



ontheoutcrop

ISSUE 9, MAR 2010

ontheoutcrop is a Geological Survey of New South Wales (GSNSW) e-newsletter. For more information about newsletter items go to: <http://www.dpi.nsw.gov.au/minerals/geological>

MINERALS AND LANDUSE ASSESSMENT PROGRAMS is the theme for this issue.

CONTENTS

- | | |
|--|---|
| 1. Upcoming events | 5. Recent events |
| 2. New products and services | 6. Staff movements |
| 3. Project highlights | 7. Products and enquiries |
| 4. Take Note! | 8. Subscriptions |

UPCOMING EVENTS

'Exploration in the House' seminar, Parliament House Theatre, Sydney, 9 June 2010

The seminar will comprise presentations highlighting recent geoscientific investigations carried out by the GSNSW, especially on [New Frontiers](#) projects. This year the talks provide a different perspective on the mineral prospectivity of NSW using new data and new applications. A [preliminary program is attached](#) but watch the [Geological Survey Events webpage](#) for confirmation and registration details. Attendance at the conference is free. However, registration is recommended to reserve a place.

Contact: Maggie Moffat, Executive Assistant, maggie.moffat@industry.nsw.gov.au, 02 4931 6592

Statewide lead isotope dataset to be presented at international conference

David Forster, GSNSW Mineral Systems team, in collaboration with the CSIRO, will announce the release of the statewide radiogenic isotope dataset at the [13th Quadrennial IAGOD Symposium 2010](#) (International Association for Geology Applied to Ore Deposits) in Adelaide, 6–9 April 2010. The dataset is one of several soon to be released as part of the [COGENT II geoscience database project](#). The lead isotope dataset contains approximately 3,200 Pb-isotope results from rocks and ores, which are the result of numerous collaborative minerals research projects by the CSIRO, GSNSW, researchers and some exploration companies.

Contact: David Forster, Geoscientist, david.forster@industry.nsw.gov.au

37th Symposium on the Geology of the Sydney Basin, Pokolbin, NSW, 6–7 May 2010

The [Symposium](#) will be held at the Mercure Resort — Hunter Valley Gardens, and presentations and trade displays will be held in the Semillon Centre. A special student registration package is being offered. The Symposium will cover fundamental geology, coal, coal seam gas, mineral, energy and ground water resources, developments in geological technology and geological aspects of the natural and urban environment. Contact Marianne Harvey marianne.harvey@megms.com.au

Geodiversity, Geological Heritage and Geotourism Symposium, Port Macquarie, NSW, 6–10 September 2010

The [Symposium](#) will be held at the Sea Acres Nature Reserve, Port Macquarie and will comprise three days of talks and two days of field excursions. The symposium will cover geodiversity and its relationship to industry and conservation; NSW geotourism potential; extent and significance of NSW geoheritage sites; geoconservation initiatives; and geobotany using plant communities to assist mineral exploration.

Contact: Ian Percival, Principal Research Scientist, ian.percival@industry.nsw.gov.au, 02 4777 0315

Mines and Wines 2010, Mudgee, 23–24 September

The [conference](#) will be held at the Quality Parklands Resort and Conference centre at Mudgee. The event is a premier technical gathering for mineral explorers working in the Tasmanides in eastern Australia. Events planned include technical sessions, industry booths, dinner, excursions and a wine tour. On-line registration will be available on the [Geological Survey events page](#) in the near future.

Contact: Maggie Moffat, Executive Assistant, maggie.moffat@industry.nsw.gov.au, 02 4931 6592

NEW PRODUCTS AND SERVICES

Complimentary NSW Explorers Directory updated February 2010

The NSW Explorers Directory was updated in February with a complete catalogue of the map-related geoscience material published by GSNSW and web links to hard copy publications and on-line services. It includes mineral occurrences, boreholes, titles, 1:250 000 geology (rectified raster images), 1:100 000 geology (vector), base data and geophysical images in free customised projects for ArcMap, ArcReader and MapInfo. The geology, geophysics and mineral occurrences can also be viewed in Google Earth.

The DVD highlights current hot prospects, prospective ground (particularly the Thomson Orogen), active mines and details of 57 junior and mid-tier companies in NSW.

Contact geoscience.products@industry.nsw.gov.au for your complimentary copy

Free Map downloads via the Geoscience Products Catalogue

Free downloads of the [1:25 000](#) and [1:500 000](#) scale GSNSW geological maps are available through the [Geoscience Products Catalogue](#). The maps are available as scanned maps and georeferenced images (ECW) and the 1:25 000 scale maps are also available as ESRI Shape files and MapInfo table files.

Advanced Mineral Projects & Exploration Highlights in NSW map update

The map was updated in February 2010 showing the increased exploration activity and recent discovery highlights in NSW. The [map is available as a free download](#) from the I & I NSW website.

Quarterly Notes 133

This study highlights the presence of multiple mineralising events near The Glen, Goulburn in the Lachlan Orogen, NSW. Age and isotope characteristics of a volcanic-hosted mineralisation and a skarn-type mineralisation near The Glen provide a late Silurian age for the Glen E deposit, and invite the reclassification of the Collector massive sulphide mineralisation as part of a zoned reduced gold skarn system.

Contact: Peter Downes, Senior Geoscientist, peter.downes@industry.nsw.gov.au

2009 DIGS Open File Report List

The 2009 [Open File Report List](#) is available on-line. It contains 719 mineral, 79 coal and 74 petroleum reports.

Contact: Wenlong Qian, Senior Geoscientist, wenlong.qian@industry.nsw.gov.au, 02 4931 6556

TAKE NOTE!

EROL training sessions

Mineral exploration companies are encouraged to use the Exploration & Environmental Reports Online Lodgement system, EROL. For enquiries or to register an expression of interest for training contact:

digs.info@industry.nsw.gov.au

PROJECT HIGHLIGHTS

LAND USE ASSESSMENT PROGRAMS

Advice for Local Environmental Plans

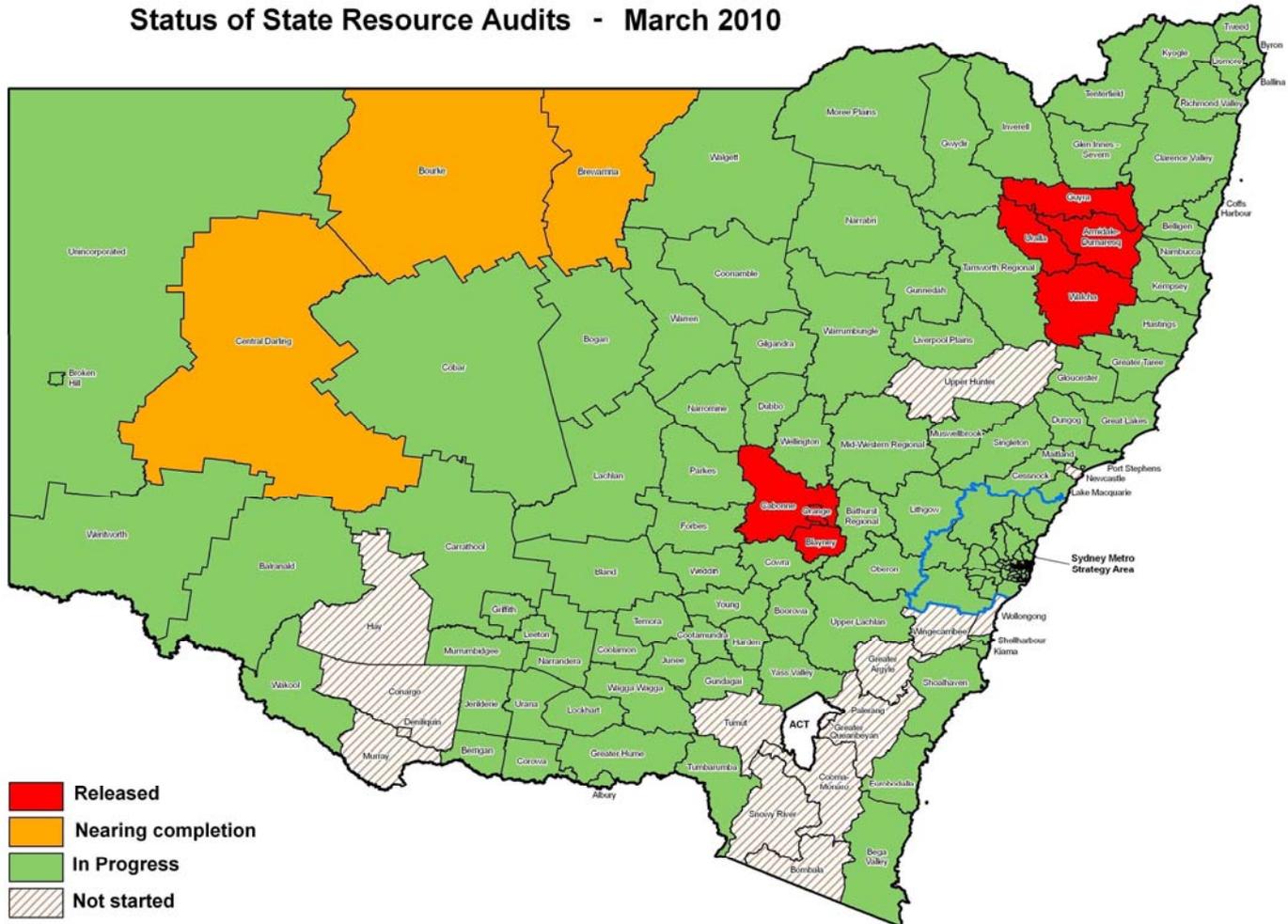
Local councils produce comprehensive local environmental plans using the Department of Planning's standard template in consultation with government agencies including I & I NSW, Mineral Resources. The Land Use Assessment team advises councils about planning for mineral resources; provides digital data sets including completed State Resource Audit packages; and reviews draft Local Environmental Plans to ensure that access to mineral resources is maintained as widely as possible throughout NSW.

Contact: Cressida Gilmore, Senior Geoscientist, cressida.gilmore@industry.nsw.gov.au, 02 4931 6537

NSW Mineral Resource Audit update

The Land Use Assessment team continues to roll out [State Resource Audit](#) data packages with a further four distributed to Walcha, Blayney, Orange and Cabonne local councils. Data gathering and mapping is underway across approximately two thirds of the state. The data packages identify known minerals; energy and extractive resources; areas of operations; and areas with enhanced prospectivity.

Status of State Resource Audits - March 2010



Exploration and mining companies are encouraged to provide advice to the Land Use Assessment team on resources and areas of high mineral potential that they would like to be considered for inclusion in the audit. **If you wish to contribute or have any queries concerning the audit, contact:**

Iain Paterson, Acting Team Leader, Land Use Assessment iain.paterson@industry.nsw.gov.au, 02 4931 6704 or
Cressida Gilmore, Senior Geoscientist, cressida.gilmore@industry.nsw.gov.au, 02 4931 6537

Interdepartmental co-operation on conservation reserve establishment

The Land Use Assessment team consults with the Department of Environment, Climate Change and Water (DECCW) to assess proposed additions to the National Parks Estate in NSW for their mineral and petroleum potential. Proposals for new reserves and additions to existing reserves are referred to the Land Use Assessment team in accordance with the government's inter-agency reserve referral process and a memorandum of understanding between DECCW and I & I NSW. The two departments are currently working towards a more strategic approach to reserve establishment through increased interaction and spatial assessment on a 'bioregion' scale supported by digital data sharing. They are also working together to streamline and simplify the approval process for exploration activities in State Conservation Areas.

Contact: Cameron Ricketts, Assistant Director, cameron.ricketts@industry.nsw.gov.au, 02 4931 6703

Input to the Riverina Bioregion Forest Agreement

The Natural Resources Commission (NRC) is undertaking an independent two stage assessment of river red gum forests and cypress pine forests on State Forests and other Crown lands in the Riverina Bioregion for the NSW Government. The assessment will provide the basis for the development of a Forest Agreement to determine the future use and management of these forest lands. The Land Use Team has provided advice on mineral resources

and potential in the Riverina Bioregion as part of I & I NSW input into the assessment. Recommendations and reports are available on the [NRC web site](#).

Contact: Iain Paterson, Acting Team Leader Land Use Assessment, iain.paterson@industry.nsw.gov.au, 02 4931 6704

MINERAL SYSTEMS PROJECTS

Mineral Systems dating campaign

The Mineral Systems (MinSys) team will release significant new results on dating mineralisation events in NSW at 'Exploration in the House' in June and the [Australian Earth Sciences Convention](#) (AESC) in July. SHRIMP and SIMS dating of zircons are being complimented by Re-Os dating of molybdenites, U-Pb dating of cassiterites and Ar-Ar dating of micas. Recent new data has resolved the long term debate on the relationship between the tin mineralisation at Giants Den and the Bundarra Supersuite in New England.

Contact: Phil Blevin, Research Scientist, phil.blevin@industry.nsw.gov.au, 02 4931 6585

Hot granites under the Sydney Basin

Granites exposed in drill core and basement windows in the Sydney Basin are being dated and chemically analysed, in conjunction with the Research School of Earth Sciences (ANU) and Geoscience Australia, to upgrade data available for geothermal modelling and exploration. Exposed granites in southern Sydney Basin are strongly fractionated and associated with tin mineralisation indicative of high heat producing affinity. Carboniferous ages for most of these granites have been confirmed. Results to date will be presented at the Symposium on the Geology of the Sydney Basin at Pokolbin in May.

Contact: Phil Blevin, Research Scientist, phil.blevin@industry.nsw.gov.au, 02 4931 6585

Statewide Metallogenic Map

The MinSys team is working to produce a statewide metallogenic map of NSW. The map will utilise the Mineral System Classification scheme developed by GSNSW and will provide the base for a synthesis of mineralisation in NSW.

Contact: Peter Downes, Senior Geoscientist, peter.downes@industry.nsw.gov.au, 02 4931 6708

MINERAL EXPLORATION ASSESSMENT (MEA)

EROL streamlines exploration reporting for MEA and the mining industry

The time savings, record tracking and security offered by the [Exploration & Environmental Reports Online Lodgement system, EROL](#), has made exploration reporting more efficient for the mineral exploration industry, and a number of companies are now dedicated to on-line report lodgement. EROL has also streamlined workflows for the Mineral Exploration Assessment team because it releases time previously spent physically managing exploration company digital disks and removes duplication which occurred when companies both emailed and then posted their reports. The system also provides a permanent digital record of report lodgement in chronological sequence making report processing simpler.

Mineral exploration companies are encouraged to use EROL. For enquiries or to register an expression of interest for training contact: digs.info@industry.nsw.gov.au

ONGOING REGIONAL MAPPING AND EXPLORATION GEOSCIENCE PROJECTS

Water bores in the Thomson Orogen provide mineral exploration data

A collaborative drilling program with the NSW Office of Water and funded under the *New Frontiers* initiative, is providing GSNSW with new information about the geology of the Thomson Orogen region. The program involves extending the depth of selected water bores by drilling from their base (core-tailing).

The agreement allows GSNSW to core-tail the bottom three metres of near completed water bores where they are considered to be above basement. The data from the core-tailing of three bores in 2009, combined with results from a GSNSW diamond drillhole have determined basement depths which have validated the existing basement model for the Thomson Orogen, assisted in defining basement rock types and age, and identified mineralisation. Assay results for the core-tail of the Border Downs water bore show elevated levels of lead and zinc at 457 metres depth coinciding with a linear magnetic feature. The assay results are in Appendix B of report GS2010/0173 titled "[Diamond Core tails from across the Thomson, a New Frontiers Initiative](#)". This report is available for viewing in [DIGS](#).

Contact: Stephen Dick, Senior Geoscientist, stephen.dick@industry.nsw.gov.au 02 4931 6721 or Carol Simpson, Petrologist, carol.simpson@industry.nsw.gov.au 02 4931 6683

Southeast Lachlan airborne geophysical survey

Under the *New Frontiers* initiative, GSNSW has commenced a large airborne geophysical survey over the southeast Lachlan Orogen in conjunction with Geoscience Australia, which is funding that portion of the survey covering the ACT. The survey covers 24,000 square kilometres and will acquire 117,000 line kilometres of magnetic and radioelement data over a four month period.

The area contains north-south trending belts of rocks which represent the southern extensions of rocks that host the Woodlawn Pb–Zn–Cu deposits and the Captains Flat deposits. Several granites of Silurian and Devonian age occur throughout the area including some of similar age and type to the Braidwood Granodiorite that hosts gold deposits such as Dargues Reef. These granites are also prospective for molybdenum and copper.

This airborne survey will help identify prospective rock packages which are being recognised as exploration targets.

Contact: David Robson, Team Leader Exploration Geoscience, david.robson@industry.nsw.gov.au, 02 4931 6710

RECENT EVENTS

PDAC — 2010, 7–10 March, Toronto, Canada

John Watkins, Acting Director, GSNSW and Brad Mullard Executive Director, Mineral Resources, attended the Prospectors and Developers Association of Canada (PDAC) conference 2010. They joined the Team Australia delegation promoting mineral exploration investment in Australia and the exploration opportunities, innovations and products of the *New Frontiers* NSW initiative to North American based exploration and mining companies.

Interest was focused mostly on commodities such as copper, nickel and gold. The conference also provided an opportunity to benchmark GSNSW products and services against both national and international jurisdictions and to meet with the management of the Ontario Geological Survey to discuss the previous Twinning Agreement and opportunities for future collaboration between the two surveys.

Paper on compositional character of east Australian granites published internationally

An invited paper by Phil Blevin (GSNSW) and Bruce Chappell (University of Wollongong), dealing with the metallogenic and compositional characterisation of east Australian granites, was published in the Tischendorf memorial volume of the German journal, *Zeitschrift für Geologische Wissenschaften (ZGW)*. In this paper the authors show that the K/Rb ratio, a broad measure of the degree of compositional evolution of a granite, is a useful proxy for understanding regional granite metallogeny.

Contact: Phil Blevin, Research Scientist, phil.blevin@industry.nsw.gov.au, 02 4931 6585

Northwest NSW – a new interpretation

“New structural model to explain geophysical features in northwestern New South Wales: implications for the tectonic framework of the Tasmanides” by G R Burton was published in the Australian Journal of Earth Sciences 57, 1. The model proposes the extension of the Delamerian and Lachlan Orogens into southern and central Queensland to join with similar rock packages in northern Queensland, consistent with some previous tectonic models for the Tasmanides.

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

STAFF MOVEMENTS

Trisha Moriarty has accepted the position of Team Leader, Knowledge Management

Michael Hallett has accepted the position of Executive Officer, GSNSW

David Collins has accepted the position of Senior Geoscientist Data Systems

Carlos Cevallos has left his position as Geophysicist with Regional Mapping and Exploration Geoscience

Kyley Norris has left her position as Geoscientist with Knowledge Management

Gary Dargan is retiring from his position as Technical Officer at the W B Clarke Geoscience Centre

Joel Fitzherbert, Geoscientist, has transferred from Orange to the Maitland office

Paul Flitcroft, Technical Officer, has transferred from Londonderry to work at the Maitland office and Tocal

Andrew Alexander has accepted the position of Geoscientist in Petroleum Geoscience

PRODUCTS AND ENQUIRIES

Internet product catalogue

The online [Geoscience Products Catalogue](#) includes over 240 hard copy maps and over 70 geoscience data packages (including geophysical data) on CD or DVD ROM.

Enquiries about purchasing products

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

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

Counter sales: mineralpublication.orders@industry.nsw.gov.au Free call: 1300 736 122 Tel: 02 4931 6666

Online sales: <http://www.shop.nsw.gov.au/index.jsp>

General enquiries about products and services

Contact: Michael Hallett, michael.hallett@industry.nsw.gov.au: Tel: 02 4931 6724

SUBSCRIPTIONS

ontheoutcrop is a newsletter from the Geological Survey of New South Wales.

Editor: Team Leader, Knowledge Management, Geological Survey of NSW
Industry & Investment NSW, PO Box 344, Hunter Region Mail Centre NSW 2310

To subscribe to an email version of this newsletter email outcrop.newsletter@industry.nsw.gov.au

To subscribe to *Quarterly Notes* contact: Geneve Cox: geneve.cox@industry.nsw.gov.au

View previous issues at <http://www.dpi.nsw.gov.au/aboutus/resources/periodicals/newsletters/on-the-outcrop>

Compilation and production: Joan Henley, Geoscientist, Knowledge Management

© State of New South Wales through Industry & Investment NSW, 2010. You may copy, distribute and otherwise freely deal with this publication for any purpose, provided that you attribute Industry & Investment NSW (I&I NSW) as the owner.

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (Mar 2010). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of I&I NSW or the user's independent adviser.

Your email address will be collected by I&I NSW and recorded for the purpose of providing an email newsletter service for you. This information will not be distributed to any other parties. The supply of your email address is voluntary. However, the email newsletter service cannot be effected without storage of this information on our databases. You may unsubscribe from these services at any time by sending an email to I&I NSW at outcrop.newsletter@industry.nsw.gov.au with 'Unsubscribe' in the subject field of your email. You may correct your recorded details by sending an email detailing your request to the same email address.

ISSN 1835-2200

Exploration in the House Program

1pm Wednesday 9 June 2010 - Parliament House, Macquarie Street, Sydney

1:00pm

Welcome – Mr Cameron Ricketts, Acting Director, Geological Survey of NSW

Opening – Hon Ian Macdonald MLC, Minister for Mineral and Forest Resources

Mr Brad Mullard, Executive Director, Mineral Resources

Chair – Cameron Ricketts, Acting Director

1:05-1:15pm

Beyond New Frontiers – John Watkins, Assistant Director, Regional Mapping & Exploration Geoscience

1:15-1:30pm

A new Tectonic Interpretation of Far Western NSW and its Implications for Exploration – Bob Musgrave

1:30-1:45pm

Changing Brownfields into Green: Using New Data and Ideas to Revitalise the Mineral Prospectivity of NSW – Phil Blevin

1:45-2:00pm

HyLogger Applications – Spectral Geology in NSW – Bill Reid and Meagan Clissold

2:00-2:15pm

What's New in On-line Services – Ken McDonald and Guy Fleming

2:15-3:00pm - Afternoon Tea

Chair – John Watkins, Assistant Director, Regional Mapping & Exploration Geoscience

3:00-3:15pm

Lockhart Igneous Complex: The Sub-Volcanic link to the Woodlawn – Captains Flat district – Owen Thomas

3:15-3:30pm

Ophiolite-related Mineral systems in Eastern NSW: Remobilising Massive Sulphides – Cameron Quinn

3:30-3:45pm

Building a 3D capacity: Examples from the Thomson depth-to-basement surface and the Koonenberry Belt Project – Stephen Dick

3:45-4:00pm

Investigating Geophysical Anomalies highlighted in Regional Interpretations for Hay-Balranald and Cobham Lake map sheets – Rosemary Hegarty and Astrid Carlton

4:00-4:30pm – Cameron Ricketts, Questions/Discussion

Poster Viewing and Light Refreshments served in the Foyer until 6:00pm