



THE BULLETIN 448

THE ROYAL SOCIETY OF NEW SOUTH WALES

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FEBRUARY 2021

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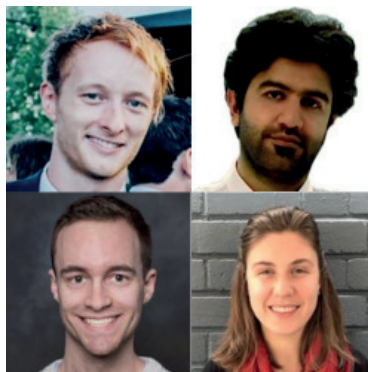
Patron of The Royal Society of NSW

Her Excellency The Honourable
Margaret Beazley AC QC
Governor of New South Wales

1290TH OGM AND OPEN LECTURE

Royal Society of NSW 2020 Student Award Presentations

Wednesday, 3 February 2021



Matthew Donnelly, UNSW Sydney

Sajad Razavi Bazaz, UTS

Daniel Fox, ANU

Philippa Specker, UNSW Sydney

Date/time: Wednesday 3 February 2021, 6:30 PM

Venue: [Zoom Webinar](#)

Entry: No charge

Enquiries: [via email](#)

All are welcome.

See [page 4](#) for more information

From the President

Here's a warm welcome to 2021, the year of our 200th birthday. Because the Royal Society traces its origins to the Philosophical Society of Australasia, founded in Sydney on 27 June 1821, in the middle of this year we will start a full year of birthday celebrations. For all of us, it will be a year to remember.

Many will say, in contrast, that 2020 was a year to forget, but for the Royal Society it was actually a year of triumph over adversity. In spite of the pandemic, we knew we had to continue to provide intelligent nourishment for our many members, so we had to learn to offer all our activities online, and then to preserve them on our [YouTube channel](#) for later viewing. I think the Society can claim to have completed this in splendid form, with 18 individual lectures or events added from 2020. The recorded events include all the lectures from our monthly ordinary general meetings, and lectures from the Hunter and Southern Highlands Branches. They also include the excellent **Ideas@TheHouse** presentation on the early maps of Sydney, and the day-long annual Forum of the Royal Societies and the Four Academies, on the topic 'After COVID 19 — creating the best of times from the worst of times', represented by 13 individual videos of the presentations.



The Society also did much work behind the scenes in 2020 — for example, by revising the outdated rules that govern the Society, developing a strategic plan, and appointing its first Executive Officer.

What are my hopes and dreams for the coming year? To begin with, I would like to see many of our events return to face-to-face presentations, as well as being available for subsequent viewing on our [YouTube channel](#). But this will present us with new challenges. First, there are significant financial and technical challenges involved in hosting events that are both face-to-face and also recorded for later viewing. Secondly, there is the pandemic. We have all learned that the virus can continue to resurface even in our lucky country, making it likely that COVID-19 restrictions will continue for some time. But COVID-imposed restrictions on seating at events can lead to disappointment, and make it difficult or impossible for events to cover their costs. There is also the issue that we are reluctant to expose our often vulnerable members to risk. For all these reasons, most of the Royal Society events will continue to be held online until the middle of 2021.

My broader dream for the Royal Society is that its membership will continue to grow in numbers, and in the opportunities and events it provides for its members and the broader community. To facilitate this, we will need to ask more of our members. For a start, do please consider making one or more nominations of new Members or Fellows. Further growth is a necessary key to our continued vitality. Next, do please consider assisting the Society in whatever way you can, whether as a greeter at future face-to-face events, as a hands-on volunteer at the library, as a member of one of our committees, or financially — through a donation, or through planning a future bequest. Frankly, the Royal Society does need to strengthen its financial base if it is to reach its true potential as a vital force in Australian society.

(continued overleaf)

From the President (continued)

My hope is that each of us will give whatever support that he or she is able to give, and also that soon enough we will be able to enjoy bicentennial events and each other's fellowship in real life.

And here is one cost-free way you can help now: in November of this year, the Royal Society will join with the Four Scholarly Academies to present this year's Forum at Government House. We are right now working on the topic for the Forum. Please give us your view as to the best topic (together preferably with a snappy title) for this year's Forum.

Above all, be safe.

Ian H Sloan AO FRSN FAA
President, Royal Society of NSW

Welcome to new Fellows and Members

The Society is pleased to welcome the following new Fellows and Members to the Society. They were elected at the Ordinary General Meeting held on 9 December 2020. We hope that each of you enjoys your membership and is able to participate in all that the Society has to offer.

More information about [our recently elected Fellows](#) can be found on the Society's website.

Fellows

- Professor Noel Andrew Campbell Cressie
- Professor Jason Peter Evans
- Professor John Germov
- Dr Saul Thomas Griffith
- Professor Andrew Simon Killcross
- Professor Johannes Paul Martin le Coutre
- Professor Adam McCluskey
- Dr David George Nash
- Professor Paddy Nixon
- Professor Jane Helen Simpson
- Professor Dacheng Tao
- Professor Franciscus Antonius Josephus Verstraten
- Professor Albert Yousif Zomaya

Members

- Mr Clive Baldock
- Mr Joshua Bonsing
- Mr John Michael Cameron
- Mr Anthony Grey
- Ms Cecelia Hannah Hibbert
- Mr Barrie Hill
- Mr Steven Patterson
- Associate Professor Qilin Wang

1290th OGM and Open Lecture

Royal Society of NSW 2020 Student Award Presentations

Matthew Donnelly, *UNSW Sydney*

Sajad Razavi Bazaz, *UTS*

Daniel Fox, *ANU*

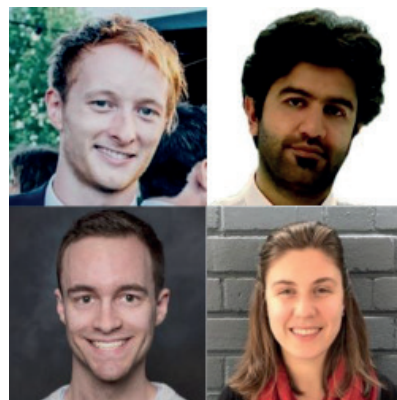
Philippa Specker, *UNSW Sydney*

Date: Wednesday 3 February 2021, 6:30 PM

Venue: [Zoom Webinar](#) ([Obtain help in getting started with Zoom](#))

Entry: No charge

Enquiries: [via email](#)



All are welcome.

The evening's program comprises four short talks presented by PhD Candidates who have been awarded the Society's Jak Kelly Award and the Royal Society of NSW Scholarships for 2020. Follow the links to read a summary of each presentation and a brief biography of the presenter.

- Mr Matthew Donnelly (Jak Kelly Award) — [Controlling how electrons move in silicon at the atomic scale](#)
- Mr Sajad Razavi Bazaz (Scholarship Winner) — [3D printed micro-engineered systems for life science research](#)
- Mr Daniel Fox (Scholarship Winner) — [Molecular Mechanisms of Inflammasome Activation by Enterotoxins of the Foodborne Pathogen *Bacillus cereus*](#)
- Ms Philippa Specker (Scholarship Winner) — [Improving the treatment of Posttraumatic Stress Disorder in refugees: The important role of emotion regulation](#)

About the speakers

Matthew Donnelly is a PhD candidate in the group of Prof. Michelle Simmons within the ARC Centre of Excellence for Quantum Computation at UNSW (Sydney). His research investigates monolithic donor structures in silicon and their application in spin-based quantum computing. In particular, he is focussed on using 3D fabrication techniques to precisely control tunnel rates and other parameters critical to the operation of spin qubits.

Sajad Razavi Bazaz is a PhD candidate in the a School of Biomedical Engineering of the University of Technology Sydney. His main research focus is to develop functional 3D-printed micro-engineered microfluidic devices for life science research. During his PhD journey, he has been able to develop a new functional 3D printing method for the fabrication of microfluidic devices. Toward his goals, Sajad and his colleagues have established a start-up company to develop 3D printed microfluidic devices for selective sperm selection in the IVF market.

1290th OGM and Open Lecture (continued)

Daniel Fox first started his research career as an undergraduate summer research student in the laboratory of Prof. Si Ming Man, in late 2017. Daniel went on to pursue and complete a first-class Honours degree in Medical Science in Prof. Man's lab in 2018, where he published work in the *Journal of Molecular Biology and Nature Microbiology*, both as a co-first, and co-author. He began his PhD in 2019, continuing in Prof. Man's lab, where he continued to characterise the innate immune response to clinically important, and neglected human foodborne pathogens. Since starting his PhD, Daniel has been selected to present his work at conferences both in China and the USA, has published first-author work in *Nature Communications*, and *Cell Research*, and has won two grants from the Gretel and Gordon Bootes Medical Research Foundation, totalling \$23,500 AUD. He hopes to continue to advance his work in innate immunity as a medical researcher in the future.

Phillipa Specker is a PhD candidate enrolled in the combined PhD/Master of Psychology (Clinical) Program at UNSW. Philippa's research is in the area of emotion regulation and refugee mental health, and seeks to understand how exposure to traumatic events impact on an individual's capacity to utilise emotion regulation strategies to manage psychological distress. Her research aims to advance knowledge regarding mechanisms underpinning trauma-related psychopathology, and inform the development of effective and tailored interventions for survivors of persecution and displacement. Philippa has published three peer-reviewed papers in leading journals including the *European Journal of Psychotraumatology* and *Clinical Psychology Review*, and has presented her research at three national and five international conferences. In recognition of her contribution to the field of traumatic stress through research, clinical work and community advocacy, Philippa received the International Society for Traumatic Stress Studies' Outstanding Student Achievement Award (2020) and was shortlisted for the Australian-American Postgraduate Fulbright Award (2020). Philippa is also a Clinical Psychology Registrar at the Refugee Trauma and Recovery Program, where she delivers evidence-based treatment for refugees suffering from PTSD.

Vale Maj Gen The Hon Michael Jeffery AC AO (Mil.) CVO MC FRSN

The Society was saddened to learn of the death of one of its most eminent Fellows, Major General the Honourable Michael Jeffery AC AO (Mil.) CVO MC FRSN, on 18 December 2020 at the age of 83. Following a distinguished career in Australia's armed services, General Jeffery retired in 1993 to assume the appointment of Governor of Western Australia, a post he held for almost seven years. For his services to the State, he was appointed a Companion in the Order of Australia, a Commander of the Royal Victorian Order, and a Citizen of Western Australia.

On his retirement as Governor in 2000 he established the not-for-profit research institute — Future Directions International (FDI) — whose object is to examine longer term issues facing Australia. On 20 December 2000, he was awarded an Honorary Doctorate of Technology by Curtin University; on 11 August 2003, he was sworn in as the twenty-fourth Governor-General of the Commonwealth of Australia, serving until 7 September 2008. In his later years he became a champion of the land of

Vale Maj Gen The Hon Michael Jeffery AC AO (Mil.) CVO MC FRSN

Australia, as Australia's first National Soils Advocate, concerned with soil health and the 'greening' our cities, and as the founder of Soils for Life, a national charity aiming to develop strategies to improve Australia's landscapes.

General Jeffery took great delight in being awarded a Fellowship of the Royal Society of NSW in July 2018 for his scientific advocacy. He was pleased to be able to attend meetings of the Society in Sydney when he could, the most recent being on 7 August 2019 when he listened to a talk by Professor Peter Shergold AC FRSN on 'Democracy under challenge: how can we restore a sense of citizenship?'. General Jeffery rose to the occasion quite literally and at the end of the talk gave the audience the unexpected benefit of hearing his own insights into this topic, about which he knew a great deal.

The Society recognises and applauds the extent of the work General Jeffery has done to encourage intellectual inquiry and human endeavour in this country.

Report: Hunter Branch

by Eugenie Lumbers (Branch Secretary)

On 2 December, the Hunter branch hosted a virtual lecture by Prof Tony Capon, Director, Monash Sustainable Development Institute. The meeting was hosted by the Chair of the Hunter branch committee (Paul Jeans) and moderated by the Vice-Chair (Prof John Aitken). Two advocates who argue for addressing the problems associated with climate change, namely Dr John Von Kalken from the Doctors for an Environmental Action, and Ms Georgia Brown who is a member of the Australian Medical Students Association, commented briefly at the end of Prof Capon's talk.

In 2021, the Hunter branch committee will host an AGM and election of office bearers. The AGM will be held immediately before the Hunter Branch's first event for the year; a lecture to be given by Dr Alan Finkel, the former Chief Scientist who is now heavily involved in the Nation's transition to a greater reliance on renewable energy sources in the future.

Other meetings planned for 2021 include a lecture by Professor Jason Sharples on mathematical modelling of bushfires, a lecture on the Royal Commission into Ageing, and a lecture by the Pro Vice-Chancellor for Indigenous Strategy and Leadership in the University of Newcastle, Nathan Towney. The lecture with Dr Finkel will be co-badged with the University of Newcastle and there will be another co-badged lecture during 2021.

The Hunter branch committee is actively pursuing the establishment of a Hunter Medal. The Medal shall be awarded by the Hunter Branch of the Royal Society of New South Wales to an individual who has made a novel ground-breaking contribution to research in any area of Science, Art, Literature, and Philosophy. Awardees need not have had a direct connection with the Hunter region, but the results of their research should have significance for the cultural, economic and social development of the region or the health and wellbeing of its communities. It is hoped that the Medal will be associated with a financial award and form the basis for a symposium to be held in the Hunter region.

Report: Events Committee

by Christina Slade (Chair of Events)

The Events committee met on 14 January 2021. It confirmed the proposed events for the year (over-leaf). While not all titles or speakers have been finalised, we now have an almost complete calendar for post-OGM lectures for 2021. I am grateful to all those who assisted in developing this. We aimed to give a broad general coverage of issues which exercised the Royal Society over its 200 years.

The first event of the year incorporates the Jak Kelly lecture together with the student scholarship winners' addresses. The President wrote to the Vice-Chancellors of Sydney, UNSW and Macquarie universities suggesting that they host Professor Richard Payne's Liversidge Lecture (Sydney), Professor Angela Moles' Poggendorf Lecture (UNSW) and Distinguished Professor Michelle Leishman's Clarke Medal lecture (Macquarie). We hope to schedule these in the second half of 2021, adding to the lustre of the Bicentennial Year.

Scientia Professor Richard Bryant, as recipient of the James Cook medal, will deliver a lecture in December 2021, following on the 2019 James Cook medallist Scientia Professor Matthew England's December 2020 presentation. Fellow Emerita Professor Mary O'Kane, the 2020 Royal Society of NSW Medal winner, will also address the society at its May meeting.

Given the current uncertainty and based on the best available information on the national vaccination plan schedule, as well as considering the need to provide certainty to speakers and to manage logistical matters, the Events Committee has recommended that all events of the Society through to, and including, June 2021 be planned for online webinar delivery.

We hope to be able to initiate a programme for New Fellows, with the able assistance of Emeritus Professor Brynn Hibbert, in the second half of the year. This will depend on a decision to return to face-to-face meetings.

The Society adopts revised Rules

On 9 December 2020, the Royal Society of NSW adopted [revised Rules](#). The task of rewriting and modernising the existing Rules (greatly assisted by The Hon John Dowd AO QC FRSN) was a major undertaking, with an aim to remove ambiguity and provide clear guidance for the Society to conduct its activities. At the 9 Dec OGM, the President announced that 167 members had voted in favour of the revision (5 were against and 2 abstained) — an overwhelming endorsement. The revised Rules were duly adopted from 9 December 2020.

List of proposed events for 2021

Kindly note that this is a provisional list and will be subject to change. Updates will be reflected in future issues of the Bulletin and on [our website](#).

Date	Event
Thursday, 18 February 6:30 PM AEDT	(Southern Highlands) Flora of NSW or its islands — exact topic t.b.a. Dr Kevin Mills
Wednesday, 3 March 6:30 PM AEDT	1291 st Ordinary General Meeting and Open Lecture What are the best options for growing Australia's mental health through the COVID-19 recovery? Professor Ian Hickie AM FRSN FASSA FAHMS
Thursday, 18 March 6:30 PM AEDT	(Southern Highlands) Sea level change and erosion on the Shoalhaven Coast — past and future Dr Howard Brady
Wednesday, 7 April 6:00 PM AEDT	154 th Annual General Meeting (6.00pm) 1292 nd Ordinary General Meeting and Open Lecture (immediately following) Antarctica, this ain't no mirage: The value of art in disseminating scientific information Lea Kannar-Lichtenberger
Wednesday, 5 May 6:30 PM AEST	1293 rd Ordinary General Meeting and Open Lecture Big, bad fires in NSW Emerita Professor Mary O'Kane AC FRSN FTSE HonFIEAust
Thursday, 20 May 6:30 PM AEST	(Southern Highlands) Mental Health — exact topic t.b.a. Dr Patrick McGorry
Wednesday, 2 June 6:30 PM AEST	1294 th Ordinary General Meeting and Open Lecture Murray-Darling Basin turmoil: past, present and future Professor Richard Kingsford FRSN
Thursday, 17 June 6:30 PM AEST	(Southern Highlands) Nuclear Fusion — exact topic t.b.a. Max La Galle
Wednesday, 7 July 6:30 PM AEST	1295 th Ordinary General Meeting and Open Lecture Society as an information-processing system, and the influence of the media Dr Erik Aslaksen FRSN

(continued overleaf)

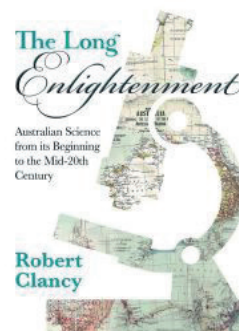
List of proposed events for 2021 (continued)

Date	Event
Thursday, 15 July 6:30 PM AEST	(Southern Highlands) Neutron scattering and the WOMBAT project Dr Helen Maynard-Casely
Wednesday 4 August 6:30 PM AEST	1296 th Ordinary General Meeting and Open Lecture Topic: 'Towards a Modern History of Gondwanaland' Speaker: Dr Alison Bashford, UNSW
Wednesday, 1 September 6:30 PM AEST	1297 th Ordinary General Meeting and Open Lecture Taking humour and laughter seriously: Exploring the multi-disciplinary field of humour studies Dr Jessica Millner-Davis FRSN
Wednesday, 6 October 6:30 PM AEDT	1298 th Ordinary General Meeting and Open Lecture Topic: Ethics, regulation and AI (to be confirmed) Speakers: Professor Toby Walsh Laureate and Scientia Professor UNSW FAAS FACM FAAAS FEAAI FRSN Sarah Court, Commissioner Australian Competition and Consumer Commission (TBC)
Date TBA November 9:00 AM–4:30 PM AEDT	Royal Society of NSW and Four Academies Annual Forum Venue: Government House, Sydney, Live Streaming and subsequent availability on YouTube Topic: To be advised
Wednesday 10 November 6:30 PM AEDT	1299 th Ordinary General Meeting and Open Lecture Topic: To be announced Speakers: To be confirmed
Wednesday 1 December 6:30 PM AEDT	1300 th Ordinary General Meeting and Open Lecture Topic: Managing Psychological Distress in Times of Stress: Handling the Stress of COVID-19 Speaker: Scientia Professor Richard Bryant AC FASSA FAA FAHMS — James Cook Medal Winner 2020

New book: 'The Long Enlightenment'

The Royal Societies of Australia and Halstead Press present a new book by Emeritus Professor Robert Clancy AM FRSN on the achievements of Australian scientists, both famous and forgotten, from the colonial period up until the mid-20th century.

Professor Clancy examines over 100 scientists and their work to discover what enabled the dramatic success of Australian research on both a global and domestic stage. This is no romantic celebration of an imagined golden age, but rather a study of the assets and obstacles that steered the course of scientific accomplishment in this country that seeks to answer the crucial question of what we can learn from the scientific thinking and practice of the past.



This important, new, well-illustrated hardcover work of 184 pages is now available at the special price of \$40 plus postage for all Members and Fellows of the Royal Society of NSW.

To obtain your copy, send your completed [order form](#) by email to the [Royal Societies of Australia Office](#) or by post to:

The Royal Societies of Australia
GPO Box 188
Canberra ACT 2601

The Royal Societies of Australia is a national umbrella organisation advocating for all of Australia's Royal Societies, including the Royal Society of NSW.

The Society and social media

The Society's presence on social media platforms is slowly but surely growing. Our [Facebook page](#) and [YouTube channel](#) continue to attract and engage followers and viewers, and we continue to build a repository of online events conducted recently on YouTube.

The icons on the right will take the reader to the platforms' respective pages, from where they can follow and subscribe to the Society, and be notified of new content.



Australia Day Honours 2021

The Society is pleased to note the awards in the 2021 Australia Day Honours that have gone to Society Fellows: an Officer of the Order of Australia to **Professor Eileen Baldry AO FRSN**; an Officer of the Order of Australia to **Emeritus Professor Christopher Fell AO FRSN**; and a Member of the Order of Australia to **Dr Ronald Webber AM FRSN**.

Professor Baldry, who is the Deputy Vice-Chancellor Equity, Diversity and Inclusion at UNSW Sydney, received her honour for distinguished service to tertiary education, to criminology and social welfare policy, and as an advocate for diversity, equity and inclusion.

Professor Fell, a former Deputy Vice-Chancellor (Research) at UNSW Sydney and Chair of the Board of the Australian National Fabrication Facility, received his honour for distinguished service to science and engineering, particularly to nanotechnology research and fabrication, and to professional networks.

Dr Webber received his honour for significant service to the building and construction sector.

The Council of the Society extends its warmest congratulations to each of those so honoured on Australia Day 2021.

AUSTRALIA DAY 2021 HONOURS

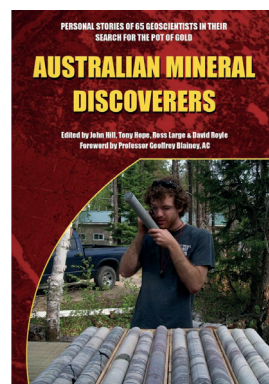


New book: 'Australian Mineral Discoverers'

The Royal Society of Tasmania recently launched a seminal publication, *Australian Mineral Discoverers*, at the University of Tasmania, Hobart. One of the Editors is John Hill, a Member of the Royal Society of NSW.

In this book you will read 65 exciting and sometimes unbelievable stories of the life and achievements of a cross section of Australian mineral explorers (1950–2010) who have advanced the science of discovery and contributed to the wealth of Australia for all Australians. Without these mineral discoveries, most in remote and inhospitable parts of Australia, many of us would not enjoy the high standards of living achieved in this country — in recent years, over 50% of Australia's export income has been derived from the success of the exploration-mining industry.

Australian Mineral Discoverers may be purchased for \$60 from the [Royal Society of Tasmania online store](#) or by [email](#).



Stewardship of Country from the Royal Societies of Australia

Stewardship of Country: The Common Ground — A Convergence of Traditions

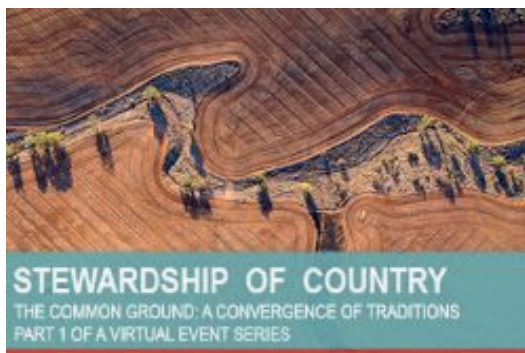
Presented jointly by the Royal Societies of Australia and Inspiring Australia Victoria

Date: Wednesday 24 February 2021, 6:00–8:00 PM

Venue: Live streaming on the [RSA Facebook page](#)

Enquiries: [via email](#)

Entry: No charge for [Facebook livestreaming](#). Paid [registration](#) is required for participation as a Zoom panellist (members eligible for a 50% discount).



All are welcome.

Join the Royal Societies of Australia for a collaboration with Inspiring Australia Victoria. Stewardship of Country is a series of three webinars that aim to generate a discussion of landscape and environmental stewardship bridging Indigenous, scientific, economic and social perspectives with supporting ideas for practical action and public good.

Webinar 1: The Common Ground — A Convergence of Traditions focuses on history and meeting of traditions, recognising the potential for European farming practices to adapt to an increasingly challenging environment, and the role of complex Indigenous knowledge systems developed over an astonishing stretch of time in rehabilitating the landscape.

This event will feature four presentations by:

- Adjunct Associate Professor Mary Graham of The University of Queensland
- Professor Peter Bridgewater of the Australian National University, Canberra University and Beijing Forestry University
- Mr David Pollock of Wooleen Station
- Mr Justin O'Brien, Dr Chris Brady and Mr Peter Christopherson of Gundjehmi Aboriginal Corporation.

with panellists:

- Dr Mark Stafford Smith, CSIRO Honorary Fellow
- Ms Verity Morgan-Schmidt, Gheerulla Creek Consulting
- Dr Tyson Yunkaporta, Deakin University.

Stewardship of Country will be conducted online as a Zoom webinar. Each event will be livestreamed on the [Societies Facebook page](#) free of charge; paid [registration](#) is open to those who would like to submit questions and engage in the session as audience members. A promotional code to unlock a 50% discounted ticket will be emailed to all members shortly.

Current Council and Office-Bearers

The current Council and office-bearers of the Society are:

Patron	Her Excellency The Honourable Margaret Beazley AC QC, Governor of New South Wales
President	Emeritus Professor Ian Sloan AO FRSN
Vice-Presidents	Emeritus Professor Brynn Hibbert AM FRSN (immediate past President) Dr Susan Pond AM FRSN Ms Judith Wheeldon AM FRSN
Secretary	Mr Bruce Ramage MRSN
Journal Editor	Emeritus Professor Robert Marks FRSN
Treasurer	Mr Richard Wilmott MRSN
Librarian	Mr John Hardie FRSN
Webmaster	Emeritus Professor Lindsay Botten FRSN
Councillors	Mr Ian Bryce MRSN Emeritus Professor Robert Clancy AM FRSN The Hon. Virginia Judge FRSN Mr Stuart Midgley MRSN Emeritus Professor Bruce Milthorpe FRSN Ms Nyrie Palmer MRSN Emerita Professor Christina Slade FRSN Adjunct Professor Robert Whittaker AM FRSN
Hunter Branch Representative	Professor George Willis FRSN FAA
Southern Highlands Branch Representative	Mr Mike Jonas MRSN

Editor: [Jason Antony](#)

