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The Australian Society for Parasitology Inc.

NEWSLETTER

Volume 33 Issue No.2 December 2022

IMAGE *2022 National Science Week activities by ANU ASP members. Photo credit Melanie Rug, ACT State Representative.*

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The Australian Society for Parasitology Inc.

NEWSLETTER

Volume 33 Issue No.2 December 2022

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From the President's Desk

Dear Members,

We near the end of 2022 with a mix of celebration, fond memories, and reflection. The plethora of activity and achievements of our members has more than made up for the lull that was 2020-2021. The current newsletter is a testament to the passion and talent of ASP members who have enduringly promoted our discipline through outstanding standards in teaching, research, and outreach.

We farewell, fondly remember and pay our deepest respects to colleague, friend, generous mentor and 2022 Fellow of the Australian Society for Parasitology, Professor Don McManus. We also remember Distinguished Dr. Robin M. Overstreet and thank him for his contributions to the field of aquatic parasitology.

We celebrate the achievements of our many ARC, NHMRC and industry grant awardees and congratulate our members Professor Alan Cowman (WEHI) for being awarded The 2021 Florey Medal, Dr Charlotte Oskam (Murdoch) for being the recipient the 2022 WA Young Tall Poppy Award and Dr Scott Carver (Tasmania) for receiving the Barry L. Munday Recognition Award for wildlife health.

I'd also like to acknowledge the tremendous efforts and congratulate Chair Kevin Saliba and the incredible bid committee Nick Smith, Lisa Jones, Cam Raw, Aleta Knowles, Michelle Power, Adele Lehane and all the ASP attendees at ICOPA Copenhagen for their outstanding efforts in supporting the ASP's bid to host the next ICOPA 2026 in Sydney. Although the outcome was disappointing, we definitely won people's hearts through the overwhelming passion and collegiality demonstrated by our members. We should be extremely proud. Special thanks also

Jessica Bentley, Peirui Tan and Sebastien Gonzalez of Business Events Sydney provided exceptional support for our bid.

In other news, I met with Emma Hibbert, Member Engagement Officer, Science Technology Australia (STA) and learnt that ASP members could take advantage of the many benefits offered by STA which are outlined on page 65 of the newsletter. Thank you to Shokoofeh Shamsi (CSU) and Danny Wilson (Adelaide) for representing the ASP at the Australian Centre for Disease Control (CDC) consultation workshop in Brisbane, the first of many opportunities for the ASP's input.

Please save the dates for the ASP Annual Conference (5-8 September 2023) at Double Tree by Hilton, Darwin, co-chaired by Deborah Holt (CDU) and Steven Kho (Menzies) and the 2023 ASP Conference Organising Committee Kamil Braima (Menzies), Jacob Westaway (Menzies), Katrina MacMahon (Menzies), Danny Wilson (Adelaide University), Ben Lay (Menzies), Nick Smith (ASP Network) and Lisa Jones (Conference Co-ordinator).

From the President's Desk continued

I take this opportunity to thank the ASP Executive, the Council and Officers and to wish all of our members a safe, restful, and joyous holiday season.

Best regards,

Rebecca Traub

President of the ASP

www.parasite.org.au
www.facebook.com/ASParasitology
www.twitter.com/AS_Para

Vale Donald McManus

Remembering ASP Fellow Donald McManus.

It is with deepest sorrow that the ASP learned that our dear friend and colleague Professor Don McManus sadly passed away.

This devastating news came as a shock to us all. On behalf of the society, its members and associates, our deepest condolences are extended to Professor McManus's wife Hawy, their family and his research team at QIMR Berghofer.

Professor McManus was an active member of the ASP since migrating to Australia in 1989. This year, Professor McManus was elected a Fellow of the Australian Society for Parasitology, in recognition for his distinguished contributions to the advancement of parasitology and society.

In addition to this recognition, Professor McManus held a very decorated and distinguished career portfolio. Professor McManus was conferred as an Honorary International Fellow of the American Society of Tropical Medicine and Hygiene (2010) , Honorary member of the American Society of Parasitologists (2012), Fellow of the Society of Biology (UK) (2013) and Honorary member of the British Society of Parasitology (2020). In 2014 Professor Mc Manus was awarded the Ralph Doherty QIMR Prize, and in 2018 he was presented the Sornchai Looareesuwan medal for outstanding achievements and excellence in experimental and clinical tropical medicine research. In 2021 Professor McManus was awarded the NHMRC Peter Doherty Investigator Grant Award of Leadership, an award presented in recognition and acknowledgement of receivership for the highest ranked application in Emerging Leadership and Leadership categories of Investigative Grants.

Professor McManus devoted his life to the prevention and treatment of neglected tropical diseases. His research and contributions both personally and professionally, pioneered and paved the way for all future research advancements. Through tireless dedication, passion and hard work, Professor McManus's work ultimately birthed and shaped the policies and practices we now see in modern parasitic disease control throughout parts of Asia and Africa. His legacy is expansive and honorable, and to all those that knew and loved him, he will be deeply missed.

An Obituary for Professor McManus will follow.

On a personal note ... Don, thankyou for your incredible contributions to the field of parasitology. Your warmth, humility, and personal mentorship will be fondly remembered, always.

Sincerely,

Rebecca (Traub).

ASP Fellow Donald McManus receiving his ASP Fellowship at the 2022 ASP Conference and AGM from President Rebecca Traub and below Don McManus courtesy QIMR Berghofer MRI

ASP Fellowship awarded to Donald McManus

This news story is bittersweet as we have sadly just lost ASP Fellow Donald McManus. At the 2022 ASP Annual Conference in Cairns, we were honored to award Professor Donald McManus an ASP Fellowship which he was able to accept in person. The citation for Don's Fellowship award is published below.

The ASP were honoured to award Donald McManus ASP Fellow at the 2022 ASP Annual Conference and AGM.

Professor Don McManus is a distinguished, internationally-recognized parasitologist, Principal Senior Scientist and Head of the Molecular Parasitology laboratory at QIMR Berghofer Medical Research Institute in Brisbane.

Don received his PhD in 1973 from the University of Wales, UK, and was awarded a DSc in 1996 from that same Institution. His PhD thesis was on aspects of the metabolic biochemistry of digenean helminths. After the award of his PhD, Professor McManus was appointed as a Research Fellow and Lecturer at Imperial College in London, where he worked closely with Professor Desmond Smyth, a key figure in the establishment of the Australian Society for Parasitology and the International Journal for Parasitology. It was at Imperial College that Don was introduced to *Echinococcus* the agent of hydatid disease in humans and animals, providing the framework to develop his later research into the molecular biology and immunology of these and other helminth parasites. In 1984 he worked at the National Institute for Medical Research at Mill Hill in Dr Ron Smither's laboratory with Dr Andrew Simpson where he developed new skills in the fledgling sciences of molecular biology. His new knowledge and expertise resulted in breakthrough publications on the DNA and RNA composition of the *Echinococcus* organisms. Don's laboatory was the first to construct cestode DNA libraries, and he cloned the first *Echinococcus* genes, work for which he was awarded the XIII World Hydatid Congress (held in Madrid, Spain) Prize. His publications on this aspect of research include a landmark and highly-cited paper in 1992 on use of mitochondrial gene sequences to distinguish species of Echinococcus.

In 1989, Don moved to the Queensland Institute of Medical Research (now QIMR Berghofer) as Director of the Commonwealth Tropical Health Program. There he initiated pivotal PCR/direct-DNA sequencing for identifying genetic variation in helminth parasites, and for constructing molecular phylogenies for *Echinococcus*, and other flatworm species. His team developed methods now used globally by research groups working on helminth molecular genetics and functional biology. At QIMR Berghofer, Don established the life cycles of two schistosomes, *Schistosoma mansoni* and *S. japonicum* (and more recently the *S. haematobium* life cycle). His lab remains one of few groups globally that maintains complete schistosome lifecycles.

Among the many outcomes of Don's career have been the description of the complete genomic sequence of *S. japonicum* (published in 2009 as a cover article in *Nature*), and the draft genome of Echinococcus granulosus, published in Nature Genetics. He has since published with collaborative teams the genomes of *E. granulosus, Schistosoma bovis, Biomphalaria*, the intermediate snail host of *Schistosoma mansoni* and of the human lung fluke *Paragonimus westermani.* Don's extensive research into the epidemiology of *Schistosoma japonicum* highlighted the importance of water buffalo in sustaining the zoonotic life cycle in China. This work enabled the implementation of a range of One Health advances that has led to significant reduction in transmission and near elimination of the parasite in endemic regions of that country. Don's studies into functional biology of proteins expressed by *Schistosoma* and *Echinococcus* have led to numerous discoveries of proteins tested as candidates for vaccination, diagnostics and therapeutics of parasitic and other diseases.

One important translational outcome of Don's research was the development of an education package based around a cartoon video ("The Magic Glasses") for prevention of infection with soil-transmitted helminths. This education package was trialed in rural Chinese schools, where a 50% reduction of infection rates among the school

ASP Fellowship continued...

children was identified (published in New England Journal of Medicine, 2013). The Magic Glasses program has since been expanded to another rural area of China, the Philippines and Indonesia. The Magic Glasses was also a finalist for the 2014 Australian Infectious Diseases Research Centre Eureka Prize for Infectious Diseases Research.

Prof McManus is an internationally recognized scientist with an all-time H index of 97 (Google scholar). His publications since 2016 have recorded a H-index of 60. Don has published > 600 papers with more than 39,000 citations in journals including Nature, Nature Genetics, Nature Medicine, Clinical Microbiology Reviews, and the New England Journal of Medicine. He is an editorial board member of 13 journals, a board member of the RNAS (Schistosomiasis) and WHO steering committees on schistosomiasis, and zoonoses and marginalized infectious diseases of poverty. Don leads QIMR Berghofer's Asia Strategy, identifying the opportunities and challenges presented by the Asian Century. His relationships and collaborations are a foundation of QIMR Berghofer's strategy, which builds on his research, educational and cultural links to develop even stronger connections and partnerships in the region. He advises various authorities in Asia and the WHO on health issues impacted by schistosomiasis and other helminthiases and provides advice to Ministries of Health on control options for these diseases. He is regularly interviewed by Radio and Print journalists and visit local community groups, schools and colleges emphasising the importance of medical research to the community. He has participated in several reviews of institutes, research schools and departments in Australia and in the region. He also assesses grants submitted to various agencies and is regularly consulted to offer advice on helminth parasitic diseases to other researchers, clinicians, and the general public.

Prof McManus has mentored approximately 40 PhD students, over 40 post-doctoral fellows and numerous Masters and Honours students from Australia and internationally. Two of his PhD students have previously won the Australian Society for Parasitology Sprent Prize for best PhD theses. Many of his former students and postdocs have senior positions in academia or industry.

In 2010 he was conferred as an honorary international fellow of the American Society of Tropical Medicine and Hygiene, honorary membership of the American Society of Parasitologists in 2012, elected as a Fellow of the Society of Biology (UK) in 2013, and honorary membership of the British Society of Parasitology in 2020. In 2014 Don won the Ralph Doherty QIMR Prize and in 2018 the Sornchai Looareesuwan medal for his outstanding achievements and excellence in experimental and clinical tropical medicine research and his distinguished sustained contributions to the field of eliminating parasitic helminth diseases. In 2021 he was awarded he was awarded the 2020 NHMRC Peter Doherty Investigator Grant Award (Leadership) which recognises the highest ranked application in the Emerging Leadership and Leadership categories of Investigator Grants.

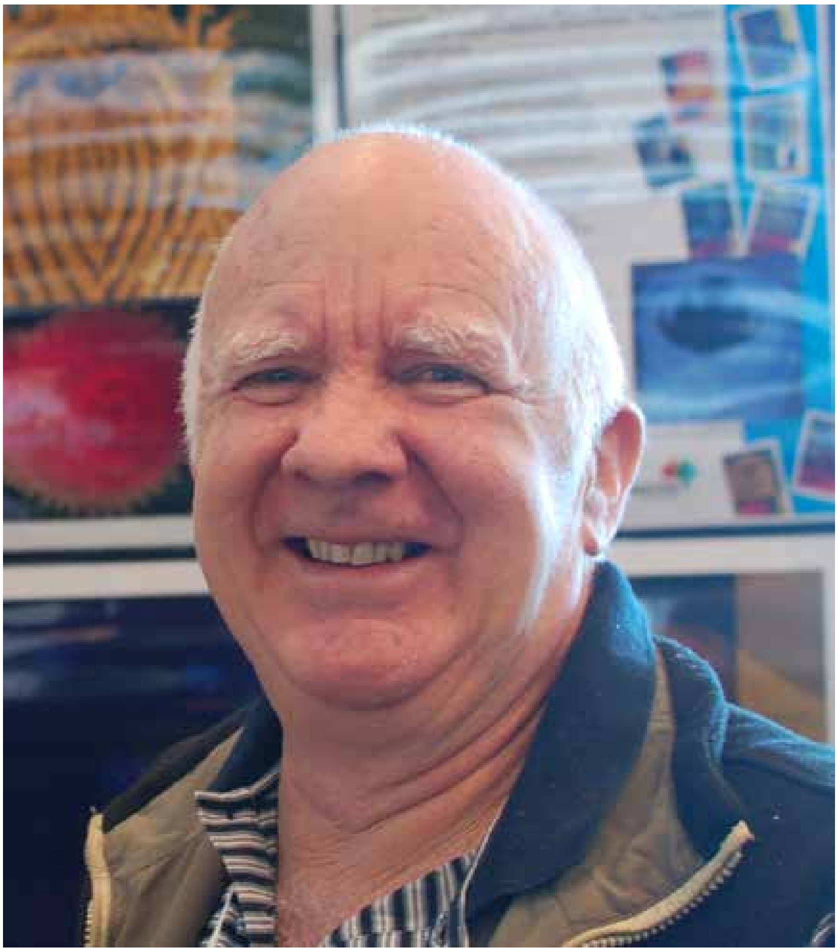
Don has been a member of the Australian Society of Parasitology since arriving in Australia and a regular participant in the Annual conferences of the society. Don has been an active collaborator with many society members. In view of Don's sustained contributions to Australian parasitology over thirty years, we consider Donald Peter McManus a worthy recipient of the title Fellow of the Australian Society for Parasitology.

6 July 2022

ASP AGM

ASP Fellowship awarded to David Emery

Congratulations to David Emery, awarded an ASP Fellowship at the 2022 ASP Conference and AGM. The citation for David's Fellowship is published below.



ASP Fellow David Emery

David has made an outstanding contribution to parasitology and parasite immunopathology through his extensive scientific publications, his role as a teacher at the University of Sydney and his role within the Society.

David has published 135 papers in refereed journals and ten book chapters across a wide range of parasitological and immunological topics. David graduated from the University of Sydney with BVSc, but his early interest in research was sparked through completion of BSc (Vet) during his veterinary degree program. David's genuine interest in immunology led him out of veterinary practice to complete his PhD in transplantation immunology and immunopathology at the Australian National University. David soon recognised the opportunities that infectious agents such as Theileria provide for understanding the of cell-mediated immune response while working at ILRAD (International Laboratory for Research on Animal Diseases) in Kenya on *Theileria* and *Trypanosoma*. David's curiosity led him to repurpose his transplantation experience to mix and match *Theileria* infected and uninfected lymphocytes. Soon, David had discovered the major immune response mechanisms in cattle that recovered from East Coast Fever (caused by *T. parva*) and rechallenge with the homologous isolate of *T. parva*. Due to David's early work in enabling vaccine development for East Coast Fever, it is quite poignant, that David is now leading research into Australian *Theileria* research and vaccine opportunities funded by major industry bodies.

On his return to Australia to the CSIRO Division of Animal Health, his initial research was on footrot in sheep before switching to immunoparasitology and publishing numerous papers on the immunity to ruminant nematodes and vaccination. David's critical contributions were in the demonstration of immunological mechanisms during trickle infection of neonates with *Haemonchus contortus* and *Trichostrongylus colubriformis*. David's emphasis was on maintaining animal models and experimental facilities for the development of novel surgical approaches to enable the study of ovine mucosal immunity and the development of reagents for the assay of ovine cytokines and mediators involved in innate and acquired immune responses. He also investigated the responses of the peripheral and mucosal immune systems to a comprehensive range of vaccine delivery systems, ranging from recombinant subunit moieties in a range of adjuvants to DNA, live attenuated vectors and slow, sustained release devices and participated as program manager in the CRC for Vaccine Technology.

In 2002, he joined the Faculty of Veterinary Science (now Sydney School of Veterinary Science, Faculty of Science) at the University of Sydney, initially as a senior research fellow and from 2004 as an Associate Professor then as Professor of Veterinary Immunoarasitology, the position he currently holds. During this period, he continued his research interest in resistance and resilience of livestock to internal parasites. David was the subprogram leader for the Host Resistance to Internal Parasites subprogram in Sheep Genomics within the University of Sydney funded by Meat & Livestock Australia and Australian Wool

ASP Fellowship continued...

Innovation. At the University of Sydney, he forged a strong collaboration with Yarrandoo R&D Centre (Novartis Animal health later Elanco Animal Health), close to the Camden Campus of the University of Sydney, on *Fasciola hepatica*. David's additional publications on diverse topics range from ticks, fleas, liver fluke and Theileria when it emerged as a problem in south-eastern Australia. He has also published 12 papers on the biology and taxonomy of cicadas.

The recent emergence of *Theileria orientalis* as a cause of serious illness in cattle allowed David to apply his past experience in an Australian context. Through collaboration with the Department of Primary Industries NSW, he defined the vector capacity of Australian arthropods to transmit the pathogen. Then, in collaboration with the Tick Fever Centre in Brisbane and support from Meat and Livestock Australia, Elanco Animal Health and Bayer Animal Health, led the way to demonstrate that immunisation of calves is a viable option to prevent or reduce the severity of the disease and production losses.

During his employment at the University of Sydney, he has also been active in coordinating research across institutions such as within the Sheep Genomics project and major industry initiatives including the potential for vaccines against gastrointestinal nematodes of small ruminants (B.AHE.0325) funded by Meat and Livestock Australia. As part of his activity, he has obtained grants worth more than $A3 million, managed in excess of >$A10 million and been involved in research culminating in three international patents.

Apart from undergraduate teaching in parasitology and immunology, and supervising 13 post-graduate students, he was also Pro-Dean in the Faculty of Veterinary Science from 2010-2014. Before then he was Associate Dean for Research in 2009 during which he implemented an agenda to align the Faculty of Veterinary Science with industry partners to improve opportunities for collaboration between the University and industry/stakeholder funding bodies. David has given over 120 scientific and technical presentations to a range of audiences from industry bodies, academics, farmers, students and the general public and has therefore played a significant role in outreach.

David Emery receiving his ASP Fellowship award on Zoom from the 2022 ASP Annual Conference and AGM.

David has been a member of the society for many years, Treasurer from 1994-1995 and was President from 2015 to 2017. One of David's most significant contributions to the Society was bringing the veterinary textbook to fruition. Although David insisted that all authors (and editors) be listed in alphabetical order, it was David who, over a six month period, devoted most of his time to getting the book finished and available for students from first semester the following year.

Given his long standing contribution to research and teaching in parasitology and his contributions to the Society, we consider David Emery a worthy recipient of the title Fellow of the Australian Society for Parasitology.

6 July 2022

ASP AGM

2022 BMM winner, Tania de Koning-Ward

Congratulations to Professor Tania de Koning-Ward who was awarded the 2022 Bancroft-Mackerras Medal for Excellence from the Australian Society for Parasitology. The nomination for Tania's award is published below.

2022 Bancroft-Mackerras Medal for Excellence winner Professor Tania de Koning-Ward

Professor Tania de Koning-Ward has made a substantial contribution to knowledge in the field of malaria, in particular to understanding the molecular basis for key events in the parasite's life-cycle. The work has the potential for wide reach impact – informing the development of new approaches to prevent and control malaria – a disease that causes more that 200 million cases and hundreds of thousands of deaths each year.

Professor Tania de Koning-Ward (TdK-W) has consistently conducted outstandingly high quality, influential research, evidenced by publications in top-ranked journals that have made an impact beyond the specific (3x Nature, Nature Immunol, 2 x Nature Comm, 2x J Exp Med, 2x PNAS, EMBO J, 3x PLoS Pathog) and publications in leading discipline-specific journals. Of her 79 publications, >90% are in the top 20% of their discipline; on ~50% she is either first/senior author. She has a H-index of 33 and her works are highly cited (3,932 cites, Scopus) with >250 cites/year in the last 5 years (4 articles >200 cites, 7 articles >100 cites, 17 articles >50 cites). The FWCI for her publications under the FoR code 'Medical and Health Sciences' is 1.53, the FWCI for Microbiology Field is 1.51 and for Biochemistry Field, Genetics and Molecular Biology is 1.4.

Her work has been recognised twice by Faculty 1000, leading experts (3 x commentaries) and national/international media (coverage > 160 outlets). As testimony to the quality and impact of her research, TdK-W has been awarded an NHMRC Howard Florey Centenary Fellowship (2000), a NHMRC CDF2 (2010; top ranked Fellow), an NHMRC Research Excellence Award (2010), the prestigious Commonwealth Health Minister's Award for Excellence in Health & Medical Research (2011), the Vice Chancellor Research Excellence Award (2010) and SMART Geelong Network awards (2x 2012). In the last 5 years, TdK-W has been invited to speak at 6 international and 4 national conferences (fully-funded), to lead and or contribute to 3 international (fully-funded) and 2 national workshops, and to present 5 seminars, of which one national and one international were fully-funded).

Contributions to the field

The ability of *Plasmodium* parasites to obtain essential nutrients and proliferate while evading host immune responses is fundamental to their ability to survive and cause malaria. This stems directly from *Plasmodium* parasites changing the structural and functional properties of their host cells and subverting host responses, however the molecular mechanisms underpinning host-parasite interactions have been largely unknown. TdK-W's research has provided paradigm shifting insight into this field.

As a postdoc in Prof Crabb's group and then as leader of her own group, she was crucial – and lead author - to discovering a new translocon unique to Plasmodium which provides a conduit for hundreds of parasite proteins to access and remodel their host erythrocyte, and a follow up study in collaboration with Prof Crabb and Dr Gilson at Burnet Institute provided pivotal proof that this translocon is essential for protein export *in vivo*. The significance of these findings can be evidenced by her first and senior author publications in Nature in 2009 [PMID: 19536257] and 2014 [PMID: 25043043] (>400 combined cites), respectively, and commentaries about these breakthrough findings in Nature and Nature Rev Micro.

2022 BMM continued...

This research has had very broad reach, evidenced by the high number of cites [317 (FWCI 4.38; indicates 4.33x world average)) and 150 times (FWCI 5.03)], respectively and coverage in >160 national and international media outlets. A major impact of this work has been the resulting explosion of research on protein export (>250 papers published since the translocon discovery), as well as invitations to present at international conferences, including cross-disciplinary conferences focused on protein trafficking, and to write review articles or commentaries in highly prestigious journals [Nature Rev Micro 2016 (PMID:27374802), Nature 2018 (30181625), Cell Micro 2019 (30656810)]. Further research demonstrating the core translocon components [Mol Micro 2013, PMID:23869529, 56 cites, FWCI 2.56] and the protease that selectively prepares proteins for export into the host cell [Nature 2010 (PMID 20130643), 218 cites, FWCI 3.3] are critical for parasite survival in vivo, including at other lifecycle stages [Nature Comm, 2020, PMID: 33159090], validates these proteins as drug targets.

TdK-W's recent work leading the detailed characterisation of the contribution of individual PTEX components to protein export [mBio 2019 (PMID: 31164473), FEBS J 2018 (PMID: 29637707) and Plos One 2016 (PMID: 26886275); senior author on all three papers], and with collaborators on how they assemble into a functional translocon complex [Cell Micro 2016 (PMID: 27019089)] and interact with other machineries to export virulence determinants [Nature Comm 2017 (PMID: 28691708)] will help pave the way to identify novel strategies to block export and kill the parasite. As part of the current NHMRC Synergy grant (APP1185354) TdK-W's research team and her joint PhD student with Crabb/Gilson lab at Burnet Institute is beginning to translate these discoveries by screening inhibitors that block export as well as other pathways essential to malaria parasite survival [Int J Parasitol 2020 (PMID: 321351790, European J Med Chem. 2021 (PMID: 33610028)].

BMM winner Professor Tania de Koning-Ward at work.

TdK-W's research team has also revealed the molecular basis of how malaria parasites alter the permeability of erythrocytes to obtain vital nutrients required for parasite survival [eLIFE 2017, (PMID:28252383), 57 cites, FWCI 3.37]. The new permeability pathways (NPPs) are a unique phenomenon and represent a new malaria drug target, but until this publication, there was controversy as to its molecular makeup. TdK-W and her team revealed that the RhopH complex, which is secreted from the rhoptry organelle during Plasmodium invasion of red blood cells, is critical for NPP activity. This RhopH complex interacts with several proteins essential to blood stage survival and in a collaboration with the Crabb/Gilson lab, her lab dissected the contribution of some of these exported proteins to RhopH trafficking and NPP activity [Cell Micro 2021 (PMID: 33774908)]. Her contribution to knowledge on Plasmodium nutrient uptake led to the publication of an invited review in Front Cell Dev Biol in 2021 (PMID: 33842474).

Central to TdK-W's research is the utilisation of sophisticated conditional gene knockdown tools to mechanistically dissect the function of essential parasite genes. Her research program is one of few worldwide with expertise in both human and rodent molecular transgenesis systems; this has provided the powerful opportunity to study the function of essential *P. falciparum* proteins in vitro combined with malaria infection in mouse models to study host-parasite interactions in vivo, including malaria pathogenesis and immunity. Invitations to write reviews on the latest developments in genetic engineering [e.g. Nature Rev Micro 2015 (PMID: 25978707), cites= 73, FWCI=2.26] and to train PhD students and postdocs around the world on the use of these technologies at two Wellcome Trust Malaria Experimental Genetics Workshops in the UK (2016) and Thailand (2018) (and previously in India in 2005 and Thailand in 2007) provide evidence of the significant contribution she has made in deciphering host-parasite interactions and parasite biology using these tools. Moreover, TdK-W's expertise in the mouse malaria mouse model has also

2022 BMM continued...

led to numerous collaborations, most notably with Prof Heath at the University of Melbourne that has resulted in 5 publications between 2008-2020 (e.g. Cell Host Microbes 2020 (PMID: 32396839) and J Immunol 2017 (PMID: 29084838) in which malaria peptide antigens and host immune cells that confer immunity to malaria have been identified. The mouse model is currently being used by TdkW in the NHMRC Synergy Grant to assess the efficacy of anti-malaria drugs synthesised by her co-CIs in vivo.

TdK-W has also made significant contributions to her profession by serving on Grant Review Panels for the NHMRC (2 in the past 5 years) and reviewing grants from 7 other funding bodies in the past 5 years (e.g. ARC, UK Medical Research Council).

She has previously served as Associate Editor for BMC Microbiology (2014-2020, IF 2.989), and is currently a specialist Editorial Board Member for the International Journal for Parasitology (since 2016)(IF 3.009/ Q1 Parasitology), Academic Editor for PloS Biology (since 2019)(IF 7.075 Q1) and is the co-Speciality Chief Editor for Parasite and Host Section of Frontiers in Cellular and Infection Microbiology (since 2020)(IF 5.293, Q1). She also reviews ~10 manuscripts each year for other journals (both discipline-specific journals and high impact generalist journals).

TdK-W has served on the Executive Committee for the Victorian Infection & Immunity Network (2011-2019), during which period she co-convened the Lorne Infection & Immunity Conference each year attended by national and international researchers. She also co-convened the prestigious International Molecular Approaches to Malaria Conference in 2020, the leading international conference of its kind in the malaria field.

TdK-W is an Executive member for the Institute for Mental and Physical Health and Clinical Translation (IMPACT) and leads research groups in the Infection, Immunity and Cancer Theme.

TdK-W has helped to trained future parasitologists and specifically in the past 5 years has been primary supervisor for 6 honours, 1 MPhil and 9 PhD students (4 completed, 2 under examination), as well as 5 Postdocs and 3 Research Assistants on parasitology-related projects.

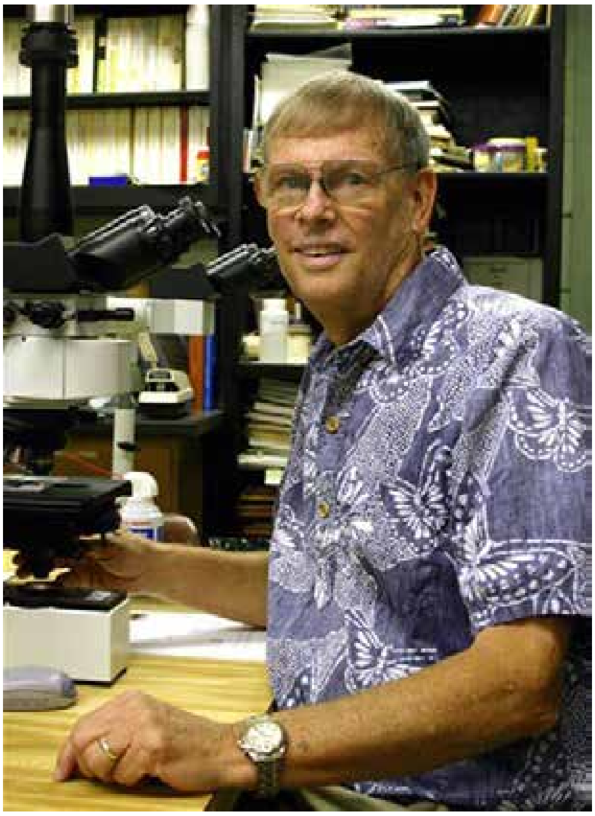
Professor de Koning-Ward is an exceptionally worthy winner of the Bancroft-Mackerras Medal.

2022 Bancroft-Mackerras Medal for Excellence winner Professor Tania de Koning-Ward

Vale Dr. Robin M. Overstreet

Remembrance of the Distinguished Dr. Robin M. Overstreet.

By Michael J. Andres, Reginald B. Blaylock, and Stephen A. Bullard.



Robin "Bob" Overstreet at his teaching scope at the Gulf Coast Research Lab in Oceanography 140.

Robin (Bob) Miles Overstreet died 21-May-2022. He was born to Laura and Robin Overstreet in Eugene, Oregon on 1-June-1939. Bob spent his youth hunting, fishing, playing sports, and building/racing cars. After high school, he followed a path that relatively few academics follow today, enlisting in military service (the US Navy). His time in the Navy ended up being formative as he was an assistant to an oceanographer onboard an Antarctic icebreaker. During this period, he was tasked with helping collect water samples and biological specimens using a variety of collection techniques. Many of the specimens he helped collect are still vouchered in the Smithsonian Institution in Washington, D.C., USA.

Upon leaving the Navy, he returned to Eugene to attend the University of Oregon where he received his BA degree and ultimately met his late wife Kim. Kim and Bob would go on to have two sons, Eric and Brian, and two "grandkiddos", Jackson and Maddison. His path again was not direct, first focusing on business before switching back toward spending time on vessels collecting specimens on the Oregon coast. There, he furthered his interest in marine biology, fisheries, and parasites. He choose to attend the University of Miami's Rosenstiel School of Marine and Atmospheric Science (RSMS; then the Institute of Marine Science) to pursue his MS degree, in-part because of the opportunity to learn from faculty that were biologically oriented and in-part because of the rich diversity of organisms that would be at his fingertips. During his time there, he met many established and visiting ichthyologists who provided him the opportunity and guidance to pursue a study of fish parasites. His thesis helped lay the foundation for his work as a fish parasitologist with expertise in parasite ecology and taxonomy.

Bob stayed at RSMS for his PhD, but took a very indirect route that seemed to guide his approach toward mentoring students later on. He largely directed his own PhD, traveling to other universities to gain expertise from a variety of parasitologists (Paul Beaver at Tulane, Raymond Cable at Purdue, and Harold Manter and Mary Lou Pritchard at Nebraska) that would ultimately culminate in his dissertation monograph in which he examined over 110 species of fish for parasites, erecting new genera and describing 13 species. His dissertation established him as one of his generation's most prolific parasite taxonomists and one of the world's experts on digeneans (parasitic flatworms). His monograph still serves as a foundational text for those studying fish parasitology. His next stop was a return to Paul Beaver's lab, but this time as a National Institutes of Health postdoctoral fellow at Tulane University Medical School. At Tulane, his fascination with nematodes began to grow, and he developed his idea that parasitologists should serve both their science and their communities. For the remainder of his career he always took the time to respond to and assist anglers, hunters, state officials, industry professionals, and everyday citizens concerned about animal (and occasionally human) health concerns. Many of his students and technicians have wondered why they were being asked to look at seemingly random specimens from the ends of the earth (and rear ends of an almost unfathomable variety of animals).

In 1969, Bob was hired as Head of the Parasitology Section at the Gulf Coast Research Laboratory where he quickly developed a highly influential Marine Parasitology course. Many young parasitologists, including his good friend and future colleague at Southeastern Louisiana University, the late Bill Font, were influenced by this course. While Bob held academic positions at many universities in the US and abroad, he remained at GCRL for his entire career and saw GCRL transition from a state marine lab to part of The University of Southern Mississippi. During his career at USM, he helped develop the toxicology and aquaculture programs. As a result of all his work, he

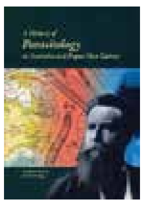
Vale Dr. Robin M. Overstreet continued...

became the first recipient of USM's Innovation Lifetime Achievement Award in 2008.

Although his passion was always with marine parasites and systematics, he was a well-rounded biologist. He prided himself on being a solver of "tricky" problems that ultimately led to him acquiring more than $50 million in external funding from a variety of funding organizations both nationally and internationally (including being a CO-PI on a couple grants from the Australian government). The advice he often gave his developing students when applying for funding or pursuing research questions was "follow the cheese" and work on "good" problems. This exact mantra led to him working with the catfish farming industry to help address major trematode infections occurring in their ponds. During his prolific career he served as an editor or associate editor for 12 journals, produced 22 graduate students (14 of which were PhD), was an external examiner for 9 Australian PhD students, produced nearly 400 publications, and received many international and national awards. Furthermore, more than 30 species have been named after him as a testament to his contributions to helminth taxonomy. Bob always held academic societies and their journals in special reverence,

Bob and Kim often hosted visiting scientists from all over the world in their home and in his lab. Many of his former students, USM collaborators, and our colleagues have fond memories of visiting GCRL and the long days/nights looking through a variety of animals in Oceanography room 137. Kim was often a lab mother to his students and was probably the only person that could correct his grammar. Bob retired from USM in 2014 and was awarded Professor Emeritus status. Throughout his life he maintained a passion for hunting birds (and collecting their parasites of course), spiders, and classic cars. His colleagues, friends, and former students will certainly miss him and his anecdotes. He occasionally remarked that if you want to live "forever", be a taxonomist (the authority, or person that described the species, is maintained with that organism's name), and he certainly will live on in our memories and through his contributions to the field of aquatic parasitology.

A History of Parasitology in Australia and Papua New Guinea.
Authors: Beveridge, Ian and O'Donohue, Peter J.



If you would like a copy, please send your name and address to
Maureen Engler
ASP Secretariat
maureenengler@gmail.com
Ph # 0488139155
If you have any questions, don't hesitate to contact me.
All the best
Maureen

Join us 5-8 September 2023 for the Australian Society for Parasitology Annual Conference at Double Tree by Hilton Esplanade Darwin, NT.

The Larrakia or 'Saltwater' people are the traditional owners of the land in and surrounding Darwin as well as the area around Darwin Harbour, the land on which this meeting takes place.Our conference logo was created by Aboriginal artist based in Darwin, Jayde Hopkins.

Discuss the latest research and state-of-the-art technologies in parasitology next September in Darwin. The program will feature an outstanding mix of quality scientists covering all parasitology themes from Veterinary Parasitology to Human Parasitology and Wildlife Parasitology and a One Health focus.

The 2023 ASP Annual Conference will take place at the DoubleTree by Hilton Hotel Esplanade Darwin 5-8 September 2023 with the registration desk opening at 2pm on Tuesday 5th September 2023. The Welcome Reception will take place at Char Darwin on Tuesday 5th September 2023, the scientific program will run across three full days from 9am, Wednesday 6th September 2023 and the conference will conclude with dinner at Hanuman Restaurant on the evening of Friday 8th September 2023.

2023 ASP Conference co-chairs are Deborah Holt (CDU) and Steven Kho (Menzies) and the 2023 ASP Conference Organising Committee Kamil Braima (Menzies), Jacob Westaway (Menzies), Katrina MacMahon (Menzies), Danny Wilson (Adelaide University), Ben Lay (Menzies), Nick Smith (ASP Network) and Lisa Jones (Conference Co-ordinator), look forward to welcoming you to Darwin next September for the ASP Annual Conference. It has been more than 20 years since the ASP has held their annual conference in Darwin, NT. Travel costs will be higher than usual due to the remote location, however, we hope that you will book your travel and accommodation early to help keep your costs low. The conference website will be launched shortly but please email secretary@parasite.org.au with any queries.

Thanks to our sponsors ***Elsevier Parasitology, IJP, IJP:DDR, IJP:PAW, Virbac and New England Biolabs****.*

Australia’s bid to host ICOPA XVI in Sydney

Australia's bid to host ICOPA XVI in Sydney was unfortunately not successful despite having a fantastic bid.

The Australian Society for Parasitology bid to host the International Congress of Parasitology (ICOPA XVI) in Sydney during National Science Week from 17 to 21 August 2026. The International Congress of Parasitology is held every four years. The aim of these meetings is to bring together parasitologists from all over the world to facilitate exchange of information related to parasitology or tropical medicine. Congratulations to the International Congress of Parasitology - ICOPA organisers and World Federation of Parasitologists (WFP) on a wonderful ICOPA. The bid winners were announced at the closing ceremony of the International Congress of Parasitology - ICOPA lead by the newly elected President of the World Federation of Parasitologists (WFP), Pikka Jokelainen.

The WFP shortlisted Sydney & Montreal as the potential host city and the Member Societies selected Montreal as the host city for ICOPA XVI. Congratulations to Montreal, Canada as the next host for #ICOPA2026

What a fabulous #ICOPA2022 well done to the WFP and the ICOPA2022 organising team we all appreciate the value of #ICOPA in terms of knowledge sharing and bringing international colleagues and peers together. Although Australia's bid was not successful, this was an excellent opportunity to showcase Australia’s globally impactful local research, to forge new international connections and strengthen existing collaborations, and to promote the Australian Society for Parasitology amongst the global parasitology community.

The ASP want to thank all of our members for their support with Australia’s bid and especially the amazing support from ASP members attending ICOPA 2022 in Copenhagen. Pictured right are images from ICOPA 2022.

The team heading up our ICOPA XVI bid were absolutely incredible and worked very hard at ICOPA2022. Thanks to the ICOPA XVI Sydney

Previous page ASP2023 logo designed by Aboriginal artist based in Darwin, Jayde Hopkins
Fannie Bay at sunset Tourism Australia/ Allan Dixon
This page: Wonderful photos from #ICOPA2022 bid photos from the amazing photographer Bartek Ciba https://twitter.com/bartosz_ciba

Bid Committee:

- Prof Rebecca Traub
- Prof Kevin Saliba
- Dr Aleta Knowles
- Prof Nick Smith
- Ms Lisa Jones
- Dr Adele Lehane
- A/Prof Michelle Power
- Dr Cameron Raw

Australia's bid to host ICOPA XVI in Sydney continued

Images from the ICOPA2026 Bid team from Australia at the International Congress of Parasitology - ICOPA 2022

Congratulations to the International Congress of Parasitology - ICOPA organisers and WFP on a wonderful ICOPA. #ICOPA2022

Why I wrote an impact CV by Katherine Andrews

Earlier this year ASP Fellow Professor Katherine Andrews from Griffith University published an impact CV to demonstrate research impact.

Kathy says "My Impact CV is different from her professional CV because she uses it to demonstrate her research impact for different audiences, including funders, promotion and award committees, donors and community members. This approach has been beneficial — helping me, among other things, to win multiple leadership awards." She updates her Impact CV several times a year.

Why I wrote an impact CV, Katherine Andrews, Nature, Career Column, 01 February 2022

doi: https://doi.org/10.1038/d41586-022-00300-6

https://www.nature.com/articles/d41586-022-00300-6?utm_source=Nature+Briefing&utm_campaign=31128516cf-briefing-dy-20220207&utm_medium=email&utm_term=0_c9dfd39373-31128516cf-42686291

ASP Fellow Professor Katherine Andrews

At the ASP Annual Conference in Cairns Professor Katherine Andrews received her ASP Fellowship awarded in 2020 in person.

Above: Professor Kathy Andrews accepting her ASP Fellow Award at the 2022 ASP Conference in Cairns.

Kathryn Parker, John Frederick Adrian Sprent Prize 2020 winner

At the ASP Annual Conference in Cairns Dr Kathryn Parker received her 2020 John Frederick Adrian Sprent Prize in person.

Dr Kathryn Parker accepting her 2020 John Frederick Adrian Sprent Prize at the 2022 ASP Conference in Cairns.

2022 ASP Annual General Meeting

The 2022 Australian Society for Parasitology Annual General Meeting was held as a hybrid face-to-face (at the 2022 ASP Conference) and online Zoom meeting on Wednesday 6th July. Download the minutes and reports from the 2021 ASP AGM from the members resources page on the WildApricot website https://asp.wildapricot.org/memberresources

Business conducted

The following business was conducted at the 2022 Annual General Meeting of the Society:

- received the Society's financial statement, and audit report, for the last reportable financial year;
- presented the financial statement and audit report to the meeting for adoption;
- elected members of the Council;
- appointed an auditor for the present financial year;
- announcement of ASP Awards and Prizes;
- receipt of reports from Editors, Convenors, Archivists, Secretariat and subcommittees; and
- review and debate other actions or decisions by the Council.

Giel van Dooren, Bancroft-Mackerras Medal for Excellence 2021 winner

At the ASP Annual Conference in Cairns Associate Professor Giel van Dooren received his 2021 Bancroft-Mackerras Medal for Excellence in person.

Above: Associate Professor Giel van Dooren, Bancroft-Mackerras Medal for Excellence 2021 winner accepting his award at the 2022 ASP Conference in Cairns.

2022 ASP AGM continued...

Welcome to our newly elected ASP Council; **President-Elect Danny Wilson, State Representatives Swaid Abdullah for Qld; Gerrut Norval for SA, Melanie Rug for ACT, Michelle Power for NSW, Deborah Holt for NT, Sarah Preston for Vic, Nick Fountain-Jones for Tas, Narelle Dybing for WA, Jill Chmielewski as the Student Representative, Ian Beveridge as the Fellows Representative.**

The ASP is an inclusive organisation. We encourage nominations to the ASP Council from Indigenous Australians, people with disability, people from diverse cultural and linguistic backgrounds, parasitologists of all ages and career stages and LGBQTI people. The Society is also committed to achieving gender equality across all its Committees including, but not limited to, the ASP Council. The Society recognises and values the wealth of talent, creativity and discoveries achieved by women in parasitology. We acknowledge that women continue to be under-represented in the field, particularly at senior levels. The Society is, therefore, committed to gender equality in our discipline and in the Society and hence we encourage nominations from women for ASP Council positions.

(Read about Gender Equality within the ASP Principles, By-Laws and Guidelines https://www.parasite.org.au/the-society/constitution/).

To download the meeting minutes and reports for the 2022 ASP AGM and all ASP Council meetings please log onto your Wildapricot account https://asp.wildapricot.org/memberresources and check the members resources or send theSecretary an email secretary@parasite.org.au to request the reports.

ASP Fellow David Jenkins

At the ASP Annual Conference in Cairns Professor David Jenkins received his ASP Fellowship awarded in 2021 in person.

Above: Professor David Jenkins accepting his 2021 ASP Fellow Award at the 2022 ASP Conference in Cairns.

Katja Fischer, Bancroft-Mackerras Medal for Excellence 2020 winner

At the ASP Annual Conference in Cairns Dr Katja Fischer, Bancroft-Mackerras Medal for Excellence 2020 winner received her award in person.

Above & left: Dr Katja Fischer, accepting her 2020 Bancroft-Mackerras Medal for Excellence at the 2022 ASP Conference in Cairns.
Below: Dr Klaus Rohde

Dr. Klaus Rohde, Distinguished Fellow IBS

Congratulations to ASP member Dr Klaus Rohde, elected by the Board of Directors as a 2022 Distinguished Fellow of the International Biogeography Society (www.biogeography.org). Fellows are chosen based on their outstanding contributions to the mission of our scientific society through excellence in basic research and/or exceptional service to the field of biogeography. In particular, the nomination noted Klaus'many contributions to marine parasitology, evolutionary ecology and zoogeography, biodiversity, and the phylogeny and ultrastructure of lower invertebrates. Clearly, this recognition is richly deserved.

Klaus' memoirs have been published in several parts on his blog https://krohde.wordpress.com/?s=erinnerungend

Klaus has a wide range of interests, he is not only a scientist but also an artist and publishes a lot (despite retirement) on philosophy, in particular on Arthur Schopenhauer, the first in Western philosophy who included animals in the centre of his ethics.

https://krohde.wordpress.com/2010/03/31/arthur-schopenhauer-ethics-and-theory-xk923bc3gp4-106/

Read more about Klaus
https://www.wikiwand.com/en/Klaus_Rohde a
https://krohde.wordpress.com/

Meet the new ASP Representative for SA , Gerut Norvall

Gerrut Norval, Research Assistant

From a very young age I have been interested in nature (especially animals). It was however while living and working in Taiwan (1998 to 2017) that I decided to pursuit a career in which I would contribute to what is known about the natural world and help protect what we can for future generations. I obtained a National Certificate and National Diploma in Nature Conservation via distance learning from the University of South Africa (UNISA). Under the supervision of Dr. Kerry Slater and Prof. Leslie Brown (UNISA) I then completed a Master of Science degree in Nature Conservation, examining the morphological variations, reproductive biology and habitat preference of the invasive brown anole population in Taiwan. While in Taiwan, in 2000, I became involved in research on reptiles and since 2004 I have been an associate researcher of the Applied Behavioural Ecology and Ecosystem Research Unit of the Department of Environmental Sciences at UNISA. In 2017 I came to Flinders University to study my PhD under the guidance of Prof. Mike Gardner, Assoc. Prof. Kirstin Ross and Dr. Bob Sharrad, studying some parasites of sleepy lizards sampled across an ecological gradient. I am currently working as a casual academic in Biological Sciences and a research assistant in the Laboratory of Evolutionary Genetics and Sociality at Flinders University.

Natural history is the foundation for insight into the ecology of an organism. My research therefore entails natural history studies and chance observations to elucidate the ecology of parasites (primarily ticks) and their hosts.

Meet the new ASP Representative for ACT, Melanie Rug

Biographical Info Dr. Melanie Rug; Director, Centre for Advanced Microscopy

Melanie is a parasitologist with a research focus on molecular, biochemical and cell biological investigations of host-parasite interactions of the malaria parasite. She completed her studies in Biology with Honours (Dipl. Biol.) on parasitic diseases in European crayfish, followed by a PhD investigating the toxic activities of the plant Jatropha curcas against intermediate snail hosts and larvae of schistosomes, the causative agent of Bilharziosis, at Ruprecht-Karls-University, Heidelberg, Germany. Her interest in parasitology brought her to Prof. Leann Tilley's lab at La Trobe University, Melbourne on a DAAD Fellowship in 2000 and in 2002 she joined Prof. Alan Cowman's group at The Walter and Eliza Hall Institute of Medical Research as a Senior Research Fellow continuing her journey in malaria research. As Director of the Centre for Advanced Microscopy at the Australian National University she shares her passion for parasites and the "Inner Space" with students and researchers from various disciplines.

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Meet the new ASP Representative for QLD, Swaid Abdullah

Dr Swaid Abdullah BVSc & AH | MVSc (Vet Parasitology) | PhD (Vet Parasitology & Ecology) Lecturer Veterinary Parasitology

Swaid Abdullah is a Lecturer in Veterinary parasitology and Ecology at the University of Queensland, where he works as a Teaching and Research academic in the School of Veterinary Sciences. He received his bachelor's in veterinary science from Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, India and worked in a mixed-species practice before earning a PhD in Veterinary Parasitology at the University of Bristol, UK. Swaid teaches Clinical Parasitology to Vet Science students and has a keen interest in applied research. His research program is focused on understanding the ecology and epidemiology of the parasites and parasitic diseases and the changes brought about by climate change and human intervention. He has a special interest in measuring, understanding, and solving problems of drug resistance in parasites and adverse effects of anti-parasitic drug residues on soil ecology.

ASP Undergraduate Prizes

Congratulations to the 2020 Winner of the Australian Society for Parasitology Undergraduate Prize from the University of Adelaide

Madison Bielby

Madison says, "Thank you to the donors for this award and generous donation. I would also like to thank the staff at the University of Adelaide, Roseworthy Campus, especially Ryan O'Handley and Darren Miller, for adapting the Parasitology course to a COVID friendly format. I am extremely honoured to be the 2020 recipient of the Australian Society for Parasitology Prize and excited to continue my veterinary studies at the university."

Madison Bielby

Congratulations to the 2021 Winner of the Australian Society for Parasitology Undergraduate Prize from the University of Tasmania

Joshua Wells

Congratulations to the 2021 Winners of the Australian Society for Parasitology Undergraduate Prize from Charles Sturt University

Josephine Graham and **Belinda Cox**

Congratulations to the 2022 Winner of the Australian Society for Parasitology Undergraduate Prize from University of Technology Sydney

Grace Peters

Congratulations to the 2021 Winner of the Australian Society for Parasitology Undergraduate Prize from James Cook University

Ashleigh Hazel

Ashleigh says, "Thank you so much for this prize, I really appreciate it. In the past 3, almost 4 years at JCU I have really enjoyed the high focus on practical sessions as I found that it really helps to solidify my theoretical knowledge and put what I have learnt into practice. Even though Covid-19 has impacted a lot of my practical sessions throughout second and third year, I really appreciate the effort from all the lecturers in transitioning online and trying to keep our sessions as interactive as possible. Since coming back to campus, I have really enjoyed face to face lectures again and developing professional relationships with my peers and staff. After I graduate, I wish to pursue a career in mixed veterinary practice in a more rural setting and get a feel for both large and small animals. Possibly later down the line I would like to specialise in emergency medicine or cardiology.

I have really enjoyed the parasitology content taught by Con and I know this information will become invaluable for any pathway I choose to pursue. Thank you again."

Ashleigh Hazle

James Cook University’s Aboriginal and Torres Strait Islander students have been recognised for their outstanding academic and personal achievements and **Ashleigh** was one of 31 students honoured at the sixth annual Indigenous Student Awards ceremony as an 2022 Indigenous Student Award Recipients. “These awards recognise the journey each student has been on in order to reach such a high level of success - from the support they’ve received from family and friends to the high level of academic and pastoral care provided by the staff at JCU’s Indigenous Education and Research Centre and from across the University.

ASP Undergraduate Prizes

Above clockwise from top left: Madison Bielby 2020 ASP Undergraduate Prize winner from The University of Adelaide, Belinda Cox 2021 ASP Undergraduate Prize winner from Charles Sturt University with David Jenkins, Ashleigh Hazel 2021 ASP Undergraduate Prize winner from James Cook University, Grace Peters 2022 ASP Undergraduate Prize winner from UTS with Mike Johnson.

$400 Undergraduate Prizes

The Australian Society for Parasitology is pleased to announce that it will be offering undergraduate student prizes of $400 each to Australian Universities identified as offering a suitable course in parasitology, for presentation to the best undergraduate student in parasitology (highest passing mark/grade).

The course(s) must be taught by a financial member of the ASP (of more than one year standing), and must comprise at least 30% parasitology. **Requests for 2023 prizes must be made by the eligible University to the ASP Treasurer by the 30th September 2023. Please complete the online application form:**

www.parasite.org.au/awards/asp-undergraduate-prizes/

Crafty Parasites

The Australian Society for Parasitology's Crafty Parasites series is a STEAM video resource that aims to make pesky parasites lovable through art and science. These resources are fun, free-to-use, hands-on science activities designed with accessibility in mind. Our first Crafty Parasites series is Crafty Parasites - Malaria

ASP Outreach Program: Crafty Parasites

ASP members Lisa Jones, Michelle Power, Rina Fu, Sarah Preston are using the current ASP Outreach movies (https://www.youtube.com/c/ParasiteOrgAuASP) and filming new ones to put together with art/craft/hand-on activities to describe the lifecycle of parasites and the science behind them. Individual "lessons" will be developed that a parasitologist can take into a school and deliver, deliver online or that anyone can use for public events or at home.

Crafty Parasites – Malaria

In the first episode of Crafty Parasites, Malaria, award-winning scientist, artist, and STEAM advocate, Dr Rina Fu is with two young scientists as they learn about the parasites, the real-world research, and the global impact of this deadly disease.

Watch Crafty Parasites – Malaria https://youtu.be/ZNvyRE5AqrA

This 15 minute digital production introduces medical science to young viewers through hands-on art-and-craft, stimulating both their curiosity and their creativity. The video contains step-by-step peer-led instructions and uses multiple cameras angles to make it easy to follow, whether it's making a pipecleaner mosquito or one of the seven stages of the malaria parasite. The craft includes embedded mathematics such as requiring students to take measurements and have an understanding of fractions. The episode also incorporates authentic research footage, including those captured by state-of-the-art fluorescence technology and award-winning Nikon microscopy. Printable resources of red blood cells, blood vessels, and scientific vocabulary add an extra interactive avenue for students to create their own story to demonstrate their understanding. The Crafty Parasites series is designed with accessibility in mind with full English captioning and AUSLAN interpretation.

Download the ASP Crafty Parasites Malaria Craft Instructions (https://www.parasite.org.au/wp-content/uploads/2022/04/ASP-Crafty-Parasites-Malaria-TeacherNotesPrintOuts.pdf) and the Australian Curriculum links (https://www.parasite.org.au/wp-content/uploads/2022/04/CraftyParasitesMalariaACLinks.pdf)

- Craft Instructions –(Mosquito)
- Craft Instructions –(Malaria parasite) – Sporozoite, Ring, Trophozoite, Schizont, Gametocytes
- Print-Out: Props & Interactive Elements (red blood cells, blood vessels, liver, parasite life cycle)
- Curriculum Links
- Puzzles x 3: Word Search & Crossword & Maze (Malaria & Craft themed) with answer key
- Colour-in Activity (Microscopy themed)

Teachers or home-school educator who would like to run this activity facilitated by a parasitologist can send an email enquiry to secretary@parasite.org.au

Enjoy creating art with science!

How to use these resources

These resources are free to use with a creative commons license.

Our future plan is that team members will develop programs for other parasites (veterinary/fish/wildlife/human/livestock) so that they can be used by the ASP researchers who are working in those areas. These modules will be linked to the school curriculum and easily adapted for any audience.

Watch out for the next Crafty Parasites Hookworms!

Above: Rina and helpers filming Crafty Parasites

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Education Committee

The ASP Education Committee is responsible for planning, overseeing and implementing the Society's tertiary educational activities and initiatives, which aim to develop a framework and educational resources for parasitology teaching in Australia with a vision to develop and share learning and teaching resources for parasitology.

Above: Parasites VR has gone international with ASP Member Nichola Calvani at the The University of Galway, Ireland. The VR headset has returned to Australia and is available for ASP members to use, contact secretary@parasite.org.au if you are interested.

A new ASP Education Committee Convenor has been appointed, Dr Sarah Preston (Federation University).

Committee Members: **Alex Maier, Barbara Nowak, Danny Wilson, David Emery, Jan Slapeta, Ryan O'Handley, Sarah Preston, Shokoofeh Shamsi, Stuart Ralph, Swaid Abdullah, Teresa Carvalho, Una Ryan, Barbara Nowak, Rebecca Traub, Richard Bradbury, Rebecca Traub, Lisa Jones.**

Abdul Jabbar and Malcolm Jones have resigned from the committee and the ASP are truly grateful for their outstanding service to the ASP Education Committee.

Funding for parasitology education projects

Since the beginning of 21st century, academics have been using digital tools for learning and teaching at schools, colleges and universities. However, the COVID-19 pandemic has forced us to use disrupting methods to improvise face-to-face teaching and learning activities and think outside the box to use or develop engaging and interactive platform for asynchronous (offline) and synchronous (online) learning.

The ASP Education Committee is very keen to learn what ASP members have been doing to cope with the demands of online learning and what various technological platforms and teaching methods have worked best for them? Should you like to share your experience, please send a summary of your teaching methods/ platform to Lisa Jones (secretary@parasite.org.au) so that we can highlight your awesome teaching in our newsletter and on our social media platforms.

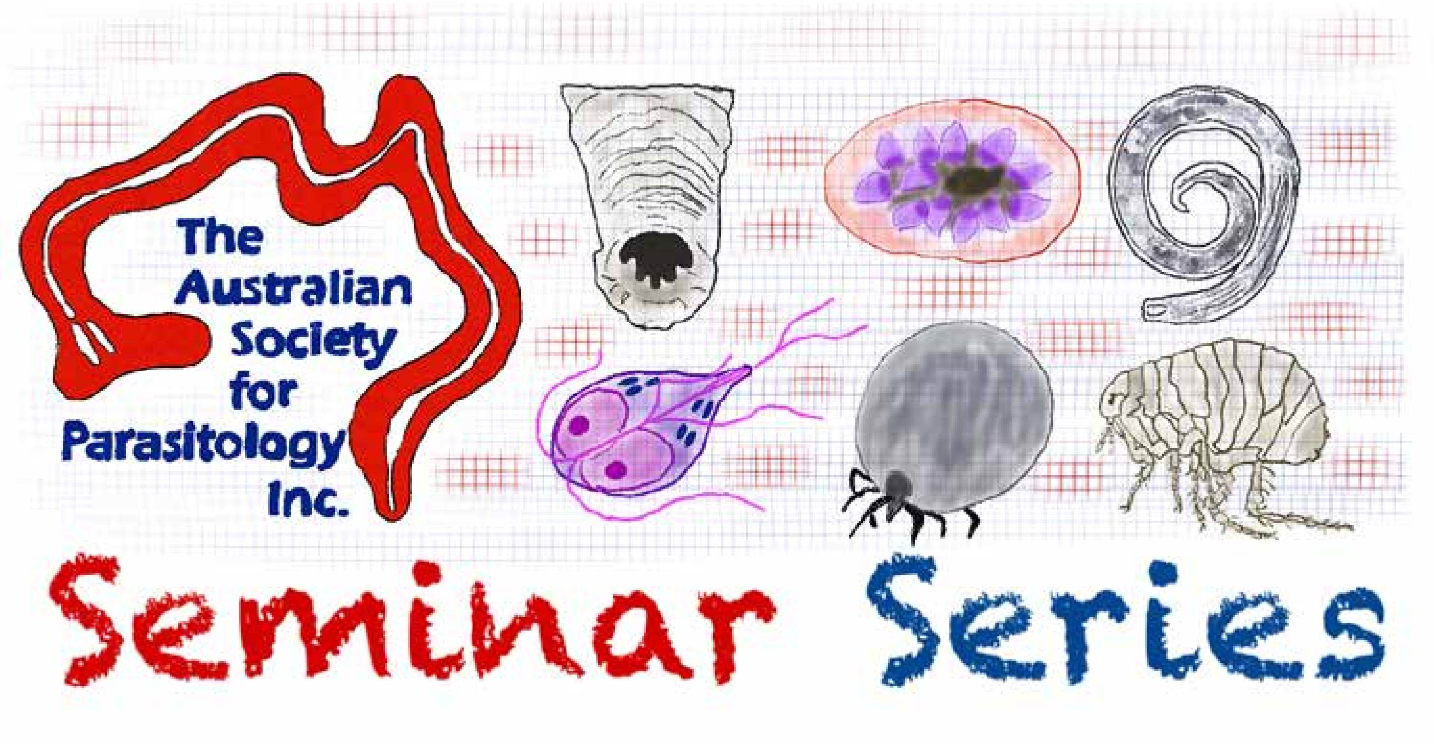
The ASP Education Committee funds projects that will promote parasitology learning, teaching and outreach activities for students, academics and public. Should you have any project idea within the scope of ASP Education Committee and would like to develop it using the ASP platform, please send an email to Lisa Jones (secretary@parasite.org.au) for the application form.

For parasitology outreach activities, the ASP has prepared various modules for schools, universities and general public that are available to use. There are also State Outreach Funds that you can apply for. Should you like to organise an outreach activity, and/or apply for funding then please liaise with your state representative to complete and email this ASP State Outreach Events form.

If you are passionate about parasitology learning and teaching and would like to join the ASP Education Committee, please submit your expression of interest to Lisa Jones (secretary@parasite.org.au).

ASP members **Sarah Preston and Nichola Calvani** and Evan Dekker recently used ASP State Outreach funds to purchase a VR headset to take Parasites VR internationally to Ireland, for a Parasite virtual reality experience at Galway Science and Technology Festival. The VR headset has returned to Australia now and can be borrowed by ASP members wanting to run Outreach programs with Parasites VR. Download the resources for "Virtual reality for parasitology teaching" from the ASP website https://www.parasite.org.au/education/asp-education-committee-and-resources/

ASP Seminar Series



Our ASP Online Seminar Series co-hosted by Stuart Ralph and Sarah Preston, has brought some amazing speakers this year. Our recent ASP Online Seminar featured two of our ASP Conference prize winners, Rosemond Power, University of Sydney and Jessica Scott, James Cook University.

Our online ASP Seminar Series on Friday 18th November 2022 featured Rosemonde Power, University of Sydney presenting "Suspect macrocyclic lactone resistance cases with the canine heartworm (*Dirofilaria immitis*): mismatch between microfilarial suppression test and SNP results in Australia" and Jessica Scott, James Cook University presenting “Epidemiology of soil-transmitted helminths, including *Strongyloides* spp. in rural Papua New Guinea” and co-chairs Sarah Preston (Federation University) and Stuart Ralph (University of Melbourne).

Rosemonde Power is a Ph.D. candidate at The University of Sydney in the Veterinary Parasitology Laboratory. Prior to starting her candidature, she completed a Bachelor of Animal and Veterinary Bioscience (Honours) in 2020. Her Honours project involved the use of Illumina Next Generation Sequencing technology to resolve mixed Bartonella infections in fleas from Israel. During her Honours year, Rose discovered a strong passion for parasitology and scientific research and wanted to continue expanding our current understanding of infectious disease… so she embarked on her exciting Ph.D. journey in 2021! Over the past two years, Rose has been investigating macrocyclic lactone (ML) resistance in Australian canine heartworms (*Dirofilaria immitis*). In her research, Rose aims to determine the presence of ML-resistant *D. immitis* in Australia by using phenotypic and genetic testing. She can’t wait to share her findings with you all!

“Epidemiology of soil-transmitted helminths, including *Strongyloides* spp. in rural Papua New Guinea” Jessica Scott, James Cook University. In this presentation, we take a brief look at the soil-transmitted helminths, including *Strongyloides* spp. that are endemic in a rural community from the Western Province in Papua New Guinea, with a discussion on the utility of the tools used to detect and diagnose these infections in rural settings.

Jessica Scott is a Master’s of Philosophy (MPhil) candidate at James Cook University in Townsville. In 2020, Jessica completed her undergraduate degree in Biomedical Sciences, majoring in Microbiology and Immunology, and was awarded the Ashdown medal for outstanding academic performance in clinical microbiology. Parasitology has always intrigued Jessica through her undergraduate studies. Her curiosity has led to collaboration on various projects associated with *Lymphatic Filariasis* (LF), including one study which determined the efficacy of triple-drug MDA for microfilaria clearance in Samoa, affiliated with the Pacific Program to Eliminate LF (PacELF).

ASP Seminar Series continued


Above: Our two seminar speakers (left) Rosemonde Power from The University of Sydney and (right) Jessica Scott from James Cook University

Before border closures due to the pandemic, Jessica was privileged enough to journey to Papua New Guinea (PNG) to aid in investigations surrounding potential drivers of Tuberculosis (TB) susceptibility in rural communities. This trip has ultimately formed the basis of Jessica's Master's, where she aims to uncover the epidemiology of soil-transmitted helminth infections in rural PNG, with the plan of undertaking further investigations to determine whether these parasites influence immunity in individuals co-infected with TB.

The ASP Online Seminar held on Friday 13 May 2022 featured Louis Lignereux from University of Adelaide "Should serology be used to estimate the exposure of feral house mice (Mus musculus) to T*oxoplasma gondii*?" and Narelle Dybing from the Feral Pig Action Plan will present "Feral Pig Parasites: What's hidden within?" with co-chairs Stuart Ralph (University of Melbourne) and Sarah Preston (Federation University) **Narelle's seminar was recorded and can be viewed on the ASP YouTube channel** **https://youtu.be/la9hFWjL7bQ**

The ASP Seminar held on Friday 21 October 2022 featured Michaela Bulloch, University of Melbourne speaking about "The *Plasmodium* apicoplast, delayed death, and GPIs" and Robyn McConville, WEHI, speaking about "Investigating the molecular mechanisms of protein export in *p. falciparum* liver stage infection" with co-chairs Emma McHugh and Stuart Ralph (University of Melbourne).

Our seminar series image was created by Thorey Jonsdottir from the Burnet Institute.

If you have ideas for speakers, themes or chairs for future ASP Seminar Series presentations please email secretary@parasite.org.au with suggestions. See the ASP website and social media channels for information about the ASP Seminar Series.

Above: Narelle Dybing's seminar can be viewed through the ASP YouTube Channel.

Australian National University Outreach

National Science Week 2022

Finally back to face-to-face 'parasitology on display' at National Science Week 2022 and yet another challenge was thrown at us this year. While in pre-COVID times we used to be cosily tucked in amongst many other sciency stalls at a dedicated event venue, the organisers decided to have science stalls distributed throughout the city during Science Week and the ANU parasitology stall was hosted by one of Canberra's Southside busy shopping malls. While many families ventured about on their weekend shopping spree, it quickly turned out that even the most popular shops had nothing to beat us and we had the wonderful opportunity to lure in some of the most brilliant young minds.

A team of parasitologists in the making amongst a more seasoned crew from the ANU introduced visitors, young and mature, to a delightful tour of parasites galore. Activities included 'Match the parasite to the disease' with some graphic images of *Leishmania* aftermaths mixed in amongst beautiful scanning electron microscopy images of our favourite parasite friends; 'Mystery boxes' where especially exploring the 'nematode stand-in' (freshly cooked and still moist spaghettis) in a box hidden form sight was met with mixed reactions; as well as microscopy of our smallest favourites next to quite large cestodial, nematodial and leech species which provoked some 'ooohs' and 'argggghhhs' as well.

Check out our photos in this section to get a feel for the fabulous vibe and clever activities, mainly designed by enthusiastic parasitology students around the stall and continue checking out the ANU-Parasitology website ([https://biology.anu.edu.au/research/ centres-units/anu-parasitology](https://biology.anu.edu.au/research/centres-units/anu-parasitology)) for new activities (generously supported by ASP State Outreach funding in 2020).

Contributing ANU parasitologists on the day were: **Makenna Short, Luka Ruwette, Madelie Joubert, Citha Kannitha, Larissa Liow (undergraduate students); Stephen Fairweather, Capella Maguire (van Dooren lab); Laura Shuttleworth, Shravan Divakarla, Evie Hodgson (Spry lab); Merryn Fraser, Saishyam Ramesh, Sam Shea, Patrick Phillips (Maier lab); Ayman Hemasa (Saliba lab); Sarah Shafik (Djordjevic Lab), Cibelly Goulart (OGTR), Melanie Rug (Centre for Advanced Microscopy), Christina Spry, and Alex Maier.**

ANU parasitologists enthuse future scientists at 2022 National Science Week events at the Australian National University

Volume 33 Issue No.2 December 2022

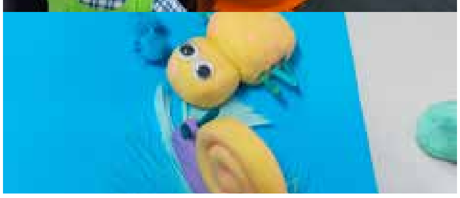
National Science Week 2022 cont...

ANU parasitologists enthuse future scientists at 2022 National Science Week events at the Australian National University

National Science Week 2022

ASP members **Lisa Jones and Kate Miller (James Cook University), Michelle Power (Macquarie University) and Mike Gardner (Flinders University**) have been busy this year with parasitology outreach at Peace Lutheran College in Cairns. Students enjoyed science shows from Lisa for National Science Week and Lisa, Kate, Michelle and Mike delivered their "Parasites in the Desert" outreach program with Mike and Michelle joining online via Zoom from SA and NSW and Lisa and Kate there in person. Students worked with Kate, Lisa, Mike and Michelle to create their own parasites after exploring various parasites that live in the desert.

This page and next: National Science week 2022 activities at Peace Lutheran College, QLD



National Science Week 2022 cont…

ASP Members **Cameron Raw (Melbourne University), Lisa Jones and Artist Bernard Lee Singleton** gave valuable input into this year's very special National Science Week brochure about First Peoples Science.

Please download the booklet through this online link https://www.scienceweek.net.au/wp-content/uploads/2022/05/First_Peoples_Science_Week_Booklet.pdf [(found at https://www.scienceweek.net.au/get-involved/hold-an-event/](https://www.scienceweek.net.au/get-involved/hold-an-event/))

Outreach activities in Western Australia

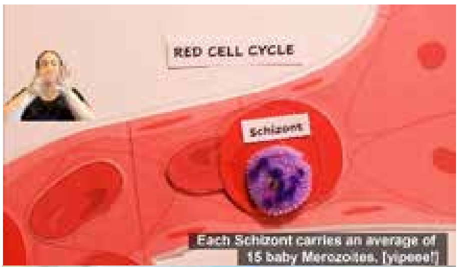
ASP member Rina Fu has been busy with her awesome outreach activities in Western Australia!

"Microscopic World In You"

Report on the "Microscopic World In You" workshop at the Anglican Community Centre in regional WA on Monday 27th June. The Mature Adults Learning Association (Inc.) hosts regular lectures over 5 weeks for senior participants. Lecturers from different fields are invited to present on their specialty – from criminology, law, arts to science. Rina was one of the guest lecturers, where she introduced parasites to the elderly (Figure 1).

Rina reports: With support from the ASP State Outreach funds, my family and science engagement team, we ran a lecture & workshop at the Anglican Community Centre, Mandurah on Monday 27th June 2022.

The 'Microscopic World In You' workshop kicked off with an interactive lecture on introducing various types of microorganisms, the microscopic scale and medically important protists including giardia, trichomonas and malaria. Rina also sang her malaria research in a song performance. The ASP Outreach funds supported the production of a craftbased animation to bring the malaria life cycle to life (Figure 2). After watching the animation, participants were tasked with creating their own *Plasmodium* stages with pipecleaners and pom poms (Figure 3). This activity was



created as part of the new ASP outreach series 'Crafty Parasites' launched on World Malaria Day on the 26th April 2022. This seniors workshop is the inaugural deployment of this outreach resource in the community. During the creation of their own parasites, participants were engaged in conversations with local scientists and sharing of lived experience (as many were war veterans and had been affected by malaria infection).

Another activity station reinforced the elderly participants' knowledge and understanding of the working parts of a microscope (Figure 4), putting theory

into practise to build up their confidence when they physically drive the microscope to hunt for cells and parasites. The ASP outreach funds supported the purchase of craft consumables and colour-printing of take-home worksheets for post-workshop engagement. Our team comprised of 3-generations of WA local scientists – Rina's mentors (retired microscopist and graduate research coordinator/soil scientist) to Rina's students from Edith Cowan University and Curtin University. It was a wonderful collaboration of intergenerational giftings and synergy.

Rina also invested in a new microscope ($3K+) with a camera for live projection onto a laptop screen for the 'Microscopic World In You' Series. This has proved to be most worthwhile working with the elderly as many had visual impairments or difficulties focusing through the eye piece. Of special note is we had 2 participants who were legally blind. One had 1% vision, whilst the other had limited peripheral vision. "This is the first time I have actually learned something! Your voice carried pictures in my mind, thank you for thinking of different ways to teach us, using clay and other sensory means."

I'm grateful to The Australian Society for Parasitology (ASP) for sponsoring the event and their on-going support in my science outreach efforts. Especially for those in the community who are under-represented.

22 August 2022

CBCA Book Week Event:

"We both say goodbye to the tiny living things Mummy calls parasites...", whispered Rina as she continues to read from My Mad Scientist Mummy at the invited-author session for Children's Book Week at the City of Canning's Hillview Intercultural Community Centre. Her audience comprised of children aged 4 to 12 mainly from non-English speaking homes.

Outreach activities in Western Australia cont...

"It was such a delight to greet the little scientists in their mother-tongue (Cantonese and Mandarin) as I helped with buttoning up their lab coats" Rina described. "Their mothers' eyes sparkled when they heard me speak their language." As a first-generation migrant I understand the importance of doing what we can to retain our cultural heritage for the next generation. It is such a priviledge to play a small role in this for our children.

This year's book week theme set by the Children's Book Council of Australia is 'Dreaming with eyes open', which is something that scientists do often as they think outside the box to solve problems! Rina Fu is one of four special guests (West Australian authors & illustrators) invited to engage the Canning community. Enjoyed by both parents and kids, Rina's session included an interactive story-reading of her storybook, games, sing-along, experiments and book signing.

Mad Scientist Mummy and book signing

National Science Week

Rina and her team shared the excitement of science and microbes with little scientists from Kindy (4 years old) to Year 6 (11 years old) over 8 sessions. "This year is extra special because I have the front-line support from my mum, who is a retired surgical nurse to directly engage the little scientists with me. "My mum has been a tremendous supporter of my endevaour in inspiring the next generation inclusive of all abilities." Rina's mum Yolanda Wong is the founder of Louis Program, a not-for-profit supporting over 4000 families with intellectual and physical disabilities around the world. "Not only has mum stayed up late with me as I cut, trim, pack, wash resources and materials for these sessions, she is also my learning activity consultant and sounding board especially when designing programs for people with disabilities."

Stephanie with Rina's mum Yolanda Wong, retired surgical nurse and founder of Louis Progam (home-based training program for children with disabilities)

Filming of Crafty Parasites Hookworm – Cairns

Following the launch and success of the inaugural Crafty Parasites Malaria, the ASP has commissioned the production of a second episode - Crafty Parasites Hookworm! **Rina and Shih Ching** braced the tropical downpour in Cairns armed with tripods, lights and cameras to capture the essence of the episode in an intensive one-day shoot at James Cook University. It was a laughter-filled day as the crew made hookworms out of socks and getting parasitologists and their offsprings to dance and memorise lines!

Special thanks to Alex Loukas, Lisa Jones, Paul Giacomin with his family and ASP president, Rebecca Traub for their inputs behind-the-scenes and infront of the camera. It was such a joy to work with world experts and film the interactions between Paul and his talented little Thomas, as well as Rebecca and her beautiful Raiya.

"The Crafty Parasites project not only provides a great community engagement tool, the making of which presents as a unique opportunity for our ASP scientists to team up with their kids to share the love of parasites!" says Rina Fu, producer and director for Crafty Parasites Hookworm.

https://www.parasite.org.au/outreach/craftyparasites/

Superstar little Thomas is supported his his sister at the shoot; Filming of Crafty Parasites - Hookworm; Fashion of the month – hookworm socks! Designed in Australia)

IJP

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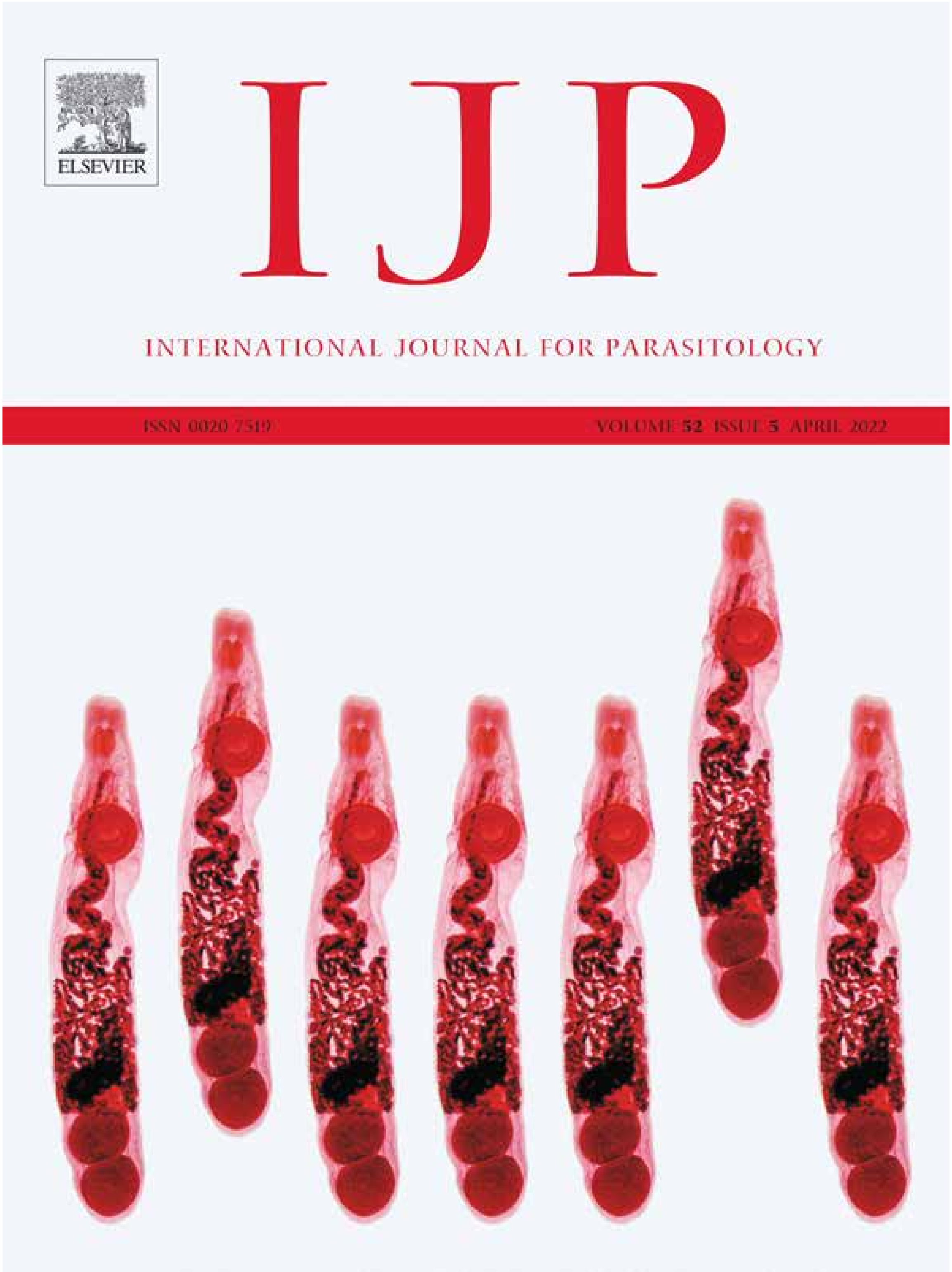


52:05 (April)

Jorge, F., Froissard, C., Dheilly, N.M., Poulin, R. 2022. Bacterial community dynamics following antibiotic exposure in a trematode parasite. Int. J. Parasitol. 52, 265-274.

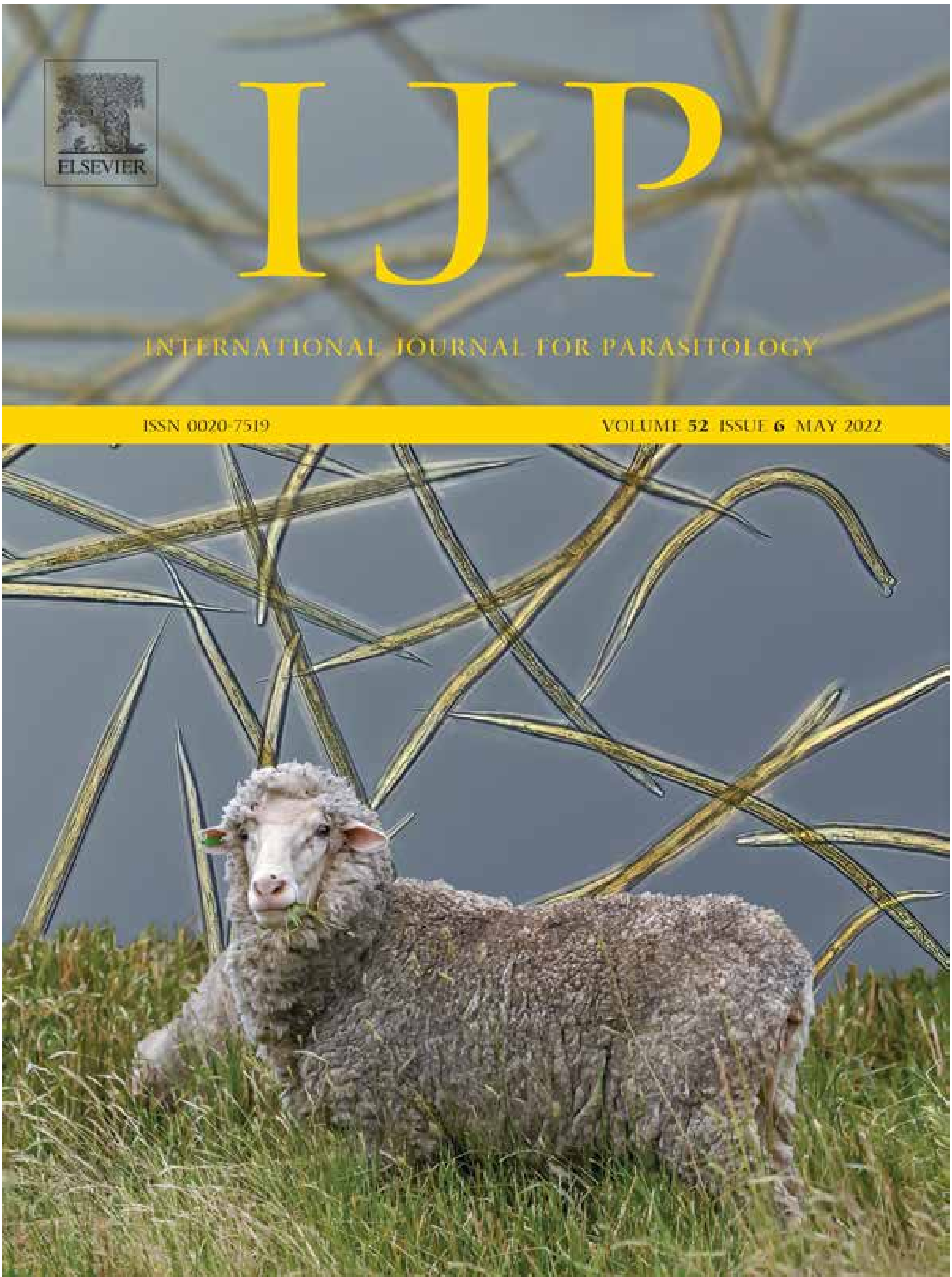
https://doi.org/10.1016/j.ijpara.2021.11.006

Original image courtesy of Jerusha Bennett and Bronwen Presswell (University of Otago, New Zealand).

International Journal for Parasitology continued

IJP

INTERNATIONAL JOURNAL FOR PARASITOLOGY



52:06 (May)

Francis, E.K., Šlapeta, J., 2022. A new diagnostic approach to fast-track and increase the accessibility of gastrointestinal nematode identification from faeces: FECPAKG2 egg nemabiome metabarcoding. Int. J. Parasitol. 52, 331-342.

https://doi.org/10.1016/j.ijpara.2022.01.002

IJP INTERNATIONAL JOURNAL FOR PARASITOLOGY Parasites and Wildlife

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Please enjoy recent IJP:PAW articles from ASP members and a special interview with University of Sydney researcher Dr Rachael Gray and her parasitology research on Australian sea lions. *Spoiler alert* there is more to this story and we will get an update in the next ASP newsletter!

"Rediscovery of Ixodes confusus in Australia with the first description of the male from Australia, a redescription of the female and the mitochondrial (mt) genomes of five species of Ixodes", Dayana Barker, Samuel Kelava, Owen D. Seeman, Renfu Shao, James R. Seaniger, Malcolm K. Jones, Maria A. Apanaskevich, Ryo Nakao, Dmitry A. Apanaskevich, Stephen C. Barker, International Journal for Parasitology: Parasites and Wildlife, Volume 18, 2022, Pages 1-11, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2022.03.006 (https://www.sciencedirect.com/science/article/pii/S2213224422000232)

Abstract: We: (i) report the rediscovery of Ixodes (Sternalixodes) confusus Roberts, 1960 in Australia; (ii) redescribe the male and female of I. confusus; (iii) describe the mitochondrial (mt) genome of I. confusus from five ticks from four localities in Far North Queensland; and (iv) present the first substantial phylogeny of the subgenera of the Ixodes. The mt genomes of I. confusus, I. cornuatus, I. hirsti, I. myrmecobii and I. trichosuri are presented here for the first time. In our phylogeny from entire mt genomes (ca. 15 kb), the subgenus Endopalpiger was the sister-group to subgenera Sternalixodes plus Ceratixodes plus Exopalpiger whereas Exopalpiger was the sister to Sternalixodes plus Ceratixodes. [i.e. ((Endopalpiger) (Sternalixodes, Ceratixodes and Exopalpiger))]. Finally, we show that Ixodes anatis, the kiwi tick, may be closely related to the ticks of marsupials of Australia and Papua New Guinea.

"Characterising a sarcoptic mange epizootic in quenda (Isoodon fusciventer)", Leah Botten, Amanda Ash, Bethany Jackson, International Journal for Parasitology: Parasites and Wildlife, Volume 18, 2022, Pages 172-179, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2022.04.010 (https://www.sciencedirect.com/science/article/pii/S2213224422000426)

Abstract: Sarcoptic mange, a parasitic skin disease caused by Sarcoptes scabiei, is an emerging conservation threat to some Australian wildlife species. As a zoonotic and multi-host disease, it has the capacity to exploit different hosts, creating management challenges for susceptible wildlife populations that may suffer high rates of morbidity and mortality. Sarcoptic mange was identified in quenda (Isoodon fusciventer) in a peri-urban region of Perth, Western Australia in 2019. By mid-2021, reported cases were distributed across 107ha. This retrospective study reviews the spatiotemporal distribution, clinical signs and risk factors for sarcoptic mange in quenda from a metropolitan region. Preliminary epidemiological parameters for the outbreak are described, including period prevalence of infested individuals, spatiotemporal analyses, clinical signs of mange, and preliminary risk factor analyses. The period prevalence of sarcoptic mange between July 1, 2019 and June 30, 2021 was 26.9% (CI 95%; 21.2, 33.5) with a mortality rate of 39.6%, owing to severity of disease or secondary complications. Sarcoptic mange was detected more frequently in adult quenda than juveniles (OR: 176.8, CI 95%: 10.7, 2930.1), with adult males more affected than adult females (OR: 3.5, CI 95%: 1.5, 8.4). Clinical signs of disease presented on the rump and tail (100%), followed by the limbs and digits (61.5%). The most common clinical signs recorded were alopecia (92.3%), erythema (46.2%) and open wounds (42.3%). This is the first documented example of a geographically expanding and propagating epizootic of sarcoptic mange in quenda, with implicit welfare and conservation concerns for the species, alongside potential for cases in humans and domestic species that cohabit with or handle quenda in the urban environment. Further, the detection of cases through wildlife rehabilitation centres highlights the critical role such organisations play in conservation and passive surveillance for wildlife diseases of conservation or public and domestic animal health importance.

Volume 33 Issue No.2 December 2022

Saving Australian sea lions from hookworms

Between 2019 and 2021, Dr Rachael Gray from the University of Sydney School of Veterinary Science and her team conducted trials at Seal Bay, Kangaroo Island, to treat the Australian sea lion with a topical anti-parasitic in an attempt to rid the endangered species of debilitating hookworm infections.

Lisa Jones speaks to Dr Gray about her parasitology research in sea lions.

"The Australian sea lion is an endangered species, in part due to historical sealing in the 19th century, where whole colonies were wiped out. The numbers of Australian sea lions haven't recovered since humans ceased hunting them and numbers are actually declining," Dr Gray said.

Australian sea lion pup image courtesy Dr Rachael Gray from the University of Sydney

What hookworm species infects Australian sea lion pups and why are hookworm infections so bad for the pups?

It is a novel recently described species, Uncinaria sanguinis. The infection causes significant clinical disease and death in infected pups and is considered to be a contributor to the high pup mortality seen in Australian sea lions.

What proportion of sea lion pups in Australia have hookworm infection?

100% of pups > 11-14 days of age (the prepatent period). Maternal transfer of third stage larva is via colostrum in the first 48 hours of life.

Tell us about the Seal Bay, KI trials that your team conducted during the 2019 and 2020/21 breeding seasons?

We conducted the trials during the 2019 (winter) and 2020/21 (summer) breeding seasons at Seal Bay, one of the largest N. cinerea populations. In both trials, we treated 50% of pups with ivermectin, leaving 50% of pups as a control (untreated) group. We captured pups on up to 4 occasions between the ages of approximately 2 weeks and 4-5 months of age to evaluate the response to treatment via assessment of growth (standard length and weight), body condition, haematological parameters and hookworm status (faecal analysis). We then followed the survival of individual pups by regular scanning of pups in the colony (and now juveniles) for microchips.

Analysis to date shows significant improvement in pup growth and haematological parameters in both breeding seasons as well as a significant reduction in pup mortality in treated pups compared to control pups in the summer season. Additionally, we were able to show that topical ivermectin was essentially 100% effective in clearing hookworm infection in pups, and in the short-term elimination of lice infestations.

Looking back over the three years since you began the trial, how do you measure the success of the program?

The improvement in parameters of health including growth and haematological parameters demonstrates the effectiveness of the treatment and the reduction in pup mortality during the high-mortality summer season suggested that this treatment intervention could have a positive impact on pup survival.

We were certainly successful meeting the study aims to evaluate the effectiveness of a topical anthelminthic (in a marine mammal!) and determining positive outcomes to health and welfare of individual animals. We intend to continue to monitor the treatments success with ongoing monitoring of survival to weaning (18 months) and then in the long-term, to the age at which animals enter the breeding population. Unless improved survival to reproductive age is shown, we cannot say whether the treatment will aid the species' recovery.

Saving Australian sea lions continued...

TOPICAL IVERMECTIN TREATMENT APPLICATION – APPLICATION OF TOPICAL IVERMECTIN TO AN AUSTRALIAN SEA LION PUP; COPYRIGHT LOUISE COOPER (USYD)

How can you eliminate hookworm infection from the Australian sea lion population?

This is a great question! Elimination is unlikely to be feasible logistically due to the species' population structure and the longevity of the free-living life cycle stages in the right conditions. Additionally, until we can prove that the intervention contributes to increased numbers of animals surviving to reproductive age (another 3-8 years of follow-up!), not just to 5 months of age and weaning, we need to carefully consider the utility of mitigation of the parasite on a large-scale.

Why did you conduct the trial over two breeding seasons? Was that important to disrupt the hookworm lifecycle?

The main reason we conducted the trial across two breeding seasons was because of the unique reproductive life history of N. cinerea. This species has an approximately 18-month breeding interval so they have alternating winter and summer breeding seasons which have very different rates of pup mortality. It is unlikely that we will have disrupted the hookworm life cycle based on the treatment of about 160 pups over two breeding seasons, although treatment would have resulted in reduced shedding of eggs into the environment which means less infective larvae for seals.

What are the benefits of using topical ivermectin rather than injectable to treat hookworm infection in sea lion pups?

Topical ivermectin is easier to administer and is a safer way to eliminate hookworm (no needles required!). While we have showed that injectable ivermectin is also effective at clearing infection, in the longer-term, we wanted to know whether a less invasive method, topical administration, was equally as effective given the ease of administration of the latter.

What has happened since the trial finished?

We now have survival data to three years of age for pups in the 2019 treatment trial, and survival data to 18 months (weaning) for pups in the 2020/21 treatment trial. We are in the process of analysing this data to determine whether there is a significant difference in survival to weaning for the pups recruited in the summer of 2020/21 and whether the trends for survival for the winter cohort (2019) are consistent.

How did you set up a large-scale topical treatment and long-term seal and sea lion disease monitoring investigation which could be used anywhere in the world?

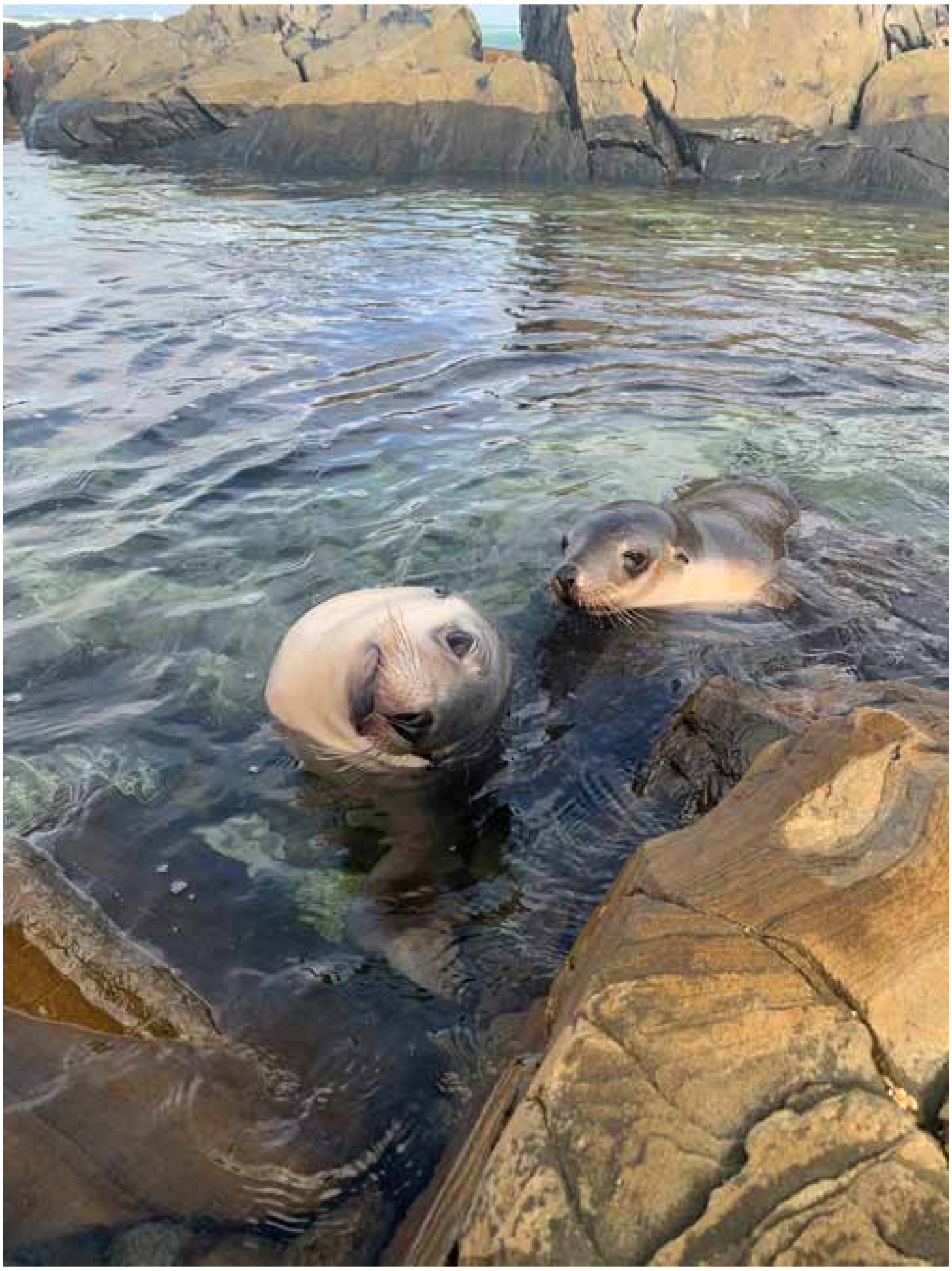
A lot of time in the field!!! We conducted between 6-8, 7-10 day long field trips to Seal Bay during the two breeding seasons and PhD students stayed on KI for up to 5 months to continue the scanning of pups/juveniles and mortality investigations. We had amazing support from the Department for Environment and Water (DEW), South Australia both in terms of funding support and logistical support on the ground.

Saving Australian sea lions continued...

Research team

Dr Rachael Gray from the University of Sydney School of Veterinary Science and her team of PhD students: Mariel Fulham, Scott Lindsay, Shannon Taylor all contributed to the study.

Scott A. Lindsay, Charles G.B. Caraguel, Rachael Gray,



Two Australian sea lion pups approximately 5 months of age

Image courtesy Dr Rachael Gray from the University of Sydney

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PUBLICATION

Lindsay, S., Caraguel, C., Gray, R. (2021). Topical ivermectin is a highly effective seal 'spot-on': A randomised trial of hookworm and lice treatment in the endangered Australian sea lion (*Neophoca cinerea*). *International Journal for Parasitology: Parasites and Wildlife*, 16, 275-284. http://dx.doi.org/10.1016/j.ijppaw.2021.11.002 ISSN 2213-2244, (https://www.sciencedirect.com/science/article/pii/S2213224421001152)

Abstract: The Australian sea lion (*Neophoca cinerea)* is an endangered and declining otariid species, with a high rate of pup mortality associated with endemic hookworm (*Uncinaria sanguinis*) infection a suspected contributor to this decline. Injected ivermectin is an effective treatment for *Uncinaria* sp. in otariids, with optimal outcomes achieved by the early treatment of pups prior to disease development. This randomised controlled trial evaluated the effectiveness of the novel use of a topical ivermectin formulation against hookworm infection and lice (*Antarctophthirus microchir*) infestation, in comparison with injected ivermectin. During the 2017 breeding season at Dangerous Reef, South Australia, pups ≤ 70 cm in standard length (≤ 2 weeks of age; n = 85) were randomised to single dose topical (500 µg/kg spot-on; n = 27) or injected (200 µg/kg subcutaneous; n = 29) ivermectin treatment groups, or to an untreated control group (n = 29). Topical ivermectin was highly effective for *U. sanguinis* elimination, and not significantly different to the injected formulation (estimated effectiveness 96.4% and 96.8%, respectively; P > 0.05). Its application resulted in an 81.6% reduction and 62.7% additional clearance for *A. microchir* infestation by 15–24 days post-treatment, compared with untreated control pups (also not significantly different to injected ivermectin; 83.1% and 59.4%, respectively; P > 0.05). Treatment with either ivermectin formulation significantly ameliorated increases in inflammatory markers detected in the blood of untreated control pups – peripheral blood eosinophil counts (persisting to 36–41 days post-recruitment P < 0.05) and increased plasma protein concentrations (15–24 days post-recruitment; P < 0.05). Further, an initial short-term decrease in body condition in the control group was not observed in either of the treatment groups. This study demonstrates that topical ivermectin is an effective antiparasitic treatment in *N. cinerea*. It offers an alternative administration method for ivermectin delivery to a young pup cohort in this species, and an alternative, minimally invasive management tool for species conservation.

Above: Two Australian sea lion pups

Left: moulted Australian sea lion pups approximately 5 months of age

Images courtesy Dr Rachael Gray from the University of Sydney

IJP INTERNATIONAL JOURNAL FOR PARASITOLOGY

Drugs and Drug Resistance

www.journals.elsevier.com/international-journal-for-parasitology-drugs-and-drug-resistance/

Editors In Chief: Andrew Kotze & Kevin Saliba

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We interview recent IJP DDR authors Jan Slapeta and Rosemonde Power from University of Sydney about their August 2022 publication.

"Exploration of the sensitivity to macrocyclic lactones in the canine heartworm (*Dirofilaria immitis*) in Australia using phenotypic and genotypic approaches," Rosemonde Isabella Power, Jan Šlapeta, International Journal for Parasitology: Drugs and Drug Resistance, Volume 20, 2022, Pages 145-158, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2022.11.003. (https://www.sciencedirect.com/science/article/pii/S2211320722000306)

1. What proportion of dogs in Australia have Canine heartworm disease and how big a problem is this disease for the dogs?

The canine heartworm is a mosquito borne disease currently endemic to Queensland, with especially high rates of infection occurring in central and northern Queensland (up to 20% of the unprotected population of dogs). However, the overall prevalence of the parasite in Australian dogs is considered to be low in New South Wales. In Sydney, recent cases of canine heartworm infection have been found in 2019 and 2020, but most are linked to travel history to North Queensland.

When dogs are infected with canine heartworm, the larvae migrate towards the pulmonary arteries where they will reside as adult worms. This can be a big (and potentially life-threatening) problem in untreated dogs, who may experience pulmonary hypertension and right-sided heart failure.

Rose Power

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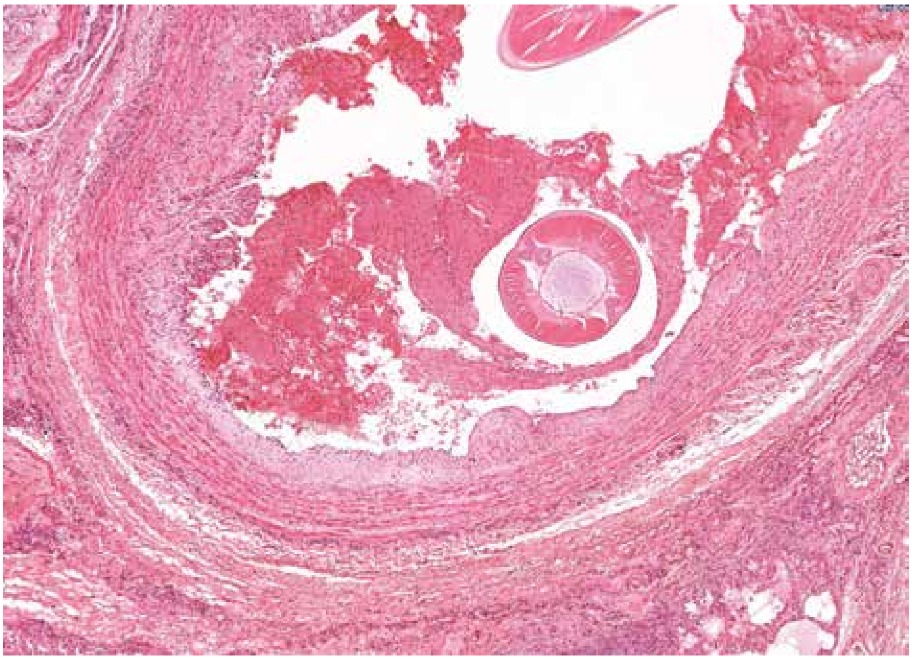
2. How can you eliminate Dirofilaria immitis *from the Australian dog population?*

We can strive to eliminate *Dirofilaria immitis* from the Australian dog population via prevention, regular testing, and timely treatment of infected dogs. The main prevention strategy is regular administration of anthelmintic drugs, specifically the macrocyclic lactones. To ensure dogs stay fully protected against *D. immitis* infection with adults, strict prevention according to the product label is required. This includes timely dosing (oral and topical products must be administered every 30 days), selecting a sufficient dose according to the weight of the dog, and monitoring for regurgitation. To avoid issues with poor compliance, yearly injectable preventatives are also available. Other indirect options include controlling the mosquito vector by applying mosquito repellent to dogs and reducing their exposure to these arthropods. Despite the generally low prevalence of canine heartworm in eastern parts of Australia, it is still recommended that all dogs receive annual testing for *D. immitis* antigen and microfilariae. Dogs that test positive for infection should be promptly treated. Treatment involves the use of doxycycline (to kill the Wolbachia endosymbionts of *D. immitis*), macrocyclic lactone (to kill young *D. immitis* larvae and potentially decrease any circulating microfilariae, depending on the product used) and three doses of melarsomine (to kill the adult worms). Due to the cost, risk, and time associated with treating canine heartworm disease, prevention is by far the best strategy to combat *D. immitis* infection.

3. Can you comment on the re-emergence of Dirofilaria immitis *in dogs in Queensland, why has this happened and is there any way that we can control the mosquito-borne filarial nematode* Dirofilaria immitis?



Dog heart with adult canine heartworms

Dog infections appeared to re-emerge in Queensland after 2010. Although the specific reasons for this re-emergence are poorly understood, it could be related to the presence and distribution of mosquito vectors. In addition, poor compliance with heartworm prevention and the presence of reservoirs for harbouring *D. immitis*, such as unprotected dogs, may have played and continues to play a role in the re-emergence of this parasite. To best control canine heartworm, we must ensure that dog owners are compliant with prevention, test for infection each year, and treat infected animals.

4. Tell us about your research on whether ML-resistance has emerged in *Dirofilaria immitis* in Australia and what will happen next?

In our paper recently published in *IJPDDR*, we used phenotypic and genotypic approaches to examine the sensitivity of Australian *D. immitis* to macrocyclic lactone drugs. Our phenotypic approach, which involved sequential quantification of microfilariae before and after drug treatment, was coupled with genetic testing of microfilariae for SNPs previously associated with drug resistance in *D. immitis* from the USA. By doing this, we found that 16/45 dogs had a delayed clearance of circulating microfilariae compared to previous studies, which was considered a suspect phenotype of ML-resistance. This finding was not supported by the genetic testing, as none of the microfilariae samples possessed the 'resistant' nucleotide at any of the SNP positions.

The next step in our research will be to generate local representative genomes of *D. immitis* and define the genetic diversity of this parasite along the east coast of Australia. The good news is that we have already collected a large sample of adult *D. immitis*, spanning from Lockhart River all

IJP INTERNATIONAL JOURNAL FOR PARASITOLOGY
Drugs and Drug Resistance

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Editors In Chief: Andrew Kotze & Kevin Saliba

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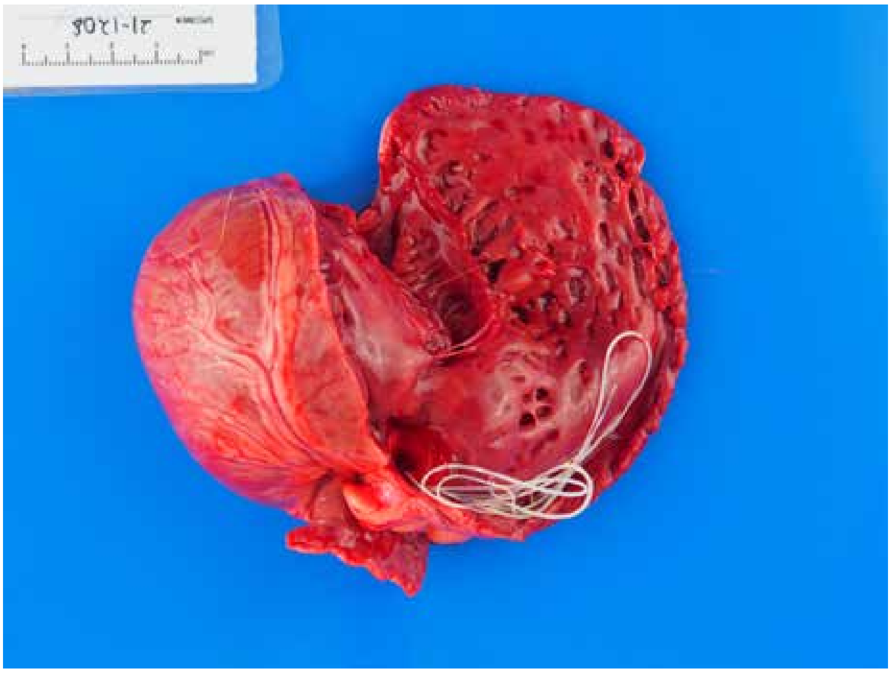
the way down to Sydney!

5. Rose you have published this *IJPDDR* paper, what is next in your PhD?

I'm currently finishing up the second year of my PhD. Next year, I will be embarking on a researcher exchange to the Wellcome Sanger Institute and the University of Cambridge in the UK. Here, I will learn specialist techniques to analyse my Australian *D. immitis* genomes! Thank you to the ASP for providing me with an **ASP Network Researcher Exchange, Training and Travel Award** for this upcoming research.

"Exploration of the sensitivity to macrocyclic lactones in the canine heartworm (*Dirofilaria immitis*) in Australia using phenotypic and genotypic approaches," Rosemonde Isabella Power, Jan Šlapeta, International Journal for Parasitology: Drugs and Drug Resistance, Volume 20, 2022, Pages 145-158, ISSN 2211-3207



Pulmonary artery with cross-section of canine heartworm. The inner wall of the artery should be nice and smooth, but due to the presence of the heartworms it is all inflamed and rough, not good for the dog at all!

Abstract: Canine heartworm disease is a potentially deadly cardiopulmonary disease caused by the mosquito-borne filarial nematode *Dirofilaria immitis*. In Australia, the administration of macrocyclic lactone (ML) drugs has successfully reduced the prevalence of *D. immitis* infection. However, the recent re-emergence of *D. immitis* in dogs in Queensland, Australia and the identification of ML-resistant isolates in the USA poses an important question of whether ML-resistance has emerged in this parasite in Australia. The aim of this study was to utilise phenotypic and genotypic approaches to examine the sensitivity to ML drugs in *D. immitis* in Australia. To do this, we surveyed 45 dogs from Queensland and New South Wales across 3 years (2019–2022) for the presence of *D. immitis* infection using an antigen test, quantitative Modified Knott's test, and qPCR targeting both *D. immitis* and the *D. immitis* symbiont Wolbachia. A phenotype observed by utilising sequential quantification of microfilariae for 23/45 dogs was coupled with genetic testing of filtered microfilariae for SNPs previously associated with ML-resistance in isolates from the USA. Sixteen (16/45) dogs tested positive for *D. immitis* infection despite reportedly receiving 'rigorous' heartworm prevention for 12 months prior to the study, according to the owners' assessment. The phenotype and genotypic assays in this study did not unequivocally demonstrate the presence of ML-resistant *D. immitis* in Australia. Although the failure of 16 dogs to reduce microfilaremia by >90% after ML treatment was considered a suspect phenotype of ML-resistance, no genotypic evidence was discovered using the genetic SNP analysis. The traditional quantitative Modified Knott's test can be substituted by qPCR targeting *D. immitis* or associated Wolbachia endosymbiont DNA for a more rapid measurement of microfilariae levels. More definitive phenotypic evidence of resistance is critically needed before the usefulness of SNPs for the detection of ML-resistance in Australia can be properly assessed.

International Seminar gives an account of the challenges to address hydatidosis in Chile

The conference, held at the UC School of Veterinary Medicine, featured national and international speakers, who sought to account for the challenges in terms of research and public policies to face the impacts of the presence of the parasite *Echinococcus granulosus.*

Above: Professor Marshall Lightowlers in Chile.

Seeking to generate synergies between research and the development of public health policies, the Interdisciplinary Seminar "Advances and challenges in the control of cystic *echinococcosis*/hydatidosis in Chile, an approach from human medicine".

The activity, of an international nature and organized by Professors Cristian Álvarez, from the School of Veterinary Medicine, Cristian Bonacic and José Luis Riveros, from the Faculty of Agronomy and Forest Engineering, and Sandra Cortés and Marisa Torres , from the Faculty of Medicine, has focused on the control, diagnosis and prevention of *cystic echinococcosis* also called hydatidosis in Chile.

On the opening day of the seminar, Juan Correa, dean of the Faculty of Biological Sciences, Andrea Albagli, Head of the Division of Healthy Public Policies and Health Promotion of the Ministry of Health, Esteban Canales, head(s) of the Directorate of Livestock Protection of the Agricultural and Livestock Service (SAG), Víctor Cubillos, director of the UC School of Veterinary Medicine, Katia Abarca, academic of the UC School of Medicine, and Fernando Fredes, president of the Chilean Society of Parasitology, who delivered some welcome words.

According to what Cristian Álvarez, an academic from the UC School of Veterinary Medicine, points out, the objectives pursued with this seminar were "to learn about the results of sheep vaccination programs in different regions of Chile, to promote the use of abdominal ultrasound as a tool for early diagnosis of human disease, consider the inclusion of Chile in the International Registry of cystic echinococcosis and also discuss the possibilities that the parasite is transmitted by vegetables in some regions of the country".

Cystic echinococcosis, commonly known as hydatidosis, is endemic in Chile and other South American countries, and entails large economic losses related to surgery and treatment costs in people, as well as production losses in animals such as sheep, cattle and goats mainly.

"Humans become infected by accidentally ingesting eggs of the *Echinococcus granulosus* parasite , released in the feces of infected dogs. Animals such as sheep, cattle and goats, among others, are infected in the same way and develop cysts in the liver and lung. The habit of feeding the dog with viscera in rural areas causes the dog to become infected, perpetuating the transmission of the parasite. The highest human incidences occur in the regions of Magallanes, Aysén, Coquimbo, Los Ríos and Los Lagos", explains Cristian Álvarez.

To delve into how *cystic echinococcosis/* hydatid disease is being addressed internationally, there were presentations by Professor Marshall Lightowlers, an academic from The University of Melbourne, who addressed the use of the EG95 vaccine in control programs around the world; Francesca Tamarozzi, researcher at the Ospedale Sacro Cuore Don Calabria, who presented details of her research in the areas of ultrasound diagnosis of *cystic echinococcosis* in humans; and Adriano Casulli, a researcher at the Istituto Superiore di Sanità, who gave an account of the multinational projects for studies on the prevalence of the disease that he has led in different parts of the world.

In total, about 70 people attended, including more than 30 representatives of the Ministry of Health belonging to the area of Zoonoses and vector control from different regions of the country, as well as epidemiology, officials of the SAG of Magallanes, Aysén and Biobío, along with the presentation of pediatric cases at the Valdivia Hospital. In addition, representatives of INDAP and FAO were present.

International Seminar continued...

Above and below: Professor Marshall Lightowlers was invited as one of the main speakers to the seminar "Advances and challenges on the control of cystic echinococcosis in Chile".

The seminar served to give an account of the experiences in the different regions of the country in control programs, as well as to discuss the pending challenges. "There was agreement that there is a need to establish ultrasound diagnosis as a population screening tool and that more meetings of this type should be held to learn about the activities carried out in each region. This is why we hope to share the conclusions in a document to all those interested, together with publishing it in an international journal, in such a way as to give an account of the work carried out in this seminar", concludes Cristian Álvarez.

Professor Marshall Lightowlers was invited as one of the main speakers to the seminar "Advances and challenges on the control of cystic echinococcosis in Chile" that was organised by Cristian Alvarez and held at the School of Veterinary Medicine, Universidad Catolica de Chile on the 25 and 26 of October 2022.

The presentations of the seminar aimed to show the results of different short-term control initiatives for *E. granulosus* (2 to 4 years|), some of which included the vaccination of sheep with the commercial version of the EG95 vaccine. Marshall showed a summary of the initiatives around the world where vaccination has been included highlighting the positive results of vaccination and also the difficulties in the implementation at large scale in control programmes for a substantial amount of time that would allow decreasing transmission of the parasite to humans.

The other international speakers Dr Francesca Tamarozzi showed the results of large-scale ultrasound screening in the rural population in endemic areas and Adriano Casulli presented the multinational projects funded by the European Union that have been an example of collaboration between different countries and have provided data showing the tip of the iceberg of the real burden of cystic echinococcosis worldwide.

In total 70 people attended the event including several professionals from the Ministry of Health and the Animal Health Agency from different regions of Chile, some of which presented data on the situation of CE in their regions during the seminar. And around 70 people from different South American countries were connected through Zoom.

Professor Fernando Fredes, President of Chilean Society for Parasitology gave recognition to Professor Marshall Lihghtowlers for his outstanding contribution to the field of parasitology. I did my PhD with Marshall at The University of Melbourne between 2007 and 2011, personally, it was a pleasure to be able to invite him to Chile for this event and I hope to see him many more times visiting Chile and South America and hopefully, we will show progress on the control of *cystic echinococcosis* in the future.

Cristian says "We had some nice dinners where Marshall shared some of his old stories that I heard many times in my time in Melbourne and also he got some new interesting ones that we enjoyed hearing. I share some photos of those moments too."

Wonderful to have news from our international parasitology community! - Ed

News from the ASP Network for Parasitology

Travel Awards and JD Smyth Postgraduate Travel Awards

Travel Awards

Congratulations to the September 2022 winner of the JD Smyth Postgraduate Travel Award scheme, Clarisse Louvard, RMIT University.

Clarisse Louvard, PhD candidate, RMIT University for a Researcher Exchange for training in computational biology applied to trematode transcriptomics through a month-long Researcher Exchange to Prof Cinzia Cantacessi Cambridge Veterinary School, University of Cambridge, England Wellcome Sanger Institute, Hinxton, England.

Congratulations to the March and September 2022 winners of the ASP Researcher Exchange, Travel and Training Award scheme.

Dr. Hong You, Senior Research Officer, QIMR Berghofer Medical Research Institute, for a Researcher Exchange to visit Prof Klaus Brehm's laboratory at University of Würzburg, Institute of Hygiene and Microbiology, Germany for 3 weeks and visiting Dr Geoffrey Gobert at School of Biological Sciences, Queen's University Belfast, UK learning novel flatworm cell culture technologies and exchanging ideas in parasite genomic functional studies.

Dr Michael Smout, James Cook University for a Researcher Exchange to visit the laboratory of Dr Kopecki and surgeon Ms Dearman at the University of South Australia to learn new skills on how to fully explore wound healing outcomes with a range of specialised equipment in the Kopecki laboratory.

Read about Hong You and Michael's travel award in this newsletter.

Maree Widdicombe, PhD candidate, RMIT University for a Researcher Exchange to visit Prof. Cinzia Cantacessi Cambridge Veterinary School, University of Cambridge, England Wellcome Sanger Institute, Hinxton, England.

Rosemonde Power, PhD Candidate, University of Sydney for a Researcher Exchange with Dr Stephen Doyle, who is a UKRI Future Leaders Fellow & Sanger Career Development Fellow and world leader in worm genomics at the Wellcome Sanger Institute and Prof Cinzia Cantacessi, a veterinary parasitologist and the nearby University of Cambridge located in the United Kingdom to access bioinformatics resources and learn specialist techniques specifically associated with helminth genomics.

Khattapan Jantawongsri, PhD student, Institute for Marine and Antarctic Studies (IMAS), University of Tasmania for a Researcher Exchange to laboratories in Norway visiting: Faculty of Biosciences and Aquaculture, Nord University, Steinkjer, Norway (21-25 November 2022) - laboratory and collaborator visit to learn about immune-related microRNA expression, especially in silico analysis in animal cell lines and to discuss potential collaboration and my postdoc application (e.g., Marie Skłodowska-Curie Postdoctoral Fellowships 2023) hosted by Associate Professor Dr Courtney Alice Waugh and Department of Biology, Norwegian University of Science and Technology (NTNU), Trondheim, Norway (28 November – 9 December 2022) hosted by Dr Tomasz Maciej Ciesielski and Professor Bjørn Munro Jenssen.

Dawson Ling, PhD Candidate, Burnet Institute for Researcher Exchange to the laboratory of Dr Cyrille Botté at the Institute of Advanced Biosciences, Grenoble Alpes University, Grenoble, France.

Michaela Bulloch, PhD Student, The University of Melbourne, for a Researcher Exchange to visit the Maier and van Dooren laboratories at the Australian National University to learn specialist techniques to measure the electron transport chain in Plasmodium.

Maree Wells, PhD Student, University of Tasmania for a 2-week Researcher Exchange in 2023 with Michelle Power's research group at Macquarie University. The aim of the exchange is to learn PCR techniques to assist with haemoparasite identification in little penguins.

Congratulations to the JD Smyth Travel Award winner and all of the ASP Network Travel Award winners!

The next deadline for applications is 31 March 2023.

We have updated the Travel Award guidelines and the application form, so please ensure that you read the updated guidelines before applying for an ASP Travel Award. https://www.parasite.org.au/awards/jd-smyth-postgraduate-travel-awards/

Grant winners

Congratulations to recent grant winners, it's been a bumper year for parasitology research grants with over $20 million dollars worth in ARC Discovery and NHMRC Investigator grants just announced!

ARC and NHMRC Parasitology Grants 2023

Associate Professor Giel van Dooren; Dr Adele Lehane; Professor Kiaran Kirk, The Australian National University, $862,272, 3 years
The single-celled parasites that cause malaria and toxoplasmosis are adept at stealing nutrients from the host animals that they infect. How they do this is, however, poorly understood. This project seeks to identify the processes by which these parasites scavenge amino acids, an essential class of nutrient, from their hosts. Using innovative experimental approaches, the project aims to identify and characterise the parasite proteins that mediate the uptake of different amino acids into the parasite. The intended outcomes of the project are to provide comprehensive insights into a fundamental aspect of parasite biology and inform strategies to treat the diseases caused by these parasites by cutting off their nutrient supply.

Dr Danielle Stanisic; Professor Michael

Good; Professor Alicja Tabor, Griffith University, $602,170; 2 years
In Australia, *Babesia* parasites cause most of the severe and often fatal cases of cattle-tick fever, a globally significant tick-borne disease. It can be prevented by a live-attenuated parasite vaccine which has critical limitations of a 4-day shelf-life and risk of severe disease if administered to adult cattle. This project aims to evaluate in cattle a novel whole parasite *Babesia bovis* vaccine that cannot cause disease and can be preserved as an off-the-shelf product without losing efficacy. The expected outcome is a significantly improved vaccine for a major infectious disease that affects primary food production. As the disease imposes a major economic burden, it will have great benefit for the Australian livestock industry.

Professor Stuart Ralph, The University of Melbourne, $397,996; 3 years
Genes are encoded by DNA but are transcribed into a message called RNA before they can be translated into protein. RNA can be chemically modified at a gene-specific level, and this modification has been central to the success of RNA vaccines against COVID-19. Despite the importance of these modifications in cellular life and in biotechnology, the role of the most abundant RNA modifications is unclear. This project will investigate how we can exploit RNA modifications to modulate protein expression in a tractable single-celled organism with a small genome, Plasmodium. This information is important because understanding gene regulation is fundamental to all life, and the role of RNA modifications is emerging as integral to biotechnology.

Dr Neil Young; Dr Anson Koehler; Dr Bonnie Webster; Dr Winston Ponder, The University of Melbourne, $499,338; 3 years
In Australia, a disease caused by liver flukes causes major economic losses to livestock production. The role of Australian pond snails as intermediate hosts for this parasite is poorly understood. This project aims to explore the phylogeography, biology and genomics of these snails. It expects to create novel molecular resources for important snail species and verify their roles as key vectors of flatworm parasites. The curation of genomic and transcriptomic data sets, and elucidation of snail–parasite interactions will underpin the development of environmental diagnostic tests and deliver a new generation of intervention strategies to reduce the burden of liver fluke disease through the control of their snail intermediate hosts.

NHMRC Postgraduate Scholarships

Dr Melissa Shields, Flinders University, $136,151, 3 years
Better Vision for Patients with Ocular Toxoplasmosis
Toxoplasma gondii is a parasite that causes the eye disease called ocular toxoplasmosis. There are no medications that can rid the body of the parasite, and there is no vaccine that prevents an infection. The goal of my research is to improve vision outcomes in patients with ocular toxoplasmosis. I will investigate a new treatment that targets inflammatory molecules to protect the eye tissues, and I will develop clinical algorithms to identify patients who would benefit most from treatment.

NHMRC Investigator Grants

Prof Geoffrey McFadden, University of Melbourne, $2,437,110; 5 years
Tools to curb drug resistance in malaria parasites
Drug resistance is a major challenge to controlling malaria. Resistant parasites emerge, spread geographically & eventually render our drugs useless. We have been on a treadmill of using, then losing, malaria drugs for decades. I will identify antimalarial compounds to stem the spread of drug resistance. I exploit the fact that malaria must spread via mosquitoes. I find drugs for which resistant parasites get trapped in the mosquito stopping them infecting new people & spreading resistance

Prof James McCarthy, University of Melbourne, $1,968,555; 5 years
Translational studies in infectious diseases

Testing new drugs and vaccines for infectious diseases has been impeded by difficulties in finding out how well these work in humans. I have developed a system where healthy human volunteers are experimentally infected with a microbe to test drugs or vaccines in controlled conditions. This has accelerated the development of drugs and vaccines to treat these infectious diseases. In this Program I will extend this work and establish new challenge systems to deliver new vaccines and treatments.

Prof Ivo Mueller, Walter and Eliza Hall Institute of Medical Research, $2,249,688; 5 years
Plasmodium vivax *Serological Testing & Treatment: a novel intervention to facilitate malaria elimination*
This research program aims to develop the diagnostic tools and clinical trials evidence to prove that a new public health intervention, *P. vivax* Serological Test and Treat (SeroTAT) can facilitate PV elimination in *vivax* endemic countries world-wide. To achieve this, we will develop a new class of malaria point-of-care sero-diagnostic test that can identify those most at risk of recurrent vivax malaria and prove that treating these people will significantly reduce *P. vivax* transmission.

Closing dates

ASP Fellowships
1 January 2023

ASP Researcher Exchange, Travel and Training Awards & JD Smyth
31 March 2023

John Frederick Adrian Sprent Prize
30 September 2025

Bancroft-Mackerras Medal for Excellence
30 September 2023

More information
www.parasite.org.au

News from the ASP Network for Parasitology

Assoc Prof Bridget Barber, QIMR Berghofer Medical Research Institute, $1,345,834; 5 years
Malaria volunteer infection studies for the advancement of antimalarial therapeutics
At QIMR Berghofer I will lead malaria volunteer infection studies to advance the development of antimalarial therapeutics. This will include studies to characterise the PK/PD profile of existing antimalarials to optimise dose selection, evaluate the transmission blocking activity of new and existing antimalarials, and evaluate strategies to boost antimalarial immunity. These studies will inform antimalarial treatment strategies worldwide.

Dr Lucia Romani, University of New South Wales, $1,493,327; 5 years
Optimising strategies for control of neglected tropical diseases
Neglected tropical diseases (NTDs) are a group of health conditions that affect the poorest of the poor, particularly in remote and rural areas. They affect the most vulnerable communities and cause substantial, chronic health harms impairing personal and social development. Several debilitating NTDs are common in remote indigenous communities and Pacific islands. I propose a series of studies to investigate new strategies to control NTDs in large populations where these diseases are endemic.

Prof Wai-Hong Tham, Walter and Eliza Hall Institute of Medical Research, $2,105,736; 5 years,
Antibody-based therapies against infectious diseases
Infectious diseases have resulted in devastating mortality in human populations throughout history. Antibody-based therapies have revolutionised modern medicine and will be important for the prevention and treatment of diseases caused by some of the world's deadliest pathogens. Our program builds on a deep understanding of the molecular interactions between human and pathogen and leverages advanced antibody platforms to develop novel antibody therapies against malaria and COVID-19.

Assoc Prof Matthew Grigg, Menzies School of Health Research, $1,526,800; 5 years,
Addressing the threat of emerging zoonotic malaria in our region,
The monkey malaria parasite *Plasmodium knowlesi* (Pk) increasingly infects humans across Southeast Asia. A multidisciplinary approach will evaluate why Pk cases are rising, improve laboratory detection methods, assess preventative treatments, and inform public health programs. Pk genetic analyses will explore causes of severe disease and geographical infection patterns. Evaluating human interaction with mosquitos, monkeys, and land-use, will generate regional Pk risk prediction maps for targeted control.

Prof Freya Fowkes, Burnet Institute, $2,256,790; 5 years,
Eliminating Malaria in the Asia-Pacific
In the Asia-Pacific, more than two billion people are at risk of malaria, a parasitic disease transmitted by mosquitoes. I will work with malaria endemic partners to provide evidence for the most effective malaria prevention strategies and improve surveillance so that every last malaria infection is detected, treated and eliminated. My program aims to change policy and advance progress towards the goal of malaria elimination in the Asia-Pacific by 2030.

Prof Leanne Robinson, Burnet Institute, $2,256,790; 5 years
Innovative public health strategies for the elimination of malaria and lymphatic filariasis
My vision is to improve the health of communities that have a high, yet often unrecognised, burden of parasitic vector-borne diseases, particularly malaria and lymphatic filariasis. My collaborative program of research will reduce the burden of these chronic debilitating infections in low-income countries, especially Papua New Guinea, by developing and testing new public health strategies and directly informing policy to target these infections more accurately, efficiently and effectively.

Assoc Prof Susana Nery, University of New South Wales, $2,756,790; 5 years
Optimizing strategies for control of neglected tropical diseases
My research program will optimize strategies for control of neglected tropical diseases which are closely associated with poverty, affecting 2 billion of people globally. The specific aims of this research program are: 1) optimising programs for control of intestinal worms; 2) integration of control programs to increase their impact and 3) defining the public health role of a new and promising medication, moxidectin. Findings will be used to inform policy makers and improve existing guidelines.

ARC Future Fellowship

Associate Professor Darren Creek, Monash University, $1,065,924
This research will provide new understanding about the metabolism of parasites, such as those that cause malaria. These parasites have evolved bespoke metabolic networks to survive in diverse host environments including mosquitos and humans. Previous studies have revealed many unique genes and metabolites in these organisms, but their biochemical function is not known. This project will use state-of-the-art metabolomics and proteomics technology to accurately identify novel metabolites produced by the parasites, and discover the enzymes that are responsible for their synthesis. This work will not only advance our understanding of cellular metabolism, but will provide new opportunities for future biotechnology applications.

Annual Conference

2022 ASP Conference

Our first face-to-face meeting in two years since COVID-19 was simply wonderful! The 2022 ASP Annual Conference took place from 4-7 July at Shangri-La The Marina, Cairns, Queensland. Thanks to the tremendous efforts of the 2022 ASP Conference Organising Committee; Co-Chairs **Nick Smith (UTS) and Rebecca Traub (Melbourne University),** and conference organising and scientific committees, **Kate Miller, Alex Loukas, Denise Doolan and Michael Smout**,and Coordinator **Lisa Jones** from James Cook University for creating an amazing conference despite the shadow of COVID19. We also want to thank the awesome volunteers for their outstanding assistance: **Connor McHugh, Maxine Smith, Tamara Thomas, Ashton Kelly, Camila Madeira Tavares Lopes, Karma Yeshi from James Cook University, Madeline Dans and Brodie Bailey from WEHI**. Please enjoy photos of this event, if you would like me to send you any copies of the images please email secretary@parasite.org.au

Acknowledgement of Country

The land on which this meeting takes place was originally the home of the Yirrganydji people. The ASP acknowledge the Gimuy-walubarra yidi are the traditional custodians of Cairns and surrounding district. Gimuy is the traditional place name for the area Cairns City now occupies. The ASP recognise their continuing connection to the land and waters, and thank them for protecting this coastline and its ecosystems since time immemorial. The ASP pay our respects to Elders past and present, and extend that respect to all First Nations people present at this meeting.

Conference Program

ASP2022 was held across four days and was run as a hybrid event allowing 21 delegates and speakers to participate and present remotely through Zoom if they were unable to attend the conference in person. The 2022 ASP Conference attracted 204 conference delegates with 149 abstracts submitted, 11 invited speaker abstracts and 138 contributed abstracts.

The Conference opened with a lively Welcome Reception at the Shangri-La on Monday 4th July sponsored by Virbac. Minjil delivered an amazing Welcome to Country on Tuesday 5th July with traditional dancers, the Welcome to Country ceremony and gift-giving; it was a very special event. We celebrated 50 years of The International Journal for Parasitology on Tuesday 5th July with dinner and a fabulous parasite-decorated cake! The Conference closed with a fun dinner sponsored by Vetoquinol at Hemingways Brewery and featured a parasitology quiz, Andrea Allumay singer, the Hook-a-worm song from Crafty Parasites featuring Rina Fu and Alex Loukas and Michelle Power's comedy act!

The scientific program of the ASP conference began on Tuesday 5th July morning at the Shangri-La with **Tania de Koning-Ward** being awarded the Bancroft Mackerras Medal and delivering her Oration and Plenary Lecture. Plenary sessions ran at the start and end of each day.

Our national and international speakers were excellent. **Elsevier Parasitology and the International Journal for Parasitology (IJP), IJP DDR and IJP PAW** sponsored the Plenary Speakers. **Vetoquinol Australia, Boehringer Ingelheim Animal Health Australia, and Elanco** sponsored Symposium Speakers. **Virbac** sponsored the Livestock Symposium, The conference program covered a wide variety of parasitological research; Ticks, Livestock, Insects and Mites, Dogs and Cats, Helminth Biology, Host-parasite Interactions, Malaria, Epidemiology and Diagnostics, Drugs and Drug Resistance, Wildlife & Marine, Protozoan Biology, and Education and Outreach.

Plenary Speakers

International Journal for Parasitology (IJP) Invited Lecturer **Dr Meta Roestenberg** (Leiden University Medical Centre) "Controlled human infections with parasites to accelerate vaccine development"

IJP: Parasites and Wildlife (PAW) Invited Lecturer **Dr Elizabeth Warburton** (University of Georgia, USA) "Host Traits, Abiotic Variation, and Community Similarity: Parasite-Diversity Across Life Stages and Scales"

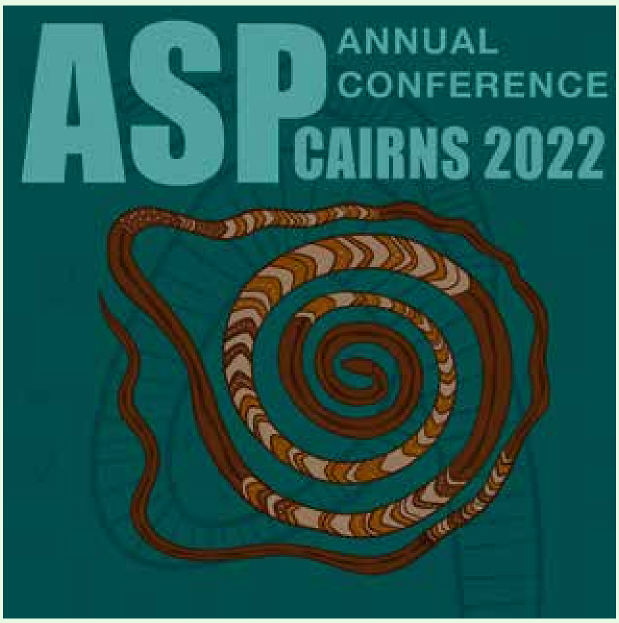
IJP: Drugs and Drug Resistance (DDR) Invited Lecturer **Professor Jane Hodgkinson** (University of Liverpool) "A major locus, that shows dominant inheritance, confers triclabendazole resistance in *Fasciola hepatica*"

Symposium Speakers

- **Dr Clare Anstead** (University of Melbourne)
- **Dr Michael Smout** (James Cook University)
- **Professor Shokoofeh Shamsi** (Charles Sturt University)
- **Dr Scott Carver** (University of Tasmania)

invited speakers from the 2022 ASP Annual Conference

Thanks to our 2022 ASP Annual Conference Sponsors



Above: Our wonderful conference logo was designed by Bernard Singleton, an indigenous artist based in Cairns, Queensland who we have worked closely with for a number of years. Bernard painted the magnificant Gula Guri mayin, (which means "Heal the body"), which explores themes of parasites and health. https://www.parasite.org.au/outreach/gula-guri-mayin/

Above: Photos from the 2022 ASP Annual Conference dinner courtesy Lisa Jones and Nick Smith

Photos of our invited speakers, chairs of our sponsored Symposia and Education Session speakers from the 2022 ASP Annual Conference courtesy Lisa Jones and Nick Smith

Left: Photos from the 2022 ASP Annual Conference courtesy Lisa Jones and Nick Smith

News from the ASP Network for Parasitology

• **Professor Peter Irwin** (Murdoch University) *Elanco invited speaker*

• **Dr Trent Perry** (University of Melbourne) *Boehringer Ingelheim invited speaker*

• **Dr Rachel Korman** (Director Cat Specialist Services) *Vetoquinol Australia invited speaker*

The conference program is available to download as a pdf:

https://www.parasite.org.au/wp-content/uploads/2022/07/PrintProgramfinalsmaller.pdf

Conference delegates especially loved the networking opportunities and the scientific program at the 2022 ASP Conference and made the following comments:

"I really enjoyed the presentations from keynote speakers as well as the ample opportunities to network through teas, luncheons and dinners."

"It was an amazing experience, and I am extremely grateful for the opportunity to present my research at such an early stage."

"The quality of the science and the opportunity, and good amount of time, to catch up with friends and colleagues in person again."

Early Career Researcher Workshop

Early Career Researchers (ECRs) were invited to a **Meet the Mentors Breakfast** event on Tuesday July 5th before the main Conference session started. Read about our wonderful mentors that workshop participants met during the Student and ECR Breakfast event https://www.parasite.org.au/conference2022/wp-content/uploads/2022/07/ECRBreakfastEventMentorsV2-1.pdf

Participants and mentors were encouraged to discuss the "Keys to Successful Collaboration" to discover: Why collaborate? How do collaborations start? What are the lessons they've learnt from their experiences with good, bad or indifferent collaborations? Are the approach and requirements different for collaborations with fellow academics' vs colleagues from industry, government, or NGOs?

Participants said they really liked:

"Getting the opportunity to talk both with a mentor and other ECRs in a semi structured environment. Great way to start out meeting people."

"How the students and ECRS engaged enthusiastically, fearlessly and respectfully with the mentors and each other."

"Meeting early-career scientists in my field that I didn't know previously."

"Connecting with people with related projects."

Education and Outreach

Delegates who attended this event and the Education and Outreach Symposium said they gained inspiration for potential future outreach activities.

Social media

The ASP promoted the conference through their Facebook page and Twitter feed. We are always needing help with social media so please get in touch if if you are interested in tweeting or posting for the ASP during the next ASP Conference! This year's social media posts used the hashtag #2022ASP

Parents/carers and children room

I love this room, and we had lots of parents/carers and children using this room for the 2022 ASP conference. This was separate from the lecture theatres and participants were able to watch and listen to the conference presentations live online. Several delegates made use of this facility and loved being part of the conference this way.

Prayer room

We had a prayer room available and delegates made use of this during the conference.

Conference Sponsors

We would like to acknowledge the generous support of our 2022 ASP conference sponsors, thanks to **Elsevier Parasitology and the International Journal for Parasitology (IJP), IJP DDR and IJP PAW, Vetoquinol Australia, Virbac, Boehringer Ingelheim Animal Health Australia, Elanco and New England Biolabs.** The ASP are very grateful for the support of our wonderful sponsors! Thank you!

Delegates who were unable to attend in person due to COVID19, travel disruptions or something else were able to attend virtually with all sessions live-streamed and interactive.

The policy on gender equality is on the Conference website www.parasite.org.au/conference2022/advice/policy/

Please note that the Australian Society for Parasitology required all 2022 ASP Conference attendees over 16 years of age (includes delegates, speakers, volunteers and any other persons who will be physically attending any conference events) to be fully vaccinated with an up-to-date vaccination against COVID19 to attend this conference in person unless they can show proof of a medical exemption.

Congratulations to all student prize winners from the 2022 ASP Conference!

Congratulations to **Jack Ingelbrecht**, Murdoch University, for his presentation "A new microbothriid monogenean *Dermopristis pterophilus* n. sp. from the skin of the Critically Endangered green sawfish *Pristis zijsron* Bleeker, 1851 (Batoidea: Pristidae) in Western Australia" who won Best 15 Minute Talk presented by a student 2022 ASP Conference 4-7 July, Cairns. (Award collected by Amanda Ash)

Congratulations to **Samantha Gunasekera,** Murdoch University for her presentation "A novel gut-on-a-chip enables long-term in vitro development of *Cryptosporidium hominis* and *Cryptosporidium parvum* and provides a platform for investigating species-specific differences in metabolomic profiles and host cell invasion characteristics" who won

Runner-up, Best 15 Minute Talk presented by a student 2022 ASP Conference 4-7 July, Cairns.

Congratulations to **Jessica Scott**, James Cook University, for her presentation, “The Diversity and Influence of Intestinal Parasites within a Tuberculosis Endemic Community in Rural Papua New Guinea” who won Best 5 Minute Talk presented by a student 2022 ASP Conference 4-7 July, Cairns.

Congratulations to **Rosemonde Power,** The University of Sydney, for her presentation “Investigating macrocyclic lactone resistance in Australian canine heartworm (*Dirofilaria immitis*) infections”, who won Runner-up, Best 5 Minute Talk presented by a student 2022 ASP Conference 4-7 July, Cairns.

Congratulations to the following students who received “Special Mentions” for their presentation at the 2022 ASP Annual Conference 4-7 July:

Jenni Hayward, Australian National University “Asphyxiating apicomplexans”

Robyn McConville, The Walter and Eliza Hall Institute “The *Plasmodium* Translocon of EXported proteins (PTEX) is necessary for *Plasmodium falciparum* liver infection.”

Sara Taylor, QIMR Berghofer “The effect of novel scabicides on scabies associated pathogens”

Michaela Bulloch, University of Melbourne “Apicoplast derived metabolites are essential for the biosynthesis of glycophosphatidylinositol anchors needed for egress and invasion of asexual stage *Plasmodium falciparum*.”

Capella Maguire, Australian National University “Exploring the role of mitochondrial malate metabolism in *Toxoplasma gondii*”

Richard Corner, The University of Queensland “The elucidation of Australian turtle blood fluke intermediate hosts, and implications for understanding the evolution of host exploitation”

Network Mentorship Scheme

Network Mentorship Scheme Early career researchers are encouraged to apply to the Network Convenor (nick.smith@parasite.org.au), in strict confidence, for funding to participate in the Network Mentorship Scheme. The scheme allows young investigators to be paired with experienced, successful academics to discuss, plan, prioritise and set targets for their career. Arrangements for professional development and progress to be reviewed by the pair annually can also be arranged. Importantly, mentors need not be from an individual’s home institution but can be drawn from across the Network. The scheme has proved very valuable for several young researchers and their mentors already and covers mentorship across all aspects of working in parasitology including research, teaching, leadership, communication and outreach and other areas of professional development.

With best wishes,

Nick and Lisa

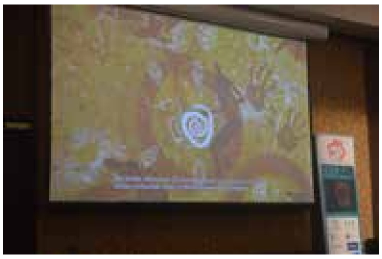
www.youtube.com/user/ASPParasiteNetwork
www.parasite.org.au
www.facebook.com/ASParasitology
www.twitter.com/AS_Para

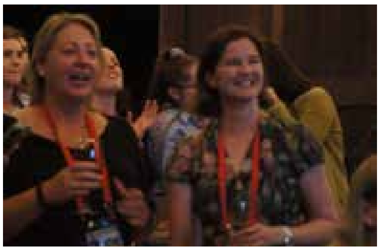
Above from top left: ASP conference student award winners Jessica, Rose, Samantha, Jack, Robyn, Michaela, Capella and Richard courtesy Lisa Jones and Nick Smith

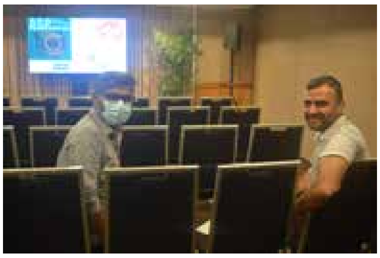
2022 ASP Annual Conference - photo wall





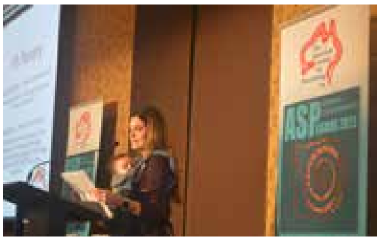








Photos from the 2022 ASP Conference courtesy Lisa Jones and Nick Smith

ASP Researcher Exchange Reports

Michael Smout

Michael Smout, James Cook University, completed his Researcher Exchange to visit the laboratory of Dr Kopecki and surgeon Ms Dearman at the University of South Australia to explore wound healing outcomes with a range of specialised equipment in the Kopecki laboratory.

The collaboration with the pig wound healing team in Adelaide has been built upon with in person discussions and a program grant is planned for 2023. The pilot pig wound healing trial was successful, giving promising results for our Gp4a wound healing treatment.

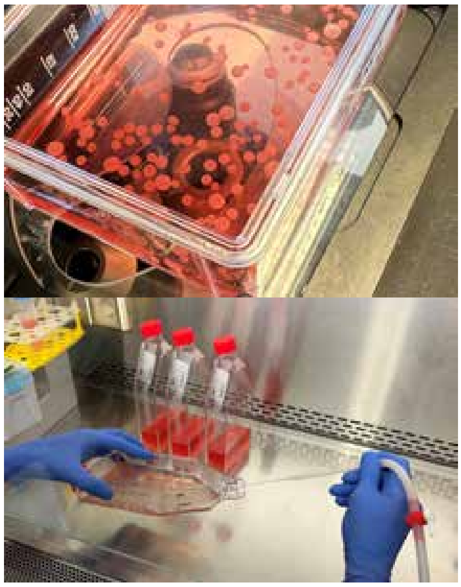
The landrace pigs at ~50kgs by this stage of the procedure (week 3 of 6) and are anesthetised on surgical tables for wound imaging and treatment. Wounds are imaged with high resolution photography and catalogued for later analysis. Wounds are treated with methyl cellulose gel mixed with various treatments. Silver infused bandages are applied and covered with additional layers of bandages.

Hong You

Dr. Hong You, Senior Research Officer, QIMR Berghofer Medical Research Institute, completed a Researcher Exchange to visit Prof Klaus Brehm, University of Würzburg and Dr Geoffrey Gobert, Queen's University Belfast, UK learning novel flatworm cell culture technologies and exchanging ideas in parasite genomic functional studies.

Supported by an ASP Exchange Travel Award, I obtained a great opportunity to visit the laboratory of Professor Klaus Brehm's laboratory at University of Würzburg, Institute of Hygiene and Microbiology, Germany for 1 week. The recent crucial findings achieved by Brehm's laboratory have shown that parasite growth is decisively driven by totipotent stem cells, and the larval stage differentiation is governed by proliferation dynamics of the Echinococcus stem cell population and cellular signalling systems. Most importantly, they have successfully established E. multilocularis stem cell lines, which are the only cell lines available in helminth parasite up to this date. Those technologies are highly relevant and complementary with my current interests aiming to develop Schistosoma cell lines, to overcome complexities induced by the multicellular nature of the parasites, which has considerably limited progress in the development of genetic tools for functional genomics studies of these worms. It is a critical to maintain schistosome cells by introducing the novel technology which has been successfully established for Echinococcus cell lines in Brehm's group and using them for CRISPR based gene editing which has been well-developed in our laboratory. As well as Klaus Brehm, this scientific interaction involves myself and Malcolm Jones (University of Queensland).

This visit helped establish collaborative research to improve our ability to develop effective gene editing systems in schistosome. I anticipate that introducing the technology to QIMR Berghofer will result in novel findings and several high quality publications, providing the basis in future to apply for national and international project funding. I am extremely grateful to the ASP for the provision of the financial support that allowed me to undertake such a valuable and rewarding period of training.



Photos from Hong You's Researcher Exchange 2022

Swapnil Tichkule

Swapnil Tichkule, PhD Student, Walter & Eliza Hall Institute of Medical Research won the prestigious JD Smyth Postgraduate Travel Award for a Researcher Exchange and training to The University of East Anglia, Norwich, England; Istituto Superiore di Sanità (ISS), Rome, Italy and Český Krumlov, Czech Republic for *Cryptosporidium* research.

I am grateful to the ASP for awarding the prestigious JD Smyth Postgraduate Travel Award for a Researcher Exchange and training to visit to Simone Caccio' at Istituto Superiore di Sanità (ISS), Rome, Italy and to attend the International Congresses of Parasitology - ICOPA XV, Copenhagen, Denmark, 2022.

Outcomes: Two publications published in Molecular Biology and Evolution.

https://doi.org/10.1111/mec.16556
https://doi.org/10.1093/molbev/msac056

Project 1: Evolutionary emergence of *Cryptosporidium* anthroponotic (Cpa) lineage

Dr. Caccio's group has sequenced Cpa isolates from Africa which was lacking from the current global dataset. Therefore, we will combine these isolates with Cpa isolates from other geographical regions and will determine the emergence and evolution of Cpa.

Project 2: Population genetic analyses of *Giardia* assemblages A and B.

Project 3: Review article on population and evolutionary genetics of *Cryptosporidium*.

State News

ACT

Australian National University

Merryn Fraser was chosen as a winner for the American Committee of Molecular, Cellular and Immunoparasitology (ACMCIP) 3 Minute Thesis competition, and was awarded with membership to the American Society of Tropical Medicine and Hygiene, as well as a speaking slot at their annual conference in November. This was following her outstanding success winning the ANU Research School of Biology 3MT competition, and chosen as a finalist for Falling Walls Lab Sydney. Well done Merryn!

Hot off the press, a publication resulting from our partnership with Humboldt University, Berlin, via the International research Training Group (IRTG) :

Gabelich J-A, Gru¨tzke J, Kirscht F, Popp O, Matz JM, Dittmar G, Rug M, Ingmundson A (2022) "A member of the tryptophan-rich protein family is required for efficient sequestration of *Plasmodium berghei* schizonts." PLoS Pathog 18(9): e1010846.

WA

Murdoch University

I think I speak for most ASP members from WA but we had a wonderful time at the ASP Conference this year and we had such a “warm” welcome from Cairns, even though it was raining for most of it. Although, the second half of the week reminded us why it is called dry season in North Queensland with the sun and beautiful weather showing off for us. The week was met with a great venue, great food and drinks, intriguing presentations and even better company. It was sad that some WA members could not join us in Cairns due to restrictions or other commitments however we know you were thinking of us and hopefully we can all meet up at next year’s conference.

A wonderful group of students and postdocs made our way to the student quiz night and had a great feast of pizzas and parasite knowledge. The winning team was half filled with postdocs and ECR’s though so we did feel a bit bad winning, but it was a so nice to meet up with everyone and meet new people.

We are also very proud to have had two of our students winning student presentation awards from the ASP 2022 annual conference. Even though he had to present from his hotel room, **Jack Ingelbrecht,** Murdoch University, won the Best 15 Minute Talk presented by a student, on his PhD work “A new microbothriid monogenean *Dermopristis pterophilus* n. sp. from the skin of the Critically Endangered green sawfish Pristis zijsron Bleeker, 1851 (Batoidea: Pristidae) in Western Australia”. **Samantha Gunasekera**, Murdoch University, then won Runner-up Best 15 Minute Talk presented by a student for her presentation “A novel gut-on-a-chip enables long-term in vitro development of *Cryptosporidium hominis* and *Cryptosporidium parvum* and provides a platform for investigating species-specific differences in metabolomic profiles and host cell invasion characteristics” on her PhD project.

Cattle IFS funding to the Cryptick Lab

Biosecurity has never been so important to Australia’s livestock industry. With Foot and Mouth Disease and Lumpy Skin Disease on our door step, we need to ensure our ‘strict’ biosecurity measures are up to scratch. That’s why it’s excellent news to hear Murdoch University’s **Dr Charlotte Oskam** and her team in the Harry Butler Institute have recently been awarded a $150,000 Cattle Industry Funded Scheme grant. Her grant will use ticks and tick-borne diseases (particularly bovine anaemia due to *Theileria orientalis*, BATOG) as a case study of how prepared the livestock industry is for a disease outbreak. The main aims of this study are to identify gaps in knowledge and preparedness regarding biosecurity related to ticks and tick-borne diseases, and to examine how climate change will impact the population and spread of ticks

Above left, Charlotte Oskam and some of the tick team working with the livestock industry on tick and tick borne diseases.

Above right, WA contingent at the 2023 ASP Confernce

State News continued

and the diseases they are associated with. The project commenced in July and is supported by the Western Beef Association Inc, together with Murdoch University researchers including **Dr Josh Aleri, Dr Amanda Barbosa, Dr Shane Tobe, and Dr Tracey Kreplins from the Department of Primary Industry and Regional Development (DPIRD). Xavier Barton,** a PhD student in the group, will be leading the tick trapping and identification aim of the study. The grant was awarded by the Department of Primary Industries and Regional Development (DPIRD) as part of the Cattle Industry Funding Scheme. Keep up to date at http://cattletickstudy.com/

Parasitologist gets tick of approval as Young Tall Poppy

Dr Charlotte Oskam has been named a 2022 WA Young Tall Poppy, one of the state's most outstanding young scientists, by the Australian Institute of Policy and Science. She is committed to bridging the divide between academia and the general public; to educating, raising awareness, to championing Women in STEMM, and encouraging a sense of wonder. The prestigious annual Young Tall Poppy Science Awards recognise excellence in research as well as enthusiasm for communicating science beyond the walls of the laboratory, and are widely considered to be an early indicator of Australia's future scientific leaders. Ticks are an increasing health threat to humans and animals around the world, and through her research at Murdoch's Harry Butler Institute, Dr Oskam is leading Australia's research into the parasites and their diseases, but she is equally as committed to sharing her knowledge with the broader community.

Using ground-breaking science, Dr Oskam has discovered that ticks are filled with unique, potentially disease-causing microbes and she is now working on finding the cause/s of long-term illness in tick-bitten Australians. Murdoch University colleague, and one of Australia's leading parasitologists, Professor Una Ryan, said Dr Oskam was an outstanding, highly valued young academic who makes significant contributions to the university, the field of One Health, and the wider community.

To read more on Dr Oskams WA Young Tall Poppy award, https://www.murdoch.edu.au/news/articles/tick-of-approval-to-investigate-cattle-disease?fbclid=IwAR377Kn4myq6Vt4nyQYflAZUTneSPbWk2EDn7upIVBm2wcYBw5rPRYoQoiM

Dr Oskam at her ABC radio Perth interview.

Feral Pig Parasite factsheet

Feral pigs are inhabit over 45% of Australia's landmass and present a biosecurity risk in Australia given the number of exotic, endemic and zoonotic diseases that can transmit. Following on from Dr Narelle Dybing's ASP seminar series presentation, a feral pig parasite factsheet was made to inform the community of parasites that may be carried and transmitted by feral pigs in Australia, what you need to look out for and why.

This booklet, and more, is now publicly available from the National Feral Pig Action Plan diseases webpage. (http://www.feralpigs.com.au/diseases)

Victoria

RMIT

Congratulations to **Dr Cecilia Power** on her graduation.

WEHI

Congratulations to Professor Alan Cowman, AC FRS FAA, Deputy Director – Science Strategy, The Walter and Eliza Hall institute of Medical Research Professor, Department of Medical Biology, Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne for being awarded The 2021 Florey Medal.

Professor **Alan Cowman** of WEHI in Melbourne has been awarded the CSL Florey Medal, presented by the Australian Institute of Policy and Science (AIPS). The 2021 medal was presented at the Association of Australian Medical Research Institutes (AAMRI) annual dinner today at Parliament House having been postponed for a year due to pandemic restrictions. The Florey Medal is awarded biennially to an Australian biomedical researcher for significant lifetime achievements in biomedical science and / or human health advancement.

His research has uncovered how the malaria parasite *Plasmodium falciparum* causes disease in humans and how it evolves to outwit antimalarial drugs. He has also created genetic tools to modify the parasite, which are now being used by malaria researchers worldwide.

Over the course of his career, Alan has revealed the fundamental biology and molecular mechanisms of how malaria parasites infect humans, hijack red blood cells and use them to produce proteins that help the parasite evade the body's immune responses. He also discovered key mutations in the parasite's genes that regulate resistance to antimalarial drugs enabling researchers to map the spread of drug resistance.

Left: Congratulations Dr Cecilia Power!

State News continued

This was a significant leap in understanding the parasite and how it causes the disease – vital for the development of new drugs.

The genetic knowledge and technology developed from his research has led to the first genetically-engineered malaria vaccine, currently in clinical trials, to stop the parasite from reaching the bloodstream and causing severe disease.

His work has led to a major industry collaboration that has created a new class of compounds, now in preclinical testing, that target three stages in the chain of transmission. They stop the parasite from spreading from infected blood cells; they also block transmission from humans back to the mosquito; and prevent the liver stage of the parasite infection. This three-pronged approach will make it very difficult for the parasite to develop resistance to the treatment.

Global efforts over the past 20 to 30 years have successfully reduced malaria deaths worldwide from around 965,000 in 2004. But it still kills more than 627,000 people and infects more than 240 million people each year, creating a poverty trap for many communities.

"With new malaria parasite strains increasingly becoming resistant to available drugs, the development of vaccines and novel antimalarial compounds to block transmission remain the most effective preventative measure against this killer disease," says Alan, who is Deputy Director at WEHI and a Laboratory Head in the Infectious Diseases and Immune Defence Division.

CSL's Chief Scientific Officer, Dr Andrew Nash, adds that the research has global ramifications.

"Alan's discoveries show how studying the fundamental genetic science of a parasite can lead to improved understanding of a disease, tools to map its evolution and spread, and new therapies to prevent or fight infection," he says.

"CSL's support of the Florey Medal is a reflection of our commitment to foster Australia's biomedical research community and ultimately, to deliver on our promise to protect human health," says Dr Nash. "We congratulate Alan on his achievements."

AIPS director Peter McMahon highlights the importance of Alan's research.

"Malaria is one of the biggest killers of children under five years of age in most developing countries. Alan's past and ongoing work will play an important role in achieving the World Health Organization's goal of reducing malaria mortality rates by 90 per cent of 2015 levels by 2030."

https://aips.net.au/florey-award/the-florey-medal/2021-professor-alan-cowman-ac-frs-faa/

Above right: ASP VIC Members social event

Above: Alan Cowman with Kathy Andrews (top) and Alan Cowman accepting his Florey Award.

VIC MEMBERS EVENT

ASP Victorian Members and friends enjoyed a social event at Naughtons Hotel just before the Easter break. Check out the photos of everyone enjoying themselves!

State News continued



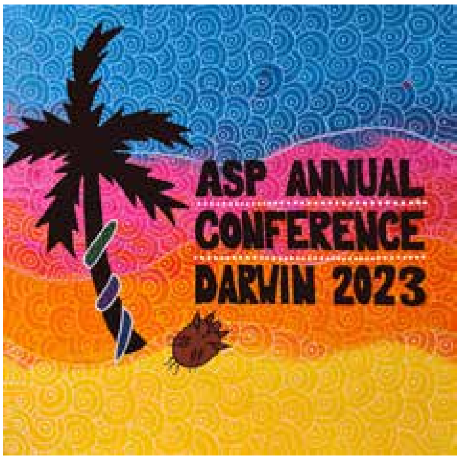



SA

Flinders University

Great article by **Justine Smith** in the Conversation!

https://www.abc.net.au/news/2022-05-12/one-third-people-infected-toxoplasma-parasite-clue-in-eyes/101058106



NT

Menzies School of Health Research
Charles Darwin University

Researchers from Menzies School of Health Research and Charles Darwin University are looking forward to welcoming ASP members to the 2023 ASP Annual Conference in Darwin next September. Conference co-chairs **Deborah Holt (CDU) and Steven Kho (Menzies)** and Committee members **Kamil Braima (Menzies), Jacob Westaway (Menzies), Katrina MacMahon (Menzies), Ben Lay (Menzies), along with Danny Wilson (Adelaide University) and Nick Smith (UTS)** have had their first meeting and are putting a very exciting program together. Let's meet some of the committee.

Conference Co-chair Dr Deborah Holt, Charles Darwin University, Darwin, Australia is also the ASP State Representative for NT.

Above: ASP VIC Members social event

Right: logo designed by Aboriginal artist based in Darwin, Jayde Hopkins

2023 ASP sponsors, Elsevier, IJP IJPPAW and IJPDDR, Virbac and New England Biolabs. Above right: Deb Holt, ASP 2023 Conference

ELSEVIER

IJP INTERNATIONAL JOURNAL FOR PARASITOLOGY

IJP Parasites and Wildlife

IJP Drugs and Drug Resistance

Virbac

NEW ENGLAND BioLabs Inc

State News continued

Conference Co-chair Dr Steven Kho Global and Tropical Health Division, Menzies School of Health Research, Charles Darwin University, Darwin, Australia
Papuan Health and Community Development Foundation, Timika, Central Papua, Indonesia

Dr Steven Kho is a Research Fellow at the Menzies School of Health Research in Darwin, Australia, and is an Honorary Research Fellow at the Papuan Health and Community Development Foundation in Indonesia. Recognised as an emerging leader in malaria pathophysiology, Dr Kho led recent studies that uncovered the human spleen as a natural hidden reservoir for *Plasmodium* species, and conducted fundamental projects revealing platelet-mediated parasite killing and a role for NETs in human malaria. Dr Kho now leads a research program to a) explore the fundamental biology of the splenic Plasmodium reservoir and b) identify novel approaches to overcome splenic parasite survival.

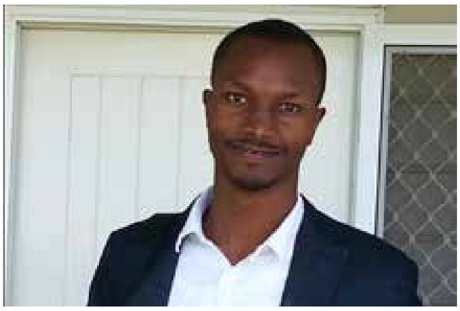
Steven Koh, Benedikt Ley, Jacob Westaway, Kamil Braima, Sunset - Tourism Australia/ Allan Dixon Beach - Tourism NT/Aude Mayans

Conference Committee member Dr Benedikt Ley, Menzies School of Health Research & Charles Darwin University

Benedikt Ley is a public health expert who started his career in 2008 with the University of Vienna (Austria), based in Bangladesh, and then spent several years working on the diagnosis of infectious diseases in Zanzibar, Kenya and Belgium. Benedikt completed his PhD in 2013 with the University of Vienna and in 2014 moved to Darwin, Australia, where he joined the Menzies School of Health Research. His research focuses on the interaction of Malaria and G6PD deficiency as well as the diagnosis of G6PD deficiency at the bed side. He is also a lecturer at the Charles Darwin University.

Conference Committee member Dr Jacob Westaway, Bioinformatician, Menzies School of Health Research

Jacob is a bioinformatician at the Menzies School of Health Research, where he uses computational methods to make sense of large genomic datasets. For his PhD, Jacob used such methods to better understand the relationship between clinical factors and the preterm infant microbiome. Now, his primary research focus has shifted towards identifying genetic markers and characterising the population structure of the zoonotic malaria causing parasite *Plasmodium knowlesi.*



Conference Committee member Dr Kamil Braima, Menzies School of Health Research

Kamil is a Postdoctoral Molecular Scientist in the Global and Tropical Health Division (GTH) at Menzies School of Health Research in Darwin, Australia. His research involves molecular diagnostics and development to examine zoonotic malaria transmission and other acute febrile illness pathogens in Southeast Asia. Kamil has several years of both local and international research and teaching experience, including volunteering with the COVID-19 Surge workforce in the Northern Territory. He is a member of the Australian Society for Parasitology (ASP) since 2017, and currently holds Professional Membership as a Medical Scientist of the Australian Institute of Medical and Clinical Scientists (AIMS).

Save the dates for #ASP2023 in Darwin Tuesday 5th - Friday 8th September 2023!

State News continued

Tasmania

University of Tasmania

Congratulations to Dr Scott Carver for receiving the 2022 Barry L. Munday Recognition Award for wildlife health!

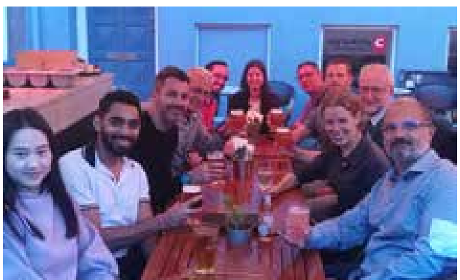
Barbara Nowak has been busy this year on the international circuit. Barbara gave a virtual lecture for course on fish medicine and pathology at Bern University on Biosecurity and disease control in mariculture, covering some of parasitic diseases including blood flukes and sealice

Barbara Nowak gave an invited keynote presentation "Fish, parasites and feeding the world" at the 15h International Congress of Parasitology (ICOPA 2022), which took place on 21-26 August 2022 in Copenhagen, Denmark. Barbara participated in the meeting of the International Committee of the International Symposium on Fish Parasites was run this year with ICOPA. It was decided that the next International Symposium on Fish Parasites will be in Merida Mexico in 2025. **Barbara** travelled to Norway to attend an international meeting on in vitro gill models, presenting some of in vitro research on amoebic gill disease

Barbara also spent time in Denmark to provide research training for PhD students at EU RASOPTA network focusing on

Above: Barbara Nowak, photo credit B. Ciba

Below: photo from Barbara Nowak shows utepils (Norwegian for drinking beer outside - we had amazing weather considering it was April)



Above: spring in Copenhagen

aquaculture in recirculating systems, including fish health and parasitic infections

Kate Hutson has returned to Australia following the past four years at the Cawthron Institute in Nelson, New Zealand. Kate is now based in Hobart, Tasmania, but will continue her role remotely with the Cawthron Institute as Senior Scientist and Programme Leader in Aquatic Animal Health. During her time in New Zealand, Kate facilitated Cawthron's design and build of a large aquatic PC2 biocontainment facility, Te Wero Aro-anamata, the first of its kind for New Zealand, which offers new avenues for research on emerging and notifiable aquatic pests and diseases. Aquatic parasites continue to be a key focus for Kate. Her recent work includes the development of an online decision support tool for the management of ectoparasitic flatworms in kingfish aquaculture BeNeZe (cawthron.org.nz). Her team have also optimised in vitro culture methods for Perkinsus olseni, a problematic protozoan parasite in shellfish aquaculture, with a view to better understand its role in mortality events. She remains active in parasite ecology and continues to supervise students in her capacity as Adjunct Associate Professor at James Cook University. Kate is excited to be back on home soil and is looking forward to new adventures (and parasites) in Tasmania. She is on the hunt for Dolops tasmanianus, an argulid parasite of Tasmanian freshwater fish, only known from the type material and in urgent need of further study!

New South Wales

Charles Sturt University

Shokoofeh Shamsi (CSU) and Danny Wilson (University of Adelaide) recently attended the Australian Centre for Disease Control (CDC) consultation workshop in Brisbane representing the Australian Society for Parasitology. This is the first of many roadshow sessions and the ASP will be asked for further input. Photos below are from the Brisbane roadshow event with Professor Pau Kelly, Chief Medical Officer and other experts.

Shokoofeh has been busy in the media recently

Shokoofeh's interview this week re eating wild boar seems to have been syndicated across multiple ABC channels! Here is the original interview (https://www.abc.net.au/riverina/programs/breakfast/breakfast/14111196?utm_campaign=abc_radio_riverina&utm_content=link&utm_medium=content_shared&utm_source=abc_radio_riverina) (starting from 1:19:00), and here's a snippet from one of the major stations – NSW Country Hour with Michael Condon.

Read Shokoofeh's news story "Parasites are not rare. Severe health reasons to make your next meal well-done" on the CSU website https://news.csu.edu.au/opinion/parasites-are-not-rare.-severe-health-reasons-to-make-your-next-meal-well-done?fbclid=IwAR18vpLnGu1c-lICjTgAzr5KtnG1t6Mxc32nN45cc2cnekwaMZOzLWf54T4

*Her*minthology is a social media initiative demonstrating the possibilities for young women in science by profiling female parasitologists across all career stages.

If you think you, or something you know, deserves to be featured please contact herminthology@gmail.com for details.

Follow @herminthology

Patsy A. Zendejas-Heredia is a PhD candidate at the **University of Melbourne**, Australia. Originally from Mexico, she moved to Australia at the age of 18 to study veterinary medicine, but became fascinated with genetics and helminths in the second year of her degree and decided to pursue parasitology instead. Her research involves using diagnostic tools and genetics to understand the transmission dynamics of zoonotic intestinal parasites from dogs and children living in the same communities.

"My favourite parasite, ***Ancylostoma ceylanicum***, is a blood-sucking helminth that can cause severe health issues such as iron deficiency anaemia in women and children. Using molecular tools and genetics we can understand where these parasites are present, and the role dogs play in the transmission to children to encourage a One Health approach where both children and animals are considered in deworming strategies."

Patsy A. Zendejas-Heredia es candidata a doctorado en la **Universidad de Melbourne**, Australia. Originaria de México, se mudó a Australia a la edad de 18 años para estudiar medicina veterinaria, pero quedó fascinada con la genética y los helmintos en el segundo año de la carrera y decidió dedicarse a la parasitología. Su investigación involucra el uso de herramientas de diagnóstico y genética para comprender la dinámica de transmisión de parásitos intestinales zoonóticos de perros y niños que viven en las mismas comunidades.

"Mi parásito favorito, ***Ancylostoma ceylanicum***, es un helminto que se alimenta de sangre que puede causar graves problemas de salud, como anemia por deficiencia de hierro en mujeres y niños. Usando herramientas moleculares y genética, podemos entender dónde están presentes estos parásitos y el papel que juegan los perros en la transmisión a los niños para fomentar un enfoque de One Health en el que tanto los niños como los animales sean considerados en las estrategias de desparasitación".

"I moved to Australia from Mexico at the age of 18 to study veterinary medicine, but became fascinated with genetics and helminths in the second year of my degree and decided to pursue parasitology instead."

Patsy A. Zendejas-Heredia
PhD student
University of Melbourne, Australia

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If you think you, or something you know, deserves to be featured please contact herminthology@gmail.com for details.

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Ala Tabor has been a Professorial Research Fellow at the **University of Queensland** since 2010. Ala is a molecular biologist primarily interested in genomics. She first started working with parasites about 25 years ago when the Department of Primary Industries in Queensland, Australia employed her to develop genotyping methods (1997) to differentiate field isolates of ***Babesia bovis*** from their live vaccine strains. These methods were subsequently updated in 2016 and can identify populations specific to field isolates and the vaccine strain, which can revert to virulence following tick passage. This research eventually led to her working with the *B. bovis* vector, the cattle tick (***Rhipicephalus microplus/australis***), which is her current favourite parasite. She has worked on the development and commercialisation of diagnostic methods and vaccines for several parasites since then, including the Australian paralysis tick ***Ixodes holocyclus*** and ***Tritrichomonas foetus***.

"I started a tick vaccine research program 17 years ago that delivered great results in 2021, which led to a Landline TV interview and my subsequent presentation as a video-on-demand session at ICOPA2022. My team uses nanopore long read technologies to decipher genomes and transcriptomes associated with novel vaccines. I love to employ novel omics to solve problems to better manage animal health."

Her talk, titled "The development of a new Australian anti-cattle tick vaccine and commercial realities" is a 'video-on-demand' session at ICOPA 2022, in the symposium entitled 'New tools for prevention and control of ticks and tick-borne pathogens'.

"My team uses nanopore long read technologies to decipher genomes and transcriptomes associated with novel vaccines. I love to employ novel omics to solve problems to better manage animal health."

Dr. Ala Tabor
Professorial Research Fellow
The University of Queensland, Australia

*Her*minthology is a social media initiative demonstrating the possibilities for young women in science by profiling female parasitologists across all career stages.

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Dr. Jane Lamb recently completed her PhD on liver fluke (***Fasciola hepatica***) in macropods (kangaroos) and cervids (fallow deer) at the **University of New England**. Her research confirmed that kangaroos and deer inhabiting north-eastern NSW harbour liver fluke and have the potential to contribute to this parasite's dispersal within endemic regions. As the potential for cross-species transmission also exists, wildlife harbouring liver fluke and cohabiting the grazing environment may threaten livestock production within these regions.

In addition to her PhD, Jane has over 10 years' experience in animal health research, conducting clinical research trials in livestock for veterinary product registration at **Invetus**. Jane also has a further 15 years working in formal laboratory and fieldwork research settings.

"*I have always had a keen interest in parasites of livestock and pathology generated in the host species. Liver fluke is my favourite parasite as this trematode has the unique ability to survive a very complex life cycle and coexist in large numbers in the liver. The intermediate host for liver fluke (***Austropeplea** ***sp.*** *snail) is also fascinating as it is capable of undergoing aestivation when climatic conditions are undesirable to increase chances of survival and permit the release of infectious stages the following season.*"

Read her recent work about grazier perceptions and management practices for liver fluke control published in Veterinary Parasitology: Regional Studies and Reports here: https://doi.org/10.1016/j.vprsr.2022.100705

"As a livestock producer I have always had an interest in parasites of livestock and the pathology generated in the host species. Liver fluke is my favourite parasite as this trematode has the unique ability to survive a complex life cycle."

Dr. Jane Lamb
University of New England, Australia

STA member benefits

Science meets Parliament (https://scienceandtechnologyaustralia.org.au/what-we-do/science-meets-parliament/) is STA's annual flagship event, bringing together leaders from the STEM community, government and industry. The role of SMP is to elevate visibility, awareness and understanding of STEM in federal Parliament and Australian Government Departments.This highly revered program consists of expert-led development workshops in science communication, advocacy, government relations and leadership. Delegates will also get the opportunity to meet a parliamentarian, attend the televised National Press Club address and network at the gala dinner. As an STA member, your organisation is eligible to nominate up to 3 delegates to attend SMP. The next SMP will be held in March 2023.

STEM Ambassadors (https://scienceandtechnologyaustralia.org.au/what-we-do/stem-ambassadors/) is another program that bridges the gap between policymakers and STEM professionals. Each STEM Ambassador will meet regularly with their local MP, over the year-long program, to build associations between Parliament and the broader STEM sector. This program enables federal politicians to gain a deeper understanding of the potential impact of STEM and its contribution to evidence-based decision-making.Ambassadors will receive training on how to engage effectively with policymakers, media training and networking as well as on-going support from the STA team. Only members of STA are eligible to participate in this program. Applications for the next round of Ambassadors will open before the end of 2022.

Superstars of STEM (https://scienceandtechnologyaustralia.org.au/what-we-do/superstars-of-stem/) is a game-changing Australian initiative to smash gender assumptions about who can work in science – and transform visibility in STEM. This program aims to build the public profile of 60 women and non-binary people employed in STEM through training in public speaking, media and communicating with influence and through creating media opportunities to practice their newly acquired skills. Superstars will even get the opportunity to directly encourage young people to study STEM, by speaking with them in their schools and workplaces, and by providing prominent public role models for them to aspire to. Applications for the next round of Superstars of STEM closed on the 15th of August 2022. This program is open to all STA members and non-members.

The government have recently announced a STEM diversity initiative and you can find more information on the Department of Industry, Science and Resources new 2022 STEM Equity Monitor https://www.industry.gov.au/publications/stem-equity-monitor

Super STEM Communicator Workshops (https://scienceandtechnologyaustralia.org.au/what-we-do/super-stem-communicator-workshop/) are a series of workshops provided by STA which cover a variety of topics including;

· Communicating with Influence

· Working with the Media

· Finding your Online Platform

A full list of the workshops can be found here (https://scienceandtechnologyaustralia.org.au/wp-content/uploads/2021/07/Super-STEM-Communicator-Brochure-July-2021.pdf). We are also offer a, "How to create a Cracking Podcast," (https://sta.eventsair.com/superstem/podcast/Site/Register) workshop. Please get in touch with our Memberships Team if you're interested.

Also, the STA Member Benefits Program (https://scienceandtechnologyaustralia.org.au/member-benefits-program/) provides discounted access to:

· Advice on governance, commercialisation, insurance, accounting and audits,

· CV appraisals and STEM-specific recruitment,

· Communications strategies, graphic design and animation,

· Hotel and car rental discounts.

Members can access these discounts by getting in touch with our Memberships Team.

Finally, to receive our fortnightly LinkedIn newsletter please subscribe https://www.linkedin.com/newsletters/6974923999839481856/.

Research project invitation: Gender and sci-comm initiatives in the life sciences

Dr Perry Beasley-Hall, ABRS Postdoctoral Fellow, Invertebrate Systematics & Biodiversity Lab at The University of Adelaide is inviting ASP members who engage in Outreach activities to participate in a a ground-breaking research project that examines how roles in professional life sciences societies are distributed among genders and the ways in which they are valued. The project has received Ethics approval from the University of Adelaide (no. H-2022-175). Participation in the survey will be voluntary and data collected will be anonymised. Please note that the closing date for survey answers is Friday, December 23rd

Dr Beasley-Hall writes:

I would like to draw you attention to the following study approved by the University of Adelaide (HREC approval number H-2022-175). Please see below for details supplied by the researchers.

You are invited to participate in a research project interested in finding out more about how life sciences societies are run and how work therein is valued within the academy. We invite your participation in an online survey that has been developed to capture your experiences with life sciences societies and perceptions about how this work is valued within academia. The survey is available here and it is expected that it will take you no more than 10 minutes to complete.

(https://www.surveymonkey.com/survey-taken/?sm=sMDCceRIAM8FtZBG3YZeBkTp8Ysy5CZBbCXPEmpMEv_2Fs7VVcetVgBlsuTZauxgJIbD1f_2FMO3LXsYJDH2gD98UzcgfZ5K8YCL_2BwPU_2FYi5_2F18_3D)

We would appreciate your perspective regardless of whether you have worked with a society or not. **The survey will close on Friday, December 23rd 2022.**

The survey is anonymous, and you will not be asked to provide any information that would identify you or your organisation. Although much of the data retrieved from the survey will be kept confidential, some of the responses received may be reported in narrative form. These responses will be reported anonymously. Your participation is entirely voluntary, and you are free to withdraw from the survey at any time prior to submission. However, please note that given that all data submitted is anonymous, once you have submitted your responses to the survey questions, we will not be able to withdraw your data. Please refer to the Online Survey Preamble at the above URL for further information on the study. The submission of completed responses will be taken as an indication of your consent.

You will be required to give consent as part of the survey process. You will be presented with a statement of informed consent and advised that by clicking on the link to the survey itself, you will be providing the researchers permission to use your comments and answers. Importantly, participation or non-participation will in no way affect your employment and there is no way of knowing which staff have or have not participated in the survey.

We greatly appreciate your participation in this study.

If you have any questions, please contact Dr Perry Beasley-Hall at perry.beasley-hall@adelaide.edu.au.

The research team

TRI-STATE SCIENTIFIC MEETING

DARWIN, SEP 8-10 2023

The Australian Society for Microbiology
bringing Microbiologists together

MAM2024 18-22 FEB Lorne Victoria Australia

Molecular Approaches to Malaria

MALARIA IN A CHANGING WORLD

Save the Date

Picturesque seaside town

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Mantra Lorne

Thanks to its fresh air, white beaches and buzzing arts community along with nearby otways and relaxed Mediterranean atmosphere, Lorne has always been the favourite destination for the MAM conferences.

The committee is keen to welcome you to Lorne to take part in the knowledge sharing, make connections and network with peers!

Get Involved

Join the Mailing List:
https://leishman.eventsair.com/mam2024/contact

Discuss Partnership Opportunities
Kim@laevents.com

Any Questions
Lucy@laevents.com.au

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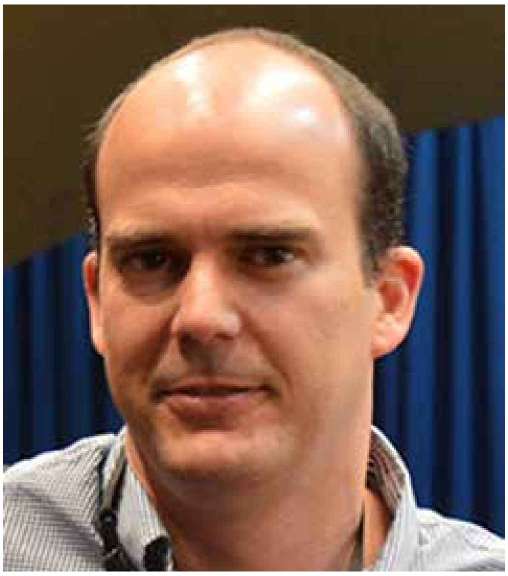

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