

The Royal Society of Victoria

Promoting Science.

PATRON: The Hon Linda Dessau AM
Governor of Victoria

PRESIDENT: Dr Bill Birch AM BSc (Hons) PhD

Headlines...

8th October: Urban Ecology: Creating Green, Healthy, Resilient & Liveable Cities

22nd October: The Quantum Age of Diamond – the Phillip Law Postdoctoral Award Lecture

Advance Notice:

12th November: Research Innovation & Impact: a New Path from CSIRO

18th March, 2016: Symposium, “Conserving Eucalypts: the Why and the How”

PLEASE NOTE:

8th- 9th October Symposium: Managing Biodiversity Under Climate Change (to be held at the University of Melbourne) – is BOOKED OUT

October 2015 Newsletter

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October Meetings

CREATING GREEN, HEALTHY, RESILIENT AND LIVEABLE CITIES



The first October meeting will be held on **Thursday, 8th October 2015 at 7.00 pm.**

Speaker: Associate Professor Mark McDonnell

Director, Research Centre for Urban Ecology, Royal Botanic Gardens

The growth of cities and towns is one of the most serious ecological problems currently facing Australia and the world.

The increase in the number of people living in cities and towns, coupled with the magnitude and intensity of human activities has resulted in significant impacts to local, regional and global environments. The creation and expansion of cities produce new types of land-cover, which typically result in the loss of native habitats along with associated increases in impermeable surfaces. These changes in land-use result in habitat loss and landscape fragmentation, toxification of the biosphere, loss of ecosystem function, invasion of exotic species and the loss of native biotic diversity.

These impacts are most evident in major cities, but are also occurring in smaller towns throughout Australia. The daily activities of humans also create novel disturbance regimes that result in new selection pressures on Australia's biota. Over the next 20 years, the predicted increases in the number and size of human settlements, especially in developing countries, coupled with the predicted changes in climate have created an unprecedented call for scientific information to guide management strategies and mitigation options in order to create resilient, green, healthy, liveable cities and towns in the future. Understanding the impact that urbanisation has on the ecology of cities will help to identify measures that can be taken to minimise the detrimental effects of urbanisation.

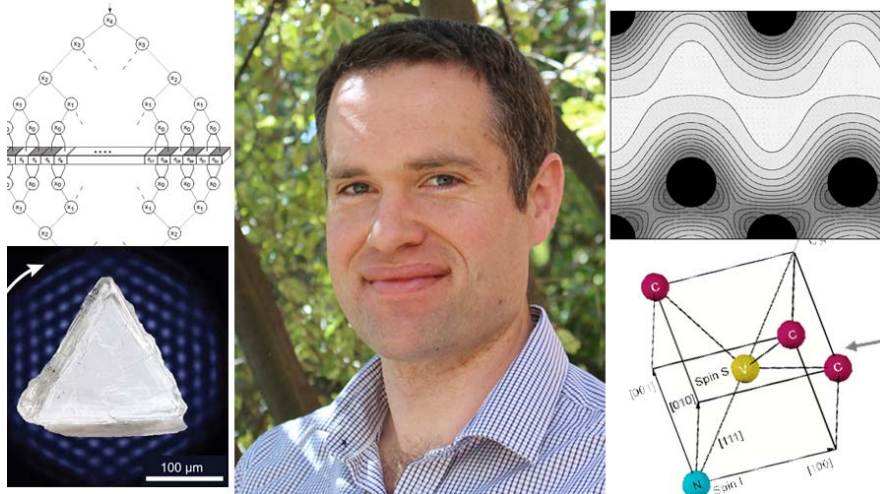
About the Speaker: Mark McDonnell's research interests range widely, and include the processes driving vegetation and ecosystem change, landscape ecology, the structure and function of urban ecosystems, and the conservation and management of urban biodiversity. In all these areas, he is concerned about bringing high-quality ecological data and the understanding of basic ecological processes to bear on problems of conservation and management of urban ecosystems. He has conducted pioneering research on the study of urban-rural gradients and the comparative ecology of cities and towns around the globe. Mark has authored or co-authored over 150 scientific papers, reviews, book chapters, reports and articles and has co-edited two books on the topic of urban ecology. He is the Editor-in-Chief of the Journal of Urban Ecology published by Oxford University Press.



Book online now at <http://ow.ly/SSLwg> call or email the RSV office to secure your place: 9663 5259, rsv@sciencevictoria.org.au. Our lectures are free to members of the public with an optional gold coin donation to support our science programs.

THE QUANTUM AGE OF DIAMOND

THE 2015 PHILLIP LAW POSTDOCTORAL AWARD LECTURE



The second October meeting will be held on **Thursday, 22nd October at 7.00 pm**

Speaker:

Dr Marcus W Doherty

Postdoctoral Fellow, Laser Physics Centre

Research School of Physics & Engineering, Australian National University

Recipient of the 2015 Phillip Law Postdoctoral Award for the Physical Sciences

In recent years, diamond has been key to the exploration of a new technological paradigm: quantum technology. Quantum technologies exploit the strange laws that govern physics at the atomic scale to break the constraints seemingly set by the rules of our familiar macroscopic world.

For example, the quantum microscope exploits the quantum nature of an atom-like probe to surpass the limits of conventional microscopes, offering an unprecedented view of the world at the atomic scale. Diamond quantum microscopes have already found diverse applications, ranging from single-molecule magnetic resonance imaging to thermoablative cancer therapy.

Another example is the quantum computer, employing the quantum 'spookiness' of being in two places at once to represent and compute information in a fundamentally new way. This radical new approach to information will allow quantum computers to solve classes of problems too difficult for current computers, such as the simulation of complex molecular systems or the factoring of the large numbers at the foundations of electronic security. Whilst quantum computers are still something of the future, many important advances have recently been made, using diamond.

This exciting period of exploration marks a new age in mankind's use of diamond – a quantum age – and it promises much for science and society.

About the Speaker: you can learn more about Marcus Doherty under the news item for the 2015 Phillip Law Postdoctoral Award.

Eventbrite

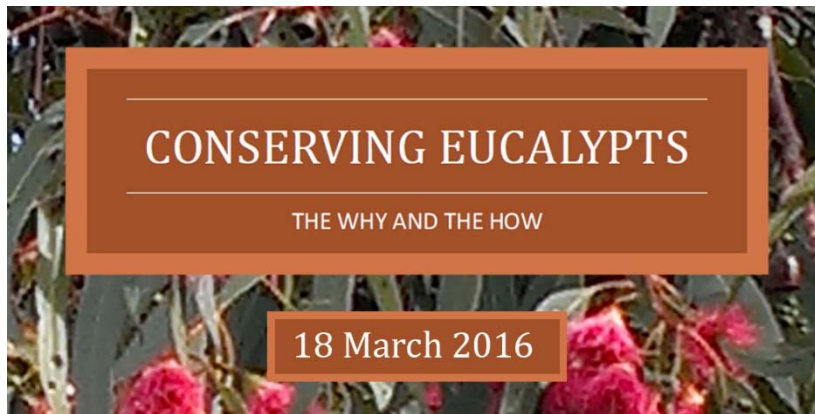
Book online now at <http://ow.ly/SSLDx>, call or email the RSV office to secure your place: 9663 5259, rsv@sciencevictoria.org.au. Our lectures are free to members of the public with an optional gold coin donation to support our science programs.

Pre-Lecture Gatherings

If you plan to join us for refreshments prior to our lecture, please register your attendance so we can anticipate catering requirements. **All most welcome.**

To register for any of our events: go online at <http://ow.ly/OEY92>, phone 9663 5259, or email rsv@sciencevictoria.org.au

**ADVANCE NOTICE - 2016 SYMPOSIUM
CONSERVING EUCALYPTS: THE WHY AND THE HOW**



A symposium will be held on **18TH March, 2016**, in partnership with the **Bjarne K Dahl Trust**.

"Let us regard the forests as an inheritance, given to us by nature, not to be despoiled or devastated, but to be wisely used, reverently honoured and carefully maintained. Let us regard the forests as a gift, entrusted to any of us only for transient care, to be surrendered to posterity as an unimpaired property, increased in riches and augmented in blessings, to pass as a sacred patrimony from generation to generation."

- BARON FERDINAND VON MUELLER

The Bjarne K Dahl Trust and the Royal Society of Victoria present a one day Symposium highlighting eucalypt conservation and responses to climate change. The Symposium will focus on the evolution of the eucalyptus genus and seek insight to the future of Australian forests, woodlands and biota.

Conserving Eucalypts will be of interest to scientists and eucalypt forest managers interested in identifying responsive actions to changing conditions in the 21st century.

Featuring the following leading researchers in forest ecology, the biosciences, and environmental and resource management:

Associate Professor Peter Vesk, Associate Professor Patrick Baker, Professor David Lindenmayer, Dr Suzanne Prober, Professor Andrew Bennett, Professor Brad Potts, Dr Michael Bayly, Professor Michael McCarthy, Associate Professor Kevin Tolhurst.

Venue: Ellery Theatre, the Royal Society of Victoria, 8 La Trobe St, Melbourne.



Registrations will open **mid-October**, with early bird registrations closing on **1 December 2015**.

Registration will be priced at \$130 for general admission (early bird \$95), \$70 for students and concession holders. **Save the date, and look out for an email announcement mid-October!**

Dr Marcus Doherty wins the 2015 Phillip Law Postdoctoral Award for the Physical Sciences



We are delighted to announce the [2015 Phillip Law Postdoctoral Award for the Physical Sciences](#) winner is Dr Marcus Doherty, a Postdoctoral Fellow with the Laser Physics Centre at the Australian National University.

Dr Doherty completed his Doctor of Philosophy with the University of Melbourne in 2012, winning the University's Chancellor's Prize for Excellence in the PhD thesis for his work titled [The Theory of the Nitrogen-Vacancy Colour Centre in Diamond](#). He was supervised by Professor Lloyd Hollenberg in the University's School of Physics.

Since completing his PhD, Marcus has been engaged in theoretical and collaborative research with the Laser Physics Centre at the Australian National University, undertaking further research into the properties of the colour centres in semiconductors and their applications in quantum technologies.

His total citations according to Scopus and Google Scholar are 419 and 693 respectively, underpinned by extensive collaborations with world-leading research groups based at Harvard, Stuttgart, Ulm, the Carnegie Institute, Berkeley, City College New York, and the Universities of Queensland and Melbourne.

Dr Marcus Doherty's future research will focus on demonstrating "coherent spin transport" in diamond, which is currently a major barrier in the development of solid-state quantum information processing for application in quantum computing.

Dr Doherty will be presented with his award and deliver the 2015 Phillip Law Postdoctoral Award

Lecture on the evening of Thursday, 22 October on the subject "[The Quantum Age of Diamond](#)."

The 2015 Young Scientist Research Prizes

Eight remarkable young men and women presented their work to a meeting of the Royal Society of Victoria on the night of Thursday, 24 September. Over a two hour session, our audience was treated to the very latest research by Victoria's emerging researchers across four categories (and eight disciplines) of science. It was a thrilling journey, made more so by the enthusiasm and passion of the presenters for their work.



Young Scientist Research Prize Finalists with RSV President Bill Birch

It was a particular pleasure to have a large, excited gathering of candidates, supervisors, families and friends at the Royal Society of Victoria's Hall for a warm evening of celebration with our members. We welcome all 64 of our entrants as new members of the Royal Society of Victoria in 2016. This is a busy time in a young scientist's life, pursuing postdoctoral work and getting established, and we aim to provide a platform for meaningful engagement with Victoria's science community as we do for members of any age.

The results for each category are as follow:

Biological (Non-Human) Sciences:

Prize Winner:

Anna Flanagan-Moodie, Deakin University
Prescribed Burning Decreases Den Site Habitat of the Yellow-footed Antechinus (*Antechinus Flavipes*)

Supervisor: Andrew Bennett

Runner Up:

Kelly Stanger, University of Melbourne

Bacterial Enteritis in Merino Weaners in South-Eastern Australia

Supervisor: Helen McGregor

Biomedical & Health Sciences:

Prize Winner:

Eamonn Fahy, University of Melbourne
Glaucoma and the Road to Recovery

Supervisor: Jonathan Crowston

Runner Up:

April Philpott, Monash University
Investigating Neuronal Function Using Brain Stimulation in Huntington's Disease

Supervisor: Nellie Georgiou-Karistianis

Physical Sciences:

Joint Prize Winner:

Edward Nagul, University of Melbourne
Ultra-Trace Determination of Orthophosphate in Waterways Using Polymer Inclusion Membranes & Flow Injection Analysis

Supervisor: Spas Kolev

Joint Prize Winner:

Catherine de Burgh-Day, University of Melbourne
Direct Shear Mapping: Measuring Weak Gravitational Lensing Directly for the First Time

Supervisor: Rachel Webster

Earth Sciences:

Prize Winner:

Stefan Vollgger, Monash University
Understanding the Relationship Between Deformation & Mineralisation – a 3D Geological Modelling Approach

Supervisor: Sandy Cruden

Runner Up:

Caitlin Gionfriddo, University of Melbourne
How Antarctic Sea-Ice Microbial Communities Transform Mercury: Implications for Methylmercury Bioaccumulation in Marine Food Webs

Supervisor: John Moreau

Congratulations once again to all our finalists! We will watch your careers unfold with great interest and will provide what support and mentorship we may.

Nominations for RSV Membership

Nominations for membership of the Society have been received on behalf of:

Ms **Elham AZIZI**, PhD Student

Ms **Sophia-Louise Simpson FRENTZ**, PhD Student

Dr **Jillian Maree GARVEY**, ARC DECRA

Michael GOOD, Research Historian

Dr **Alexander JOHNSON**, Senior Lecturer

Dr **Erin Lesley MATCHAN**, Research Fellow

Ms **Priya MOHANDOSS**, Postgraduate Student

Sayed Abdul Majid MORTAZAVI GHAZUINI, PhD Student

Dr **Battagodage Hemantha ROHITHA**, Biosecurity Officer

Dr **Raymond James SHAW**, Retired

Mr **Dylan John Graeme BRADY**, Architect

Unless Members request a ballot, they will be considered for election by Council and if elected, will be announced at the Ordinary Meeting of the Royal Society of Victoria held on 8th October.

Recently elected members who have not yet signed the Society's membership book nor received their certificate are invited to attend the 8th October meeting to be formally welcomed as members.

Donations & Bequests

Donations to the RSV Science Foundation are very welcome and can be made at any time. As we continue to build our Foundation in support of science literacy, activity, engagement and promotion in Victoria, we would be grateful if you could consider a contribution to this future fund as a component of your enduring legacy. This can be made as a **general bequest**, or be purposed towards a **specific activity**. To discuss **making a bequest** to the RSV Science Foundation, please contact Mike Flattley in the office.

Launch of the Australian Book Review's Annual Environment Issue – 7 October

ABR
AUSTRALIAN BOOK REVIEW

To celebrate the launch of their annual Environment issue, *ABR* will host a launch party at the Bjarne K. Dahl Trust's new home within the Royal Society of Victoria building on Wednesday, 7 October. Ashley Hay, this year's *Australian Book Review* Dahl Trust Fellow, will read from and discuss her feature article, 'The Forest at the Edge of Time'.

The Environment issue includes a major survey of leading environmentalists, scientists,

commentators and writers. Find out what people such as Ian Chubb, Tim Flannery, Jenny Gray, and Brian Schmidt regard as the most urgent action needed for environmental reform. Other highlights of this issue include a photo essay by Jo Daniell and reviews and commentaries by experts such as Tom Griffiths, David Schlosberg and our guest co-editor, Ruth A. Morgan.

Details: 6pm, Wednesday 7 October at the Royal Society of Victoria's Hall. **Free**, but bookings are essential and only a few places are left: rsvp@australianbookreview.com.au or call (03) 9699 8822.

Cultural Infusion Partnership



Through the outstanding work of our Outreach Committee chaired by Helen Gardiner, we have entered into a formal agreement to partner with Cultural Infusion to develop and deliver science-themed incursion modules to Australian schools.

Cultural Infusion are a social enterprise based at Collingwood College, designing and offering curriculum-aligned incursion modules for Australian primary and secondary schools. RSV member Pera Wells sits on their board and has brokered this productive new relationship.

As the name suggests, Cultural Infusion focuses on developing and delivering arts-based and cultural diversity-related school incursion modules, but are now working with the Royal Society of Victoria to develop a co-branded science offering, exploring the principles and processes of science practice through a cultural lens. In some cases this may be through further development of content produced by known science 'performers,' in other cases it may be through involving demonstrators from non-European backgrounds to discuss scientific principles and their origins or impact in countries and cultures of origin.

Proceeds from the program are directed to Cultural Infusion's international outreach program focussed on social cohesion, inclusiveness and intercultural understanding in Brazil, Cambodia, India, Egypt, South Africa and Indonesia. For more information, please refer to <http://culturalinfusion.org.au/>

A Sad and Very Fond Farewell to Ms Janet Jackson and Mr Alex Tsakmakis

This month, two of our longstanding staff members are finishing up with the Royal Society of Victoria. We're really not sure how we'll cope without them, but wish them all the very best for a long and happy retirement.



Alex Tsakmakis finished up with the Society on Tuesday, 29 September, marking almost eight years as our finance and administration officer.



Janet Jackson will finish her tenure on 9 October, marking almost 23 years (!) as our governance and membership officer.

I am deeply grateful for the support and comradeship of Alex and Janet during my turbulent start with the Society at the start of this year with James McArthur's sudden onset of illness. With James now on the road to recovery and transitioning back into the workplace, both Alex and Janet have indicated the time is right to finish up their work with the Society.

Both have been loyal, resourceful, hard-working staff members who consistently demonstrated great personal integrity in discharging their duties, frequently stretching to cover other roles in the front office. Their tenures have been marked by eras of great colour and drama in the Royal Society of Victoria's affairs and with their departure we lose a wealth of organisational knowledge, corporate memory and plain old history.

We will miss their dedicated professionalism, friendship and humour. Please join me in wishing Alex and Janet all the very best for a long and happy retirement; most richly deserved!

* * *

Meanwhile, we're looking a bit lean in the front office and have a period of sharp adjustment ahead of us. To constrain the Society's administration costs (and keep your fees down!), we'll be limiting our staffing to three part-time officers, including me – I do hope we can count on members' patience and volunteer assistance as we recalibrate. For the year ahead, you will have Malourie Crawford, James McArthur and me on deck as a lean and agile RSV crew. We look forward to providing excellent service and administration to the Society, its members and its many spheres of activity.

- **Mike Flattley, Executive Director**

Crowdsourcing the BoM Site – EOI Submissions



A Lecture Theatre and Café concept from Jenna Rowe

Members will be interested to note the wide range of submissions received with ideas, big and small, wild and wonderful, for the Society's "BoM Site," the fenced triangle of land formerly occupied by the Bureau of Meteorology (BoM) at the corner of La Trobe and Victoria Streets, boasting two stunning choices of address: "1 Victoria Street" or "2 La Trobe Street!"

We have arranged these by category [online](#) at our web site for your review and comment. You can even vote on your favourites! This has proven to be a valuable exercise in creative thinking from the Melbourne community and an excellent way to frame a further conversation with the City and State around the potential for our vacant site.

You can review the submissions online at <http://ow.ly/SSKOM>.

The RSV Research Medal Lecture: Using Climate Science to Inform Decision Making

Our new Patron, **Her Excellency Linda Dessau AM, Governor of Victoria** has confirmed she will attend with Judge Anthony Howard to award the RSV Medal for Scientific Excellence to Professor David Karoly following his lecture on the evening of **10 December 2015**.

Please be advised all lecture-only tickets are now booked out. Remaining places are reserved for those attending the **President's Soiree**, our annual dinner which follows the lecture in the Burke & Wills Room – please see details below.

2015 President's Soiree

The annual end of year dinner, the 'President's Soirée' will be hosted by Dr William Birch AM in the Burke and Wills Room immediately following the 2015 Royal Society of Victoria Research Medal Lecture by Professor David Karoly on **Thursday 10th December, 2015**.

We warmly invite members and guests to the lecture and Soirée, a convivial evening of celebration for science in Victoria and reflection on the achievements of our Society. Tickets for the three course, sit down, buffet meal with beverages cost \$90.00 per head. Numbers are strictly limited to the first 50 paid bookings, so please act early to secure your place!

To book, either return the booking form below to the Royal Society of Victoria **with full names of all guests** and your cheque or credit card details, or contact Malourie Crawford on 96635259 or at malourie@sciencevictoria.org.au.

BOOKING FORM:

2015 RSV PRESIDENT'S SOIREE

I/we wish to attend the **President's Soirée** following the **2015 Medal Lecture** on **10th December, 2015**

*Cheque enclosed for \$..... (\$90.00 per person) or fill in the **Visa or MasterCard** Credit Card authority below*

Card No.

Name on card:.....

Expiry Date/.....

Signature:.....

Tel No.

Email@.....