploration companies and contractors per month; houses geological specimen collections; is home to the Specialist Geological Services group; is an educational venue used to encourage young students to enter the geoscience professions and is set to acquire a CSIRO Hylogger spectral scanning core logging system. John Clarke, the great grandson of W B Clarke, attended the opening providing a link to our heritage.

STAFF MOVEMENTS

Colin Wood was appointed Principal Geologist, **Harvey Henley** is acting Senior Geologist and **Diane Kemp** has commenced as Geologist with Mineral Exploration Assessment. **Harvey Henley** was appointed custodian of the Economic Rock and Minerals Collection.

Cressida Gilmore was appointed Senior Geologist, Regional Assessments and **Simon Francis** has commenced as Geologist with Landuse.

Kevin Capnerhurst and **Owen Thomas** are sharing Team Leader—Regional Mapping duties and responsibilities in the Orange office following **Jeff Vassallo**'s move to private industry. **Owen Thomas** is responsible for managing the Goulburn and Braidwood projects and coordinating the zircon dating program and whole rock geochemistry.

Trisha Moriarty was appointed Acting Team Leader, Knowledge Management and **DIGS** manager while **Jim West** is on long service leave. **Cassie Cox** has been appointed Geoscience Product Officer to Geospatial Information.

PRODUCTS AND ENQUIRIES

Internet product purchase

Try http://www.shop.nsw.gov.au/index.jsp for some NSW DPI, Minerals Resources products.

Enquiries about purchasing products

Maps and data packages: geoscience.products@dpi.nsw.gov.au: Tel: 02 4931 6503

Geophysical images and data to geophysics.products@dpi.nsw.gov.au: Tel: 02 4931 6717

Counter sales to mineralpublication.orders@dpi.nsw.gov.au Freecall: 1300 736 122 Tel: 02 4931 6666

General enquiries about products and services

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