

MARCH 2020

NEWSLETTER

NUMBER 136



Science will solve this.

Message from the Chief Executive—March 2020

April 03, 2020



We hope this newsletter finds you safe and well during this challenging period. Whether it's bushfires, hailstorms or global health pandemics, each rely on science to inform our response and our recovery. Science has never been more critical to

securing our health and wellbeing and restoring our way of life. The Australian Academy of Science works to place science at the service of the nation.

Much as the Academy made available the knowledge and expertise of its Fellowship for the bushfires, we are similarly responding to COVID-19. There is no doubt that only science will solve this. Some of our activities include the **launch of a National COVID-19 Expert Database**¹ as a collaborative initiative with Australia's other learned academies. The database connects

experts with decision-makers so that they are able to make the most informed decisions possible about the many aspects of Australia's immediate and long-term response to COVID-19.

In addition, to assist the public better understand the rapidly changing COVID-19 environment, the Academy is producing **articles and videos**² which provide essential advice in plain language and allow the public to hear directly from scientific experts engaged in tackling COVID-19.

The Academy has **called on governments**³ to make public the data and evidence supporting decision-making so as to allow all scientific knowledge to be brought to bear to solve this global crisis. This is having some traction as we expect modelling underpinning federal government decision-making to be released early in April.

Finally, the Academy's education team is working hard to prepare **science and mathematics education resources**⁴ for parents and carers and students who have set up classrooms in the home. The Academy's STEM education resources are evidence based and are a highly valued by primary and secondary school teachers.

If you would like to support science, your valuable contribution will enable us to continue placing

1 www.science.org.au/news-and-events/news-and-media-releases/academies-join-forces-launch-covid-19-expert-database

2 www.science.org.au/curious/people-medicine/covid-19-facts

3 www.science.org.au/news-and-events/news-and-media-releases/australias-leading-scientists-call-data-underpinning-covid-19-decisions-made-public

4 www.science.org.au/education/academy-education

science at the service of the nation. You can **donate or partner with us**⁵.

Even though COVID-19 has affected our many events planned for 2020, there is still a good deal happening that we'd like to share with you—so please enjoy **reading this month's newsletter**⁶.

Wishing you good health,

Anna-Maria

Academies join forces to launch COVID-19 expert database

April 03, 2020

Today, the learned academies of Australia—representing over 3,000 of the nation's best and most eminent scientists, researchers and other experts—come together to launch **a searchable database of experts to help Australia tackle COVID-19**⁷.

Australian Academy of Science Chief Executive, Ms Anna-Maria Arabia, said the academies have created the COVID-19 Expert Database to provide a mechanism for governments, the business sector, the research sector and other decision-makers to easily access the expertise they need across many fields. The database is championed by Australia's Chief Scientist, Dr Alan Finkel AO.

"If you have expertise that can contribute to the national and global effort to tackle and recover from COVID-19, we call on you to register on this database," Ms Arabia said.

"All fields of expertise including science, technology, engineering, mathematics, health, humanities, arts, and social science are needed.

"Australia and the world will benefit from quick access to expertise that provides insights into the COVID-19 pandemic and its scientific, health, social, cultural and economic implications.

"The COVID-19 Expert Database is a public resource to inform decision-making in a fast-changing environment. By gathering the

extraordinary expertise across our nation in one place, Australian academies offer governments and others an opportunity to consult experts and take actions that are evidence-informed and targeted.

"Cross-disciplinary research has been the key to solving many of the world's greatest challenges and tackling COVID-19 will be no different," Ms Arabia said.

The COVID-19 Expert Database, championed by Australia's Chief Scientist, is a collaborative effort between Australia's learned academies, the:

- Australian Academy of Science
 - Australian Academy of Health and Medical Sciences
 - Australian Academy of the Humanities
 - Australian Council of Learned Academies
 - Academy of the Social Sciences in Australia
 - Australian Academy of Technology and Engineering.
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Australia's leading scientists call for data underpinning COVID-19 decisions to be made public

March 25, 2020



Academy President
Professor John Shine

The global COVID-19 pandemic affects all Australians and their loved ones at home and abroad. It is having a profound and enduring impact on our society, our resilience and our health.

As Australians we must do all that we can to aid those at the frontline including health workers

⁵ www.science.org.au/donate

⁶ www.science.org.au/academy-newsletter/mar-2020-136

⁷ www.science.org.au/covid19/experts

and others providing essential services, whose collective efforts are saving lives.

As the reported worldwide infections are escalating, it is vital that all Australians listen to, respect and act on the health advice provided by Australian governments that have received health advice from the Australian Health Protection Principal Committee, which is comprised of all state and territory Chief Health Officers and chaired by the Australian Chief Medical Officer.

There is no doubt that public health measures to slow transmission of COVID-19 are becoming and will need to become more robust as the days and weeks go on.

Every Australian, young and old, wherever they live, has a vital role in the effort to stop the spread of this virus. The Academy urges all Australians to do their part, follow the instructions of the authorities and take their role seriously.

As an independent and authoritative scientific adviser to the parliament and to the nation, the Academy draws on the scientific expertise of Australia's leading scientists—the Fellows of the Academy.

The science that underpins efforts to halt this pandemic is necessarily trans-disciplinary and draws on areas of translational research, clinical research and basic or discovery science. They include immunologists, virologists, geneticists, epidemiologists, mathematicians, biostatisticians, data scientists and a range of others.

The Academy's Fellows are doing all they can to contribute their scientific expertise to help decision makers, directly or indirectly, in the national and global interest. Indeed, their lifetime work is today paramount to the efforts to understand COVID-19, to chart its evolution, and to find anti-viral treatments and ultimately a vaccine that will restore our wellbeing and way of life.

Australia must make full use of leading scientists' expertise to deepen our understanding of COVID-19 and to sharpen our response. That is why the Australian Government must make public the scientific evidence that is informing its thinking. Importantly, the open publication of data and evidence supporting government decisions will

allow all scientific knowledge to be brought to bear to solve this global crisis.

A model for Australia to follow is that adopted in the UK, where the scientific evidence supporting the UK government response to COVID-19 is published by the UK Government Office for Science, led by the Chief Science Adviser.

Adopting such a model will place in the public domain the scientific evidence that is shaping the recommendation of the health and medical professions advising Australian governments. It should include findings and results of published and unpublished data.

In addition, in a fast-moving situation such as this, transparency must be at the core of government responses. It is critical that the public has confidence that governments are basing their decisions on the most up-to-date scientific advice and evidence.

While Australian governments have correctly been listening to and acting on the advice of health and medical professions and rightly taking into account the economic impact of their actions, more could be done by publishing the data and evidence underpinning their response.

The Academy calls on the Australian Government to publish the scientific evidence that is supporting its decisions so the scientific know-how of the nation can be brought to bear.

Only science will solve this.

Professor John Shine AC PresAA
President
Australian Academy of Science

The Academy's response to COVID-19

April 03, 2020

The Academy responded quickly to and continues to be very active regarding the COVID-19 pandemic.

The learned academies of Australia—representing over 3,000 of the nation's best and most eminent scientists, researchers and other experts—have launched a searchable database of experts to help Australia tackle COVID-19. Led by the

Australian Academy of Science, the academies created the **COVID-19 Expert Database**⁸ to provide a mechanism for governments, the business sector, the research sector and other decision-makers to easily access the expertise they need across many fields. The database is championed by Australia's Chief Scientist, Dr Alan Finkel AO.

The Academy has called for data underpinning COVID-19 decisions to be **made public by the Australian Government**⁹. In a statement, Academy President Professor John Shine said that open data would allow Australia to make full use of leading scientists' expertise to deepen our understanding of COVID-19 and to sharpen our response. He said that transparency must be at the core of government responses, so that the public has confidence that governments are basing their decisions on the most up-to-date scientific advice and evidence.

The Academy also supports international calls for science to form the basis of decisions worldwide, **including a statement from the science academies of the G20**¹⁰ to the leaders of the G20, and a **call for global solidarity**¹¹ from the Interacademy Partnership.

Information for Australians

The Academy is focusing its communications expertise on providing **fact-checked and reliable public information**¹² about the virus and its effects. By the end of March it had published 14 videos and one article, with many more in production. Videos cover interviews with experts on a range of topics, and include extended interviews with Academy Fellows Professor Peter Doherty, Professor Ian Frazer and Professor Eddie Holmes.

Collectively, the videos have been viewed by primarily Australian audiences more than 240,000 times on **Facebook**¹³ and 30,000 times on Twitter.

Uptake of the videos by the media has also been significant, with videos that answer questions including the effect of COVID-19 on children

and transmission of the virus especially popular. Academy videos have been embedded in news stories by Australian and international media more than 140 times with an additional 315 references to the videos and their content in news stories (including syndications).

Videos have been embedded by news.com.au and the News Corp and Nine stables of metropolitan mastheads including The Sydney Morning Herald, Guardian Australia, Pedestrian TV, New Daily, ABC News, Kidspot, the New Zealand Herald and more.



COVID-19: The Latest From Science - Episode 003
Watch on Vimeo: vimeo.com/402762499

Supporting science and mathematics education

The Academy is ready to support teachers and students. Its Australian Curriculum linked Foundation to Year 10 science and mathematics education programs are available online and remain free of charge. Plans are underway to customise these resources for the current circumstances. This involves liaising with teachers and state and territory education departments, as well as national agencies such as Education Services Australia and the Australian Curriculum, Assessment and Reporting Authority. The Academy is also scoping how else it can provide practical and engaging content and assistance for schools, teachers, students and families.

The Academy enjoys a long history of developing and delivering effective programs which make a positive difference to science and mathematics teaching and learning for teachers, students, and schools across the country.

8 www.science.org.au/news-and-events/news-and-media-releases/academies-join-forces-launch-covid-19-expert-database

9 www.science.org.au/news-and-events/news-and-media-releases/australias-leading-scientists-call-data-underpinning-covid-19-decisions-made-public

10 www.science.org.au/news-and-events/news-and-media-releases/academy-supports-statement-g20-leaders-covid-19

11 www.science.org.au/news-and-events/news-and-media-releases/academy-supports-iap-communique-covid-19

12 www.science.org.au/curious/people-medicine/covid-19-facts

13 www.facebook.com/AustralianAcademyofScience/

Academy supports statement to G20 leaders on COVID-19

March 27, 2020



Map of COVID-19 cases from the World Health Organization dated 26 March 2020

The Academy supports an international approach to the COVID-19 pandemic based on science. Data visualisation from WHO, 26 March 2020

The Australian Academy of Science supports the below statement made this week on behalf of the S20, the science academies of the G20.

The statement's three key points are that:

- decisions must be based on scientific evidence
- approaches must be international, not national
- beyond the current pandemic, there are similar emergent threats to our future wellbeing for which we must prepare.

It is this Academy's strong position that responsibility for coordination of an effective international response to COVID-19 must involve scientists and clinicians, who have the skills and experience to provide the best advice on how to minimise the impact of the pandemic. To support scientists, the Academy recently called for **data underpinning COVID-19 decisions to be made public**¹⁴.

Science 20 Statement to G20 Leaders on the COVID-19 Pandemic

24 March 2020

On behalf of the Science Twenty (S20) G20 Saudi Arabia engagement group representing the G20 Academies of Sciences, we welcome the Saudi

G20 Presidency's call for an extraordinary virtual G20 Leaders' Summit this week to advance a coordinated response to the COVID-19 pandemic and its human and economic implications.

The coronavirus pandemic is still unraveling, but its global impact is already staggering. Any hope of a better outcome for this and other similar threats in the future requires evidence-based policies, global collaboration and coordinated actions, and investments in goal-oriented basic and applied research. The unprecedented impact of COVID-19 compels a framework for action that positions science at the core of decision-making.

We, the Science 20, call on the G20 Leaders to fasten policy development and decision making on scientific evidence. Scientific research continues to improve our understanding of the fundamental nature of communicable diseases, as well as its broader connections to risk factors associated with environment, human-animal interactions and socioeconomic considerations. Scientific knowledge is essential for developing strategies for prevention, control and intervention. Epidemiological modeling that assimilates the best science available can guide robust and effective policies to slow and arrest the spread of COVID-19 and to better communicate risk and uncertainty to the public.

The COVID-19 pandemic is also a stark reminder that we are an interconnected world. Our linked existence is the platform for viral spread, yet it is also a major instrument for fighting back. Scientific research is a collaborative enterprise, and it is through cooperation and sharing of accumulated knowledge and best practices that we can impede the unfolding impact of the COVID-19 pandemic and improve future preparedness and response. Sharing real-time information and knowledge will lead to improved strategies and actions for preventing, responding and controlling outbreaks and pandemics. Global cooperation is a must.

Beyond the present crisis, however, lies similar emergent threats to our future health and socioeconomic wellbeing. Whereas our understanding of viral pandemics continues to improve, COVID-19 sadly reminds us that we are far from equipped to prevent and respond to the

¹⁴ www.science.org.au/news-and-events/news-and-media-releases/australias-leading-scientists-call-data-underpinning-covid-19-decisions-made-public

next outbreaks. We need to build up and fill the gaps in our body of knowledge, and that can best be accomplished through global investment on goal-oriented basic and applied research on viral transmission, prevention and cure. Finally, the knowledge attained through these investments as well as the tools developed to fight back must also be promptly disseminated to benefit medical practitioners and frontline decision-makers.

Science must guide our collective response to COVID-19 and future global health threats. Through your leadership, we as global citizens first and scientists second have the opportunity to alleviate and gradually work together to prevent future outbreaks.

Anas Alfaris, PhD

Chair, S20 Saudi Arabia 2020

Academy supports IAP communiqué on COVID-19

March 30, 2020

The Australian Academy of Science supports the below statement made recently by the **InterAcademy Partnership**¹⁵. The Academy joins with over 100 other national science academies to offer these best possible scientific data and recommendations to all governments throughout the world. These proposals are based on a consensus of the best available research data, and will be discussed and modified in each country, including Australia, to take account of local circumstances.

The statement's three key points are that:

1. All countries to renew their commitment to collaboration based on whole-of-government and whole-of-society approaches.
2. Coordination in the communication of validated information worldwide, by intergovernmental organisations and others, is essential to enable strengthening of public health preparedness, informed by the best scientific evidence.
3. IAP recommends particular efforts to work with and support countries with weaker public

health frameworks and health care systems, perhaps especially in Africa and Southeast Asia where coronavirus infections are expected to increase soon.

It is this Academy's strong position that responsibility for coordination of an effective international response to COVID-19 must involve scientists and clinicians, who have the skills and experience to provide the best advice on how to minimise the impact of the pandemic. To support scientists, the Academy recently **called for data underpinning COVID-19 decisions to be made public**¹⁶.

World academies call for global solidarity on COVID-19 pandemic

March 27, 2020



World academies call for global solidarity on COVID-19 pandemic - Watch on YouTube: youtu.be/8loi5JECDNk

The InterAcademy Partnership (IAP) urges countries to collaborate, use and share science-based information, and help the developing world.

The current COVID-19 outbreak was first reported on 31 December 2019. On 11 March 2020 the World Health Organization (WHO) declared a pandemic. Today, under the InterAcademy Partnership (IAP), 140 medical, scientific and engineering academies from around the world call on the scientific and policymaking communities to come together to help control the spread of infection. IAP's aim is to encourage better and faster use of research and its outputs for the global public good.

"Many in the scientific community are expressing great concern that a willingness to coordinate action and share resources that was found in

¹⁵ www.interacademies.org/31840/About

¹⁶ www.science.org.au/news-and-events/news-and-media-releases/australias-leading-scientists-call-data-underpinning-covid-19-decisions-made-public

tackling previous pandemics such as HIV, SARS and avian influenza has not emerged to the same extent yet for COVID-19. It is time to change the tide,” says IAP President Volker ter Meulen.

IAP academy members constitute more than 30,000 leading scientists, engineers and health professionals in over 100 countries. **The new IAP Communiqué on COVID-19**¹⁷ emphasises the vital importance of doing more now to act collectively because effort on the global scale is essential to mitigate the spread of coronavirus in all territories. Firstly, countries must collaborate and make sure leaders in public health and governments work together to fight the outbreak, focusing on global-scale planning. Second, governments must use the best scientific evidence to strengthen public health preparedness and mitigate the socioeconomic impact of the COVID-19 crisis, for instance on supply chains. Third, IAP recommends rapid and coordinated action to work with and support countries with weaker public health frameworks and health care systems, especially in Africa, which have not yet recorded rampant coronavirus infection.

“IAP is now acting through its global academies network, together with the Global Young Academy and national young academies, to enable scientists in developing countries to draw on international scientific evidence to advise their own policy makers and citizens,” says Masresha Fetene, IAP Policy co-chair.

“China has been at the forefront of the response to COVID-19 and the Chinese Academy of Engineering has played a key role in that response. We stand ready to share our newly-gained knowledge and expertise of this disease with any country that requires it,” adds Depei Liu, IAP president and IAP Health co-chair.

“The credibility of academies comes not only from the scientific excellence of their members, but also from the fact that they are free of vested interests. In the last weeks, fake news and misinformation have spread rapidly both online and offline, so it is of utmost importance for policy-makers to listen to a reputable voice, which has past experience of sharing distilled wisdom on

complex issues requiring in-depth analysis on scientific basis,” highlights IAP Science co-chair Krishan Lal.

The **full statement**¹⁸ was signed by the Steering Committee members of the InterAcademy Partnership:

Volker ter Meulen, IAP President

Depei Liu, IAP president and co-chair IAP Health

Margaret Hamburg, co-chair, IAP Health

Krishan Lal, co-chair, IAP Science

Cherry Murray, co-chair, IAP Science

Masresha Fetene, co-chair, IAP Policy

Richard Catlow, co-chair, IAP Policy

Ten young scientists to represent Australia at Lindau Nobel Laureate meeting

March 04, 2020



These young scientists from Australia will be part of a group of 660 young scientists and 68 Nobel Laureates at the Lindau Nobel Laureates Meeting in Germany.

[UPDATE: The 70th **Lindau Nobel Laureate Meeting**¹⁹, scheduled for June and July 2020, has been postponed to 2021. The decision was made by the committees of the Foundation and the Council for the Lindau Nobel Laureate Meetings.]

Ten outstanding early-career researchers have been selected to attend the highly prestigious

17 tinyurl.com/IAP-COVID-19

18 tinyurl.com/IAP-COVID-19

19 www.lindau-nobel.org

annual gathering of Nobel Laureates and emerging scientists from around the world.

The delegates will represent Australia at the 70th **Lindau Nobel Laureate Meeting**²⁰ in Germany. They are part of a group of 660 young scientists from 101 countries who will meet with 68 Nobel Laureates from the fields of chemistry, physics, and medicine and physiology, including Academy Fellows Professor Brian Schmidt and Professor Elizabeth Blackburn.

The meeting will provide an opportunity for the young scientists to share their research, experiences and ideas with and gain inspiration from fellow emerging scientists and Nobel Laureates.

The Australian delegation will be led by renowned Australian mathematician and Academy Fellow, Emeritus Professor Cheryl Praeger.

The Australian PhD candidates and postdoctoral researchers attending are:

- Dr Ifrah Abdullahi—Postdoctoral Fellow, La Trobe University, who investigates neurodevelopmental disorders in migrant and refugee communities
- Ms Nicole Foster—PhD candidate, University of Adelaide, who develops tools for the management and restoration of coastal plant communities facing climate change
- Dr Emily Kerr—Postdoctoral Fellow, Deakin University Institute for Frontier Materials, who works on platforms for the diagnosis and management of chronic kidney disease
- Dr David Klyne— Postdoctoral Fellow, University of Queensland, whose research in neuro-immunology focuses on understanding acute to chronic pain
- Ms W. Y. Sarah Lau—PhD candidate, ARC Centre of Excellence for Engineered Quantum Systems, who studies quantum technologies for secure communication channels
- Mr Lukas Michalek—PhD candidate, Queensland University of Technology, whose research focuses on the surface characterisation of soft matter

- Dr Yauhen (Eugene) Sachkou—Postdoctoral Fellow, ARC Centre of Excellence for Engineered Quantum Systems, who researches superconducting circuits, quantum fluids and optomechanics
- Ms Kate Secombe—PhD candidate, University of Adelaide, who specialises in gastrointestinal physiology and oncology
- Mr Adam Sutton—PhD candidate, University of South Australia, who specialises in green analytical chemistry applicable to fields such as nanotechnology
- Dr Wenyue Zou— Postdoctoral Fellow, RMIT University, who focuses on applied chemistry research with applications such as sensor technologies

These researchers were **nominated by the Academy**²¹ and selected by the Council for the Lindau Nobel Laureate Meetings. They will receive a grant to enable their attendance at the event, which runs from 28 June to 3 July, through the generous support of the Science and Industry Endowment Fund (SIEF).

The delegates will also have the opportunity to join a SIEF Research Innovation tour visiting laboratories and businesses in Germany.

STEM Equity Monitor will help drive universal changes in gender equity

March 08, 2020

The Australian Academy of Science welcomes the Advancing Women in STEM 2020 Action Plan announced today by the Minister for Industry, Science and Technology, the Hon Karen Andrews MP.

Academy President Professor John Shine said the action plan is a key step to deliver the vision of Australia's **10-year plan for Women in STEM**²². The plan was developed by the Academy in partnership with the Australian Academy of

²⁰ www.lindau-nobel.org

²¹ www.science.org.au/supporting-science/awards-and-opportunities/lindau-nobel-laureate-meetings

²² www.science.org.au/support/analysis/decadal-plans-science/women-in-stem-decadal-plan

Technology and Engineering following wide ranging consultation with the STEM sector.

“The Government is clearly committed to delivering on the vision of the 10-year plan. Their action plan is focused on education, careers and visibility and a number of important initiatives on changing practice, data and evaluation,” Professor Shine said.

“If you can’t measure it, you can’t improve it. The 10-year plan for Women in STEM makes clear that most gender equity programs in STEM in Australia, apart from a handful of programs such as the Science in Australia Gender Equity initiative, lack useful performance data and formal evaluation.

“The STEM Equity Monitor will play a significant role in tracking the impacts of initiatives across the STEM sector and inform the systemic changes required to achieve gender equity,” Professor Shine said.

The Academy also welcomes:

- the development of national evaluation guidelines for projects that support girls’ and women’s participation in STEM. Directly responding to the Women in STEM 10-year plan, these guidelines will enable program and initiative owners to undertake self-evaluation that is consistent and comparable across Australia
- the Australian peer-reviewed trial of anonymised ranking in the assessment of research funding proposals, to be conducted by Women in STEM Ambassador Lisa Harvey-Smith.

“No single sector or organisation can solve the under-representation of women in STEM nor remove the barriers they face,” Professor Shine said.

“Let’s celebrate our successes this International Women’s Day but also acknowledge that we have a long journey ahead when it comes to achieving gender equity and diversity in STEM.

“We will continue to work with the Government and the STEM sector to achieve the vision of the Women in STEM 10-year plan and to keep driving this systemic change.”

Managing wild and weedy Australia

April 03, 2020



The conference participants with the ‘Charlotte Pass Commitment’—a declaration of their commitment to continue working together to progress the six actions coming out of the conference. Photo: Tein McDonald.

In February, 28 expert practitioners, policymakers and multi-disciplinary academics met in Kosciuszko National Park at an Academy-supported Fenner Conference on the Environment. **Managing wild and weedy Australia across boundaries and disciplines**²³ aimed to evaluate whether Australia’s weed management is based on the best available scientific, local and Indigenous knowledge; and formulate actions for the future.

Six actions

The conference participants developed six actions that, if implemented, will radically improve weed management research, policy and practice in Australia.

1. Recognise weed management as a social relationship with the land

A transformative research and policy agenda is needed that recognises the role of humans in the landscape, and creates a culture of stewardship and shared responsibility.

2. Launch a Land Stewardship Knowledge Sharing Hub

A Land Stewardship Knowledge Sharing Hub enables innovative and dynamic knowledge

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sharing about weed management successes and failures.

3. Create a coordinated landscape

A network of coordinators embedded in diverse organisations is crucial to facilitate linkages and knowledge sharing between the on-ground weed management community and the agencies and groups who have resources and knowledge to support them.

4. Bolster Australia's weed defences through three critical control points

Weed prevention in Australia needs to be modernised through three critical control points:

- stronger risk management **at the international border** to address smuggling, non-declaration and deliberate mislabeling of likely and known weedy plants
- weed risk assessment **before plants are cultivated in Australia** to identify high risk plants that should not be grown for ornamental and primary industries purposes
- facilitation of **early detection in the landscape** through a well-resourced, coordinated surveillance and rapid response program.

5. Develop a circular economy for weed management

A circular weed management economy can be developed to regenerate, restore and rebuild the relationship between agroecological, social and economic systems.

6. Support needs-based transdisciplinary weeds research, development and extension

Transdisciplinary weed research, development and extension that is co-designed with agricultural and conservation stakeholders holds much potential for more effective management of challenging weed problems.

Strategic weed management in bushfire recovery

The six actions above can ensure strategic, cost-effective weed management during the bushfire response. Coordination across all fire-affected regions would promote weed management approaches that put the land first. Coordinators would facilitate links between communities and relevant organisations to prioritise weed management and leverage effort during recovery. They would embed weed prevention and hygiene measures so that recovery activities are not weed pathways, and enable the sharing of weed management stories from past fire-affected communities to more recently affected communities to improve responses.

About the conference

The conference was held at Charlotte Pass, Kosciuszko National Park, NSW, on Ngarigo Country, from 17 to 21 February 2020. Participants represented 18 organisations including Indigenous and community groups, non-government organisations, industry, government agencies and research institutes.

The conference was sponsored by the Academy through the **Fenner Conferences on the Environment**²⁴; the NSW Office of the Chief Scientist and Engineer; the University of Wollongong Faculty of Social Science; the Australian Centre for Culture, Environment, Society and Space; and the NSW National Parks and Wildlife Service.

Contact the organisers²⁵ for more information about the conference outcomes.



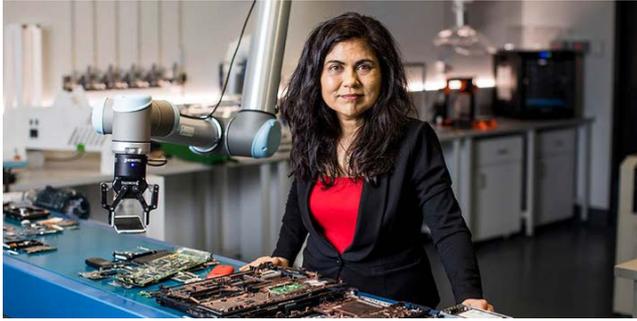
Listening to local knowledge, and to the land. Photo: Thomas Bach.

²⁴ www.science.org.au/fenner-conferences-environment

²⁵ wild-and-weedy.com/organisers/

Science policy update— March 2020

April 03, 2020



Professor Veena Sahajwalla explores the benefits of a circular economy in the Academy's first Science for Australians feature. Image adapted from: Anna Kucera / UNSW (used with permission)

Science for Australians launch

The Academy's 'Science for Australians' initiative was launched on 1 March. Science for Australians will illustrate the benefits of science to the public and discuss issues of importance to the Australian STEM sector through a series of peer reviewed feature articles, that cover a range of relevant issues and disciplines.

The first feature, **When going around in circles is the way forward**²⁶, is by Academy Fellow Professor Veena Sahajwalla and addresses the opportunity to reuse waste in Australia and develop a 'circular economy'. The publication of the feature coincided with the first National Plastic Summit, held at Parliament House, where government, industry, and academia came together to discuss and create solutions to the growing pile of recyclable materials.

More articles coming soon; you will find them listed under **latest features**²⁷.

Submissions and inquires

In February, the Academy provided the Senate Select Committee on the Multi-Jurisdictional Management and Execution of the Murray Darling Basin Plan with its 2019 report **Investigation of**

the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019²⁸. The report is a detailed, multi-disciplinary analysis of factors leading to the massive mortality events in fish near the township of Menindee. The report discusses in detail many issues of consequence to the inquiry relating to the management of a river system with insufficient water, lowered ecological resilience and inadequate policy structures.

The Academy also recently **made a submission**²⁹ to the Australian Human Rights Commission's (HRC) consultation on the **Human Rights and Technology Discussion Paper**³⁰. The submission supports the direction and sentiments expressed in the HRC's discussion paper, but also highlights the need for clearer definitions and further consideration to be given to the indirect consequences some of their proposals may have on, for example, scientific research. The submission was prepared with advice from the Academy's Fellowship, its National Committees for Data in Science and Information and Communication Sciences, and the Australian National University's Humanising Machine Intelligence research project.

See all the Academy's submissions³¹

Engaging with members of parliament

During February and March, the Academy's Chief Executive and the Director Science Policy met with members of parliament to introduce the Academy and its priorities for 2020, including the Minister for Education and Training the Hon Dan Tehan, the Minister for the Environment the Hon Sussan Ley, the Minister for Agriculture, Drought and Emergency Management, the Hon David Littleproud, the Deputy Leader of the Labor Party the Hon Richard Marles, the Shadow Minister for Climate Change the Hon Mark Butler, the Shadow Minister for the Environment Ms Terri Butler, the leader of the Australian Greens Mr Adam Bandt, Senator Rex Patrick, Senator Hanson-Young, Senator Griff Stirling, Senator Janet Rice and Senator Gerard Rennick.

²⁶ www.science.org.au/curious/policy-features/when-going-around-circles-way-forward

²⁷ www.science.org.au/curious/

²⁸ www.science.org.au/supporting-science/science-policy-and-sector-analysis/reports-and-publications/fish-kills-report

²⁹ www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-human-rights-tech

³⁰ tech.humanrights.gov.au/consultation

³¹ www.science.org.au/supporting-science/science-policy-and-analysis/submissions-government/submission-human-rights-tech

Representatives from the Australian Brain Alliance also met with advisers for the Minister for Industry, Science and Technology the Hon Karen Andrews, and Minister for Education and Training the Hon Dan Tehan.

Regular updates

If you'd like to receive an update every four months from the Academy that specifically focuses on science policy and diplomacy, **subscribe to our Science Policy and Diplomacy Newsletter**³².

Subscribe to Science Policy and Diplomacy Newsletter

April 03, 2020

The Academy recently published the second issue of its **Science Policy and Diplomacy Newsletter**³³, which highlights important science policy discussions and events in Australia and around the globe. It reports on the involvement of science in national and international policy and diplomacy, and the Academy's contributions to these discussions.

The big challenges and opportunities for nations around the world in the 21st century—economic, environmental, scientific and social—are inherently global in nature, and science has a critical role to play in helping to understand and respond to challenges and to realise opportunities.

The newsletter also highlights the ongoing work of the Academy's National Committees for Science and the science policy team, both of whom regularly provide feedback to government consultations. National Committees have recently made submissions on the Australian agricultural sector growth target, the inquiry into prerequisites for nuclear energy in Australia, and proposals to the reform of the government's data sharing and release legislation.

The newsletter is aimed at people working in areas of STEM and policy with an interest in science, technology and emerging research to inform discussion and assist evidence-based policy development and decision-making. It is also for those who engage in soft power activities through their national and global science networks.

The Science Policy and Diplomacy Newsletter is produced three times per year.

Subscribe to the Science Policy and Diplomacy Newsletter³⁴

Opportunities for scientists—March 2020

April 03, 2020

Academy awards and funding opportunities

Honorary awards, research conferences, research awards and travelling fellowships

Nominations are open for the Academy's 2021 honorary awards, and applications open for research conferences, research awards and travelling fellowships.

The Academy is committed to **celebrating and supporting diversity**³⁵. It is seeking nominations of outstanding scientists from all career stages, backgrounds and genders, and strongly encourages more nominations of women for all awards, in particular the career and mid-career honorary awards.

Two new career awards are the **Ruby Payne-Scott Medal and Lecture**³⁶ and the **Suzanne Cory Medal**³⁷.

The closing date for **honorary award nominations is 1 May 2020**.

The closing date to apply for research conferences, **research awards and travelling fellowships is 1 June 2020**.

32 www.science.org.au/academy-newsletter/mar-2020-136/subscribe-science-policy-and-diplomacy-newsletter

33 www.science.org.au/news-and-events/newsletters/science-policy-and-diplomacy-newsletter

34 newsletter.science.org.au/h/i/B556CA49FE52FE92

35 www.science.org.au/about-us/diversity-and-inclusion

36 www.science.org.au/supporting-science/awards-and-opportunities/ruby-payne-scott-medal-and-lecture-women-science

37 www.science.org.au/supporting-science/awards-and-opportunities/suzanne-cory-medal

More information on Academy awards and funding opportunities³⁸

APEC ASPIRE Prize

Applications are open for the 2020 APEC Science Prize for Innovation, Research and Education (ASPIRE Prize), with this year's theme being 'Biodiversity for a Prosperous Economy'. Applicants must be under 40 at the end of 2020 and be an Australian citizen, or an Australian permanent resident who is a citizen of an APEC member economy and living in Australia at the time of application.

More information on the APEC ASPIRE Prize³⁹

Applications close 24 April 2020

External awards

Jian Zhou Medal

The Australian Academy of Health and Medical Sciences Jian Zhou Medal is awarded annually to a rising star of Australian health and medical science who is making a significant impact in translational medical science, primarily working in Australia. The Medal is awarded at the Academy's annual meeting each October and recipients receive financial support for their travel costs to enable them to attend.

More information on the Jian Zhou Medal⁴⁰

Applications close 30 April 2020

South Australian Space Scholarships

Entrepreneurs and innovators will have the opportunity to further their career in space-related programs with the support of a \$20,000 South Australian Space Industry Centre's 2020 Space Scholarship. Part of the Space Innovation Fund, the program provides up to \$100,000 worth of scholarships each year for citizens or residents of South Australia.

Applications close 30 April 2020

More information on the 2020 Space Scholarship Program⁴¹

Young Tall Poppies

The Australian Institute of Policy and Science has extended the closing date for Young Tall Poppy nominations (there is no age limit; 'young' is qualified as in terms of research career and not biological age).

Nominations close 30 April 2020

More information on Young Tall Poppy nominations⁴²

Queen Elizabeth Prize in Engineering

Rewards and celebrates an individual (or up to five individuals) responsible for an innovation that has been of global benefit to humanity—£1 Million

Applications open 30 April 2020

More information on the Queen Elizabeth Prize in Engineering⁴³

Australian Museum Eureka Prizes

The Australian Museum Eureka Prizes closing date has been extended. The prizes reward excellence in the fields of research and innovation, leadership, science engagement and school science.

Applications close 15 May 2020

More information on the Eureka Prizes⁴⁴

See more external awards and prizes⁴⁵

38 www.science.org.au/supporting-science/awards-and-opportunities

39 www.science.org.au/supporting-science/awards-and-opportunities/apec-science-prize-innovation-research-and-education-aspire-prize

40 aahms.org/programs/jian-zhou-medal/

41 www.sasic.sa.gov.au/industry-and-grants/space-scholarships

42 aips.net.au/tall-poppy-campaign/nominations/

43 qeprize.org/nominate

44 australianmuseum.net.au/get-involved/eureka-prizes/

45 www.science.org.au/supporting-science/recognition/external-sources-recognition

Fellows update— March 2020

April 03, 2020

Honours and awards to Fellows

Professor Chennupati Jagadish AC FAA FTSE—elected as an International Member of the United States National Academy of Engineering for contributions to nanotechnology for optoelectronic devices

Professor Terry Hughes FAA—awarded an honorary Doctor in Science degree by Trinity College Dublin for his research on coral reefs and public stance on climate change

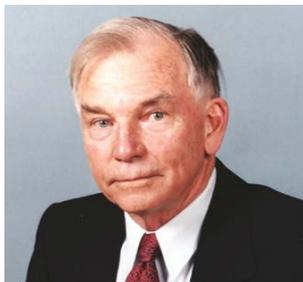
Professor Frances Separovic AO FAA—awarded the 2019 Margaret Sheil Leadership Award by the Royal Australian Chemical Institute for inspiring and mentoring junior female chemists and helping to provide a more equitable workplace

Obituary

**Professor Ian Reay Mackay AM FAA
FRACP FRCP FRCPA**

22 March 1922 to 24 March 2020

Professor Ian Mackay was elected to the Academy in 1991 for his outstanding contributions to clinical immunology, particularly autoimmune disease.



Professor Mackay led the field of research into autoimmune diseases and coined the term 'autoimmunity'. In 1963, he wrote the first text with Academy Fellow Sir Frank Macfarlane Burnet on the nature of autoimmune disease. Professor Mackay identified autoimmunity as one cause of chronic hepatitis and established diagnostic serological assays and showed that corticosteroid and immunosuppressive drugs reversed autoimmune inflammation in the liver. Professor Mackay described primary biliary cirrhosis as an autoimmune disease and his laboratory identified the autoantigenic mitochondrial

polypeptides and the nuclear gene coding for the major polypeptide, now recognised as part of the pyruvate dehydrogenase complex. His discoveries provided important insights into liver disease and autoimmunity in general.

Professor Mackay undertook medical research in the UK and US before moving in 1955 to the Walter and Eliza Hall Institute and the Royal Melbourne Hospital, where he was appointed Head of the Clinical Research Unit in 1963. Following his retirement in 1987, Professor Mackay held a research position at Monash University and in 2014, his book, 'Intolerant Bodies: A Short History of Autoimmunity', co-written with Academy Fellow Professor Warwick Anderson, was published. The following year, the book received the General History Prize of the NSW Premier's History Awards.

Professor Mackay was a Fellow of the Royal College of Physicians (London), The Royal Australasian College of Physicians and the Royal College of Pathologists of Australasia. In 1981 he was appointed a Member in the Order of Australia. In 1991 he was the Burnet Orator of the Australasian Society for Immunology and in 1992 he received the Gastroenterological Society of Australia's Distinguished Research Prize.

Professor Mackay generously gave his time to the Academy until the age of 90, serving on several committees. **See the tribute**⁴⁶ from the Walter and Eliza Hall Institute.

46 www.wehi.edu.au/news/vale-professor-ian-reay-mackay-am