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The Australian Society for Parasitology Inc.

NEWSLETTER

Volume 36 Issue No.1 December 2025

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IN THIS ISSUE

From the President's Desk

Dear Members of the Australian Society for Parasitology,

As we look toward a well-earned break, I want to thank all of you for your continued membership and support of the Australian Society for Parasitology (ASP).

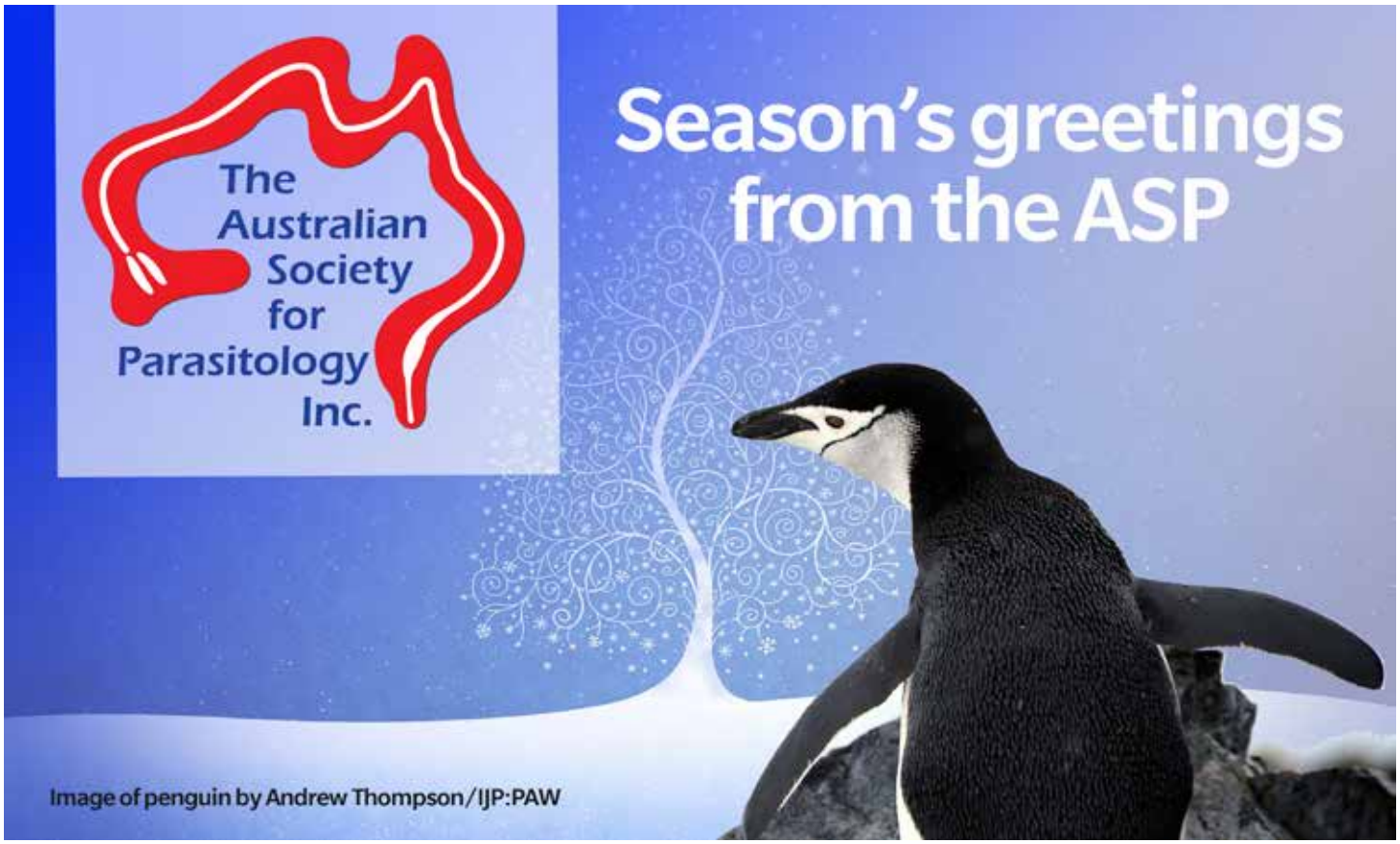
This year's conference in Melbourne was a great success and a true testament to the strength and diversity of our society. Please join me again in thanking Dr Hayley Bullen, Dr Elizabeth Aitken, Prof Nick Smith, Dr Sarah Preston, Dr Lucas Huggins, Dr Ghizal Siddiqui and Lisa Jones, our dedicated student volunteers, and the judges of the student and Early Career Researcher (ECR) prizes for their exceptional efforts in supporting such a memorable event. Congratulations to our student and ECR prize winners for their outstanding contributions, and my thanks to all student and ECR members that presented their research. Your work is a constant reminder of why we love this discipline, and your participation in the society, our conferences and events is vital to the culture and success of the ASP.

I am looking forward to our next conference, to be held on the Gold Coast from 29 June to 2 July 2026. I encourage all members to mark their calendars and to spread the word. I am confident the conference co-chairs A/Prof Danielle Stanisic and Dr Swaid Abdullah, and their local organising committee, Prof Ala Tabor, Dr Deepani Fernando, Dr Jacinta Macdonald and Prof Darren Gray, supported as always by Nick and Lisa, will put together a fantastic conference, and I hope to see you there.

Year in Highlights

This year, we celebrated the major achievements of several ASP members. Congratulations to Dr Rina Wong (Fu), recipient of the prestigious Bridget Ogilvie Medal, and also the 2025 WA Premier's Science Award for STEM Educator of the Year.

From the President's Desk continued



These accolades are a testament to Rina's dedication to both science and education. Congratulations to Prof. Nathan Bott and Dr Haylee Weaver as newly inducted ASP Fellows (FASP), recognising their significant contributions to the field and the society. At the same time, we pause to remember two esteemed parasitologists: Professor Klaus Rohde ASP member and FASP, whose work at the University of New England advanced our understanding of platyhelminth biology and marine parasitology, and Michael Alpers, former director of PNGIMR, whose research transformed the control of malaria and lymphatic filariasis in Papua New Guinea and beyond. Their impact on parasitology, global health and public outreach will not be forgotten.

Council Updates

This year, we welcome several new council members: Prof. Jake Baum (UNSW) as ASP Secretary, Dr Samantha Emery-Corbin (Monash University) as ASP Treasurer, Dr Patsy Zendejas (University of Melbourne/Deakin University) as Victorian State Rep, Dr Sonja Frölich (University of Adelaide) as SA State Rep, Dr Deepani Fernando (QIMR) as Qld State Rep, and Associate Professor Brendan McMorran (ANU) as ACT State Rep. We are grateful for the ongoing commitment of our continuing council members, and I'd like to acknowledge the significant contributions of our outgoing council executive — Prof. Danny Wilson (former President), Dr Hayley Bullen (former Treasurer), and Dr Ghizal Siddiqui (former Secretary). Thank you also to our continuing state representatives for NSW (Claire Sayers), NT (Kamil Braima), Tas (Kate Hudson) and WA (Breanna Knight), as well as the contributions of Prof. Alex Loukas (Medal and Awards Convenor), Prof. Danny Wilson (ASP Vice President), Prof. Robin Gasser (ASP Fellows Representative), Grace Peters (ASP Student Representative), Dr Haylee Weaver (Archivist), Prof. Michelle Power (CiP Course Co-ordinator) and Dr Swaid Abdullah (Education Committee Convenor), Lisa Jones (ASP Secretary and Executive Officer), Prof. Nick Smith (ASP Network Convenor) and Maureen Engler (ASP Secretariat) for their ongoing contributions to the ASP Network.

Outreach and Education

I would like to give special thanks to Lisa Jones for her efforts in compiling our newsletters and ensuring that all members are kept up to date with the many activities and opportunities within the society. Lisa's commitment to outreach has been instrumental in connecting our members and showcasing our achievements. I also want to recognise those who have played vital roles in outreach this year, including the excellent work of Associate Professor Katja Fischer in leading another fantastic education program for high school students in remote regions in Queensland, Professor Alex Maier, Cecilia Nie and

From the President's Desk continued

Lisa Jones for their 2025 National Science Week events " Parasite Pandemic: Unlocking Science Through Immersive Experience", as well as the efforts of Dr Sarah Preston and Lisa Jones in launching ASP's Parasite Podcast "What's Eating You?" among many outstanding examples.

In 2025, the Concepts in Parasitology (CIP) course remained a cornerstone of our educational outreach. I would like to thank Prof. Michelle Power for her exceptional leadership in overseeing and helping to refresh the course, ensuring its continued relevance and sustainability. I would also like to thank all ASP members who contribute to delivering the CiP course modules and make the course an excellent testament to the strength of Australian parasitology.

Please join me in acknowledging these and the many other efforts of ASP members that actively engage in outreach programs. The success of these initiatives reflects the society's strong commitment to promoting parasitology and mentoring the next generation of researchers and educators.

"Bang the Gavel" outgoing ASP President Danny Wilson handing over the reins to incoming ASP President Aaron Jex at the 2025 ASP Annual Conference.

State of the ASP journals

Our society journals have again ended the year in a strong position, with all three reporting profits and reinforcing ASP's reputation as a leading voice in high-quality parasitological research. I want to thank Andrew Kotze for his foundational role as co-editor-in-chief of IJP: DDR and welcome Dr Sarah Preston to the editorial board alongside Professor Kevin Saliba. I am confident Sarah will be a fantastic addition to the board and wish Andrew the very best in his retirement. We also send our deepest thanks and best wishes to Mari Mueleman FASP, who retires after many years of exemplary service to IJP. Please join me in acknowledging the tremendous efforts of the editorial board of IJP, IJP DDR and IJP PAW.

As outlined in detail by Danny Wilson during his Presidential address at the ASP Annual General Meeting in Melbourne this year, the Society's journals are navigating a challenging period, amidst a transition away from print or issue-based publications largely supported by institutional subscriptions, to a fully digital, open access model underpinned to a greater extent by article processing charges. I wish to acknowledge the leadership Danny played, alongside our journal editors and the team at Elsevier, led by Dale Seaton, in supporting the journals' longer-term sustainability.

Society Strength and Future

Thanks to the careful stewardship of this year's executive, particularly Hayley Bullen's work as Treasurer, the ASP has made significant strides toward improving its long-term financial stability. I also want to acknowledge the substantial efforts made by Michelle Power to improve the sustainability of the CiP course, which remains a much-valued part of the ASP's educational and outreach program. I look forward to working with ASP council and our new executive to build on these important efforts.

However, we must recognise the challenges ahead—particularly as competition for scientific publishing intensifies and journal profit margins face ongoing pressure. The Melbourne conference provided a welcome boost to our membership numbers after several years of decline. Still, we must continue to promote the Society and encourage Australian parasitologists from all disciplines to join or renew their membership. I also gratefully acknowledge and welcome our growing list of international members. I hope to see as many of you as possible at our conference next year, and I encourage you to support our Society journals, IJP, IJP DDR, and IJP PAW, with your article submissions. The journals are an excellent vehicle for publishing top-quality parasitology, and their success is essential to the long-term strength of the ASP.

Thoughts for the coming year

The end of year is a time for both

From the President's Desk continued

looking back and looking forward. 2026 will mark my 24th year in the ASP, and, as it happens, my 48th year as, well, anything really. By the end of my time as ASP president in 2027, I will have been a member of the society for longer than I have not.

As I look back, I think of many milestones along the way. I remember presenting as a new PhD student at my first ASP conference in Hobart in 2002. I remember berating myself after my presentation for speaking too fast (I'm still working on that), for missing something I wanted to say, or for not answering a question as well as I wanted. As I walked outside feeling fairly deflated, I was stopped by a man with a beaming smile, genuinely bubbling with enthusiasm about my studies. I was brand new to the society, and this was only my first opportunity to meet a genuine legend of Australian parasitology, Graham Mitchell. But I never forgot it. I not only felt instantly better about the work I had presented, I felt I deserved to be a part of this society. In the years since, Graham has regularly been a voice of encouragement and enthusiasm, and for that I am very grateful.

I remember the very next ASP meeting, in Darwin in 2003, and, having only met her that morning, I got to tag along with Di Barton and one of her postdocs to cruise the Arnhem Highway after dark in search of roadkill, death adders and parasitic worms (oh my). We were fortunately short on roadkill, but I did get to hold a very live and beautiful Burton's legless lizard, and safely returned from Fogg Dam without a run-in with crocodiles.

I remember the following year (and I promise not to run through each conference like this) and meeting Prof. Robin Gasser, who would become a tremendous mentor to me, as he has and continues to be for countless others. For those of you who know him, you'll be unsurprised to know that I first met Robin as he thundered across the lobby at the conference in Fremantle, a blur of energy as much force of nature as parasitologist! And if you know Robin, you will be equally unsurprised that when I called out, he stopped mid-stride to answer me and, within minutes, had discussed my project, invited me to visit his lab in Melbourne to complete some additional experiments and even covered the costs. That visit that shaped not only my career, but my life, was decided in a moment at an ASP conference; a young student asking for advice, a well-respected leader freely offering it for no benefit of his own.

There are countless ASP milestones that I can add, from meeting David Marnie, Emanuela Handman and the other ASP fellows at the Gold Coast conference in 2006, to hosting the invited speakers at my first conference as ASP Treasurer, to the first time I got to be a part of ASP CiP, to seeing the 'young' members of the ASP I joined with become the senior leaders of the ASP today, to seeing my and my colleagues' students write their first words in the proud history of Australian parasitology. So many of the milestones that mark my career are thanks to the ASP. I'm grateful for the opportunity to represent this great society as President and for all the many things the society has given me over so many years.

If milestones mark where we've been, they should also illustrate where we want to go. We are part of a fantastic scientific society with more than 60 years of history and a tremendous legacy in parasitological research, education and public outreach. We are also a society weathering many of the challenges faced by the global scientific community, including uncertain funding, fewer opportunities, increasing discrimination, and the emergence of vocal anti-science sentiment. We find ourselves in a time when words like 'Diversity', 'Equity' and 'Inclusivity' increasingly seem like objects of ridicule rather than goals for a more just society. We are a society that takes pride in its diversity and defines itself by the stories, like mine, of young ECRs and student parasitologists finding their feet, gaining their voice, and being mentored and enriched through their ASP membership. But we need to work to maintain that ideal.

I discussed the importance of creating a sense of belonging in my opening address to the society at our conference this year, and how vital this is to a welcoming society and to cultivating the creativity and resilience needed to succeed in scientific research. I was genuinely touched by the number of people who shared their comments and thoughts on some of the things I said. If this topic resonates with you, I'd be willing to bet it's because you, too, know what it's like to have felt like you were an outsider, you were not welcome, or you didn't belong. And if you know that feeling, you can appreciate how difficult it can be, particularly for new members of the society seeking to find their feet, present their work, and know that they deserve to be here.

Although I do believe we have a great scientific society and hope that the vast majority of our members have received the support and enrichment from the ASP that I have, not all ASP members have had my experience. Not all ASP members have had the same opportunities to find their voice. Not all members leave ASP events feeling they belong, are welcome, or are deserving. If we all value this society as we do, we all share in the desire to ensure that everyone who joins it, contributes to our events, and lends their efforts to advancing our mission to support and promote parasitological research in Australia and internationally, have the right to feel respected, heard, and mentored. This is not only how we ensure that our scientific society is just, it is essential to our renewal, continued excellence, and long-term survival. To every one of our members who contribute to enriching our society, whether through outreach, presenting your work, providing a colleague

From the President's Desk continued

with words of encouragement, or dedicating your time to mentoring parasitologists and promoting parasitology, you do belong, you do deserve to be here, and I thoroughly look forward to seeing your research and watching you mark your ASP milestones with the same joy and enrichment I have.

I look forward to seeing you next year and wish you a happy and restful end-of-year break. Don't eat too much candy, and do remember your sunscreen!

Best wishes,

Prof. Aaron Jex, WEHI

President of the Australian Society for Parasitology

www.parasite.org.au

www.facebook.com/ASParasitology

www.twitter.com/AS_Para

https://www.linkedin.com/company/the-australian-society-for-parasitology/

https://www.youtube.com/user/ASPParasiteNetwork

https://shows.podcastle.ai/show/what-s-eating-you-vr7KKXOx

2025 Australian Society for Parasitology Annual General Meeting

The 2025 Australian Society for Parasitology Annual General Meeting was held as a hybrid face-to-face and online meeting on Wednesday 2 July 2025 at 4pm AEST.

The following business was conducted at the 2025 Annual General Meeting of the Society. The minutes and reports for all ASP meetings are available on WildApricot/members/resources section. To access them please login to your Wildapricot account (https://asp.wildapricot.org/memberresources) and check the members resources or email the Secretary (secretary@parasite.org.au):

- 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 (see positions vacant and nominating for ASP Council https://www.parasite.org.au/the-society/join-the-asp-council/);
- appointed an auditor or an accountant 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.

Congratulations to the following ASP Council representatives who were elected at the ASP AGM on Wednesday 2 July 2025 400pm AEST.

President, 2024
Aaron Jex was elected into the position of President August 28, 2024. He was nominated by ASP members Clare Anstead and Robin Gasser.

Treasurer, 2025
Samantha Emery-Corbin was elected into the position of Treasurer, 2 July 2025. She was nominated by ASP members Aaron Jex and Clare Anstead.

Executive Secretary, 2025
Jake Baum was elected into the position of Executive Secretary, 2 July 2025. He was nominated by ASP members Aaron Jex and Clare Anstead.

Vice-President
Danny Wilson is Vice-President, he was elected into the position of President-Elect in 2022.

Victorian State Representative, 2025
Patsy Zendejas has been elected into the position of Victorian State Representative, 2 July 2025. She was nominated by ASP members Lucas Huggins and Clare Anstead.

New South Wales State Representative, 2025
Claire Sayers has been has been elected into the position of New South Wales State Representative, 2 July 2025. She was nominated by Danny Wilson and Michelle Power.

Queensland State Representative, 2025
Deepani Fernando has been has been elected into the position of Queensland State Representative, 2 July 2025. She was nominated by ASP members Swaid Abdullah and Malcolm Jones.

Northern Territory Representative, 2025
Kamil Braima has been elected into the position of Northern Territory Representative, 2 July 2025. He was nominated by ASP members Lucas Huggins and Brian Cooke.

Tasmanian State Representative, 2025
Kate Hutson has been elected into the position of Tasmanian State Representative, 2 July 2025. She was nominated by ASP members Claire Sayers and Haylee Weaver.

Australian Capital Territory State Representative, 2025
Brendan McMorran has been elected into the position of ACT State Representative, 2 July 2025. He was nominated by ASP members Giel van Dooren and Nick Smith.

South Australia State Representative, 2025
Sonja Frölich has been elected into the position of South Australian State Representative, 2 July 2025. She was nominated by ASP members Melanie Rug and Tania De Koning-Ward.

Western Australia State Representative, 2025
Breanna Knight has been elected into the position of Western Australia State Representative, 2 July 2025. She was nominated by ASP Members Danny Wilson and Michelle Power.

ASP Student Representative, 2025
Grace Peters, PhD candidate at UNSW, has been has been elected into the position of ASP Student Representative, 2 July 2025. she was nominated by ASP members Alex Loukas and Danny Wilson.

ASP Fellows Representative, 2025
Robin Gasser has been elected into the position of ASP Fellows Representative, 2 July 2025. He was nominated by ASP members Kate Hutson and Aaron Jex.

2025 Bridget Ogilvie Medal winner, Rina Wong (Fu)

Congratulations to Rina Wong (Fu) who was awarded the 2025 Bridget Ogilvie Medal of the Australian Society for Parasitology

Rina is a research scientist, university lecturer, award-winning science communicator, as well as performing artist, author, and singer-songwriter who brings this diversity of practise into her Engaging Children & the Community In Science (ECIS) initiative that embeds Parasitology Education. Rina's initiative offers an authentic, high-quality and inspiring science experience suitable to a very diverse audience. The material is presented in a multimodal and inclusive manner designed so that people of all ages and abilities can be inspired by parasites, whatever their current level of scientific knowledge and interests.

Rina was hooked by parasites since her PhD in malaria drug resistance, for which her thesis and post-doc presentations received the JFA-Sprent Medal and ECR award from the ASP. Rina pushed through much resistance from 'traditional-scientific' ways of presenting her research at the university and broke the boundaries with her original song 'Fight Against Malaria' at the inaugural 3-minute thesis competition at UWA, which got her to the finals, people's choice award and being featured on ABC Catalyst's Sell Your Science. A decade on, this song is still sung at high schools and primary schools, national science week events, university lectures, featured on YouTube and celebrated in World Malaria Day, with the latest edition featuring Australian sign language (AUSLAN). Rina continues to share her passion for parasitology education through her original music, capturing the hearts of toddlers, school aged children, the general public, elderly and people with disabilities.

As a performing artist, Rina has shared many of her parasitology education songs with audiences singing along at professional conferences in Brisbane, Melbourne, Adelaide Convention Centres, national science week stage shows in Perth, Riverina Science Festivals in Wagga Wagga and in her interactive workshops for school incursions and the general public. Rina's in-person, hands-on ECIS workshops have engaged over 13,000 participants. Rina is also a sought-after STEAM education consultant for university outreach initiatives and in-person and online workshops for schools. Rina has designed and delivered multiple parasitology workshops for toddlers, home school groups, area schools and universities. ASP's Crafty Parasites – Malaria is just one example https://www.parasite.org.au/outreach/craftyparasites/

At the tertiary level, Rina is a unit coordinator, lecturer and laboratory instructor for Applied Microbiology, where she innovatively inspires students' curiosity about parasitology through role modelling and giving students the freedom to research, learn and present their parasitology topic in a creative manner. Rina's contribution to parasitology education is taken on a team-based, apprenticeship pedagogical approach that turns a perceived gloomy topic into a fun and engaging learning experience which results in more effective absorption of knowledge. Central to Rina's ECIS initiative is the mentoring of retired, senior and junior scientists, who volunteer to engage with children and members of the general public through Rina's workshops and invited events. As Rina runs parasite themed workshops, her team organically becomes much better educated about parasitology as they prepare for the workshops. Post-workshop debriefs and reflections are an integral part of maximising workshop participants, volunteers as well as Rina's personal learning experience, providing a safe space to further improve the delivery of the parasitology education workshops.

Rina's lived experience as a sister to a person with non-verbal autism underpins her passion to make parasitology accessible to people of all abilities. She designs and embeds fun parasite interactive activities in workshops tailored for children with special needs and disabilities. WA-based Disability & Special Needs service providers in partnership with Rina include – 4lifeskills, Cahoots, WA Foundation for Deaf Children, School of Special Educational Needs – Sensory. Rina has also been invited to work with providers of special needs education outside of Western Australia. She has spearheaded and led multiple National Science Week projects including parasitology education for deaf children in the Perth metropolitan and regional WA since 2019 with collaborators including Scitech, The ASP and public libraries. Her workshops for adults have also catered for visually impaired individuals.

Rina is highly active on social media and regularly speaks on radio on science topics, where she opportunistically weaves in stories of parasites to educate the broader community on this fascinating topic.

Congratulations Rina!

The Bridget Ogilvie Medal of the Australian Society for Parasitology is an award for an Ordinary member or Fellow of the ASP who, in the opinion of the selection committee appointed by Council, has made an outstanding contribution to parasitology education. https://www.parasite.org.au/awards/the-bridget-ogilvie-medal/

2025 Bridget Ogilvie Medalist, Rina Wong (Fu) receiving her award from Danny Wilson at 2025 ASP Conference.

2025 ASP Fellowship awarded to Nathan Bott

Congratulations to Nathan Bott 2025 Fellow of the Australian Society for Parasitology Inc., awarded at the 2025 ASP AGM. The citation for Nathan's Fellowship is published below

Associate Professor Nathan Bott is internationally renowned for his research on fish parasitology. He obtained his PhD in 2006 from the University of Queensland and is currently Associate Professor and Deputy Head of Department, Biology, School of Science, STEM College, RMIT University.

Associate Professor Bott's innovative, industry-focused research program generates fundamental parasitological knowledge to deliver outcomes for research end-users. His PhD thesis was on digenean parasitism of bivalves and fishes. From there he has expanded into studies of a broad range of parasite (and free-living) groups typically on the basis of the adoption of leading-edge technology. During his initial postdoctoral research at Melbourne University, he worked on molecular detection of parasitic nematodes in livestock, in particular strongylid infections in sheep. Work in South Australia included important studies on exotic marine animals and saw the start of his heavy involvement in the study of blood flukes of ranched tuna. His molecular analysis was critical in the breakthrough finding that the terebellid polychaete Longicarpus modestus is the intermediate host for *Cardicola forsteri* in Australia. He was instrumental in confirming cosmopolitan distribution of platyhelminths in three species of bluefin tuna and in identifying new parasites or confirming identity of known parasites of tuna, mulloway and striped trumpeter. Once at RMIT University, his research team started a new era of omics research on blood flukes affecting bluefin tuna, leading to the first genome, glycome and transcriptome of those parasites. This research direction included improved detection and diagnosis of blood fluke infection, in particular point-of-care detection using recombinase polymerase amplification coupled with lateral flow test. His research significantly contributed to the success of the Southern Bluefin Tuna industry. From 2008 to 2012, he was one of the main collaborators on a tuna health project, which involved collaboration between 5 research institutions and the Australian Southern Bluefin Association. This research won a number of awards, including 7th Australian Seafood Industry Award in the Research, Development and Extension Award category and B-HERT Best Research and Development Collaboration Honourable Mention.

Nahan Bott is an outstanding PhD supervisor. Despite being employed in an academic position for only just over 10 years, he has supervised 7 PhD students and 8 Honours students to completion and currently supervises 4 PhD students. He is passionate about mentoring students and staff, in particular early career researchers, in a research environment. He has been HDR convenor since 2016 for his department's PhD and Masters programs. From 2020 to 2022 he guided students and supervisors through the uncertainties of the COVID-19 pandemic. He has been a key advisor and mentor to dozens of students on a weekly basis by making himself available for weekly briefings with all students within the programs.

Nathan Bott has been an effective mentor to research students, staff and visitors in his group. He promotes diversity and has mentored and supervised many female students and staff, including some returning from maternity leaves. He gives opportunities to enthusiastic ECRs and supports and encourages career development opportunities for members of his group. He has guided and assisted former staff member in finding permanent positions with leading biotechnology companies and government departments. Associate Professor Bott has been mentoring ECRs who have regularly visited his laboratory from other

2025 ASP Fellow, Nathan Bott

institutions (University of Queensland, University of NSW, University of Tasmania, University of California at San Diego). His contribution to ECR mentoring is evidenced by co-authorship of research papers and invited book chapters and reviews with them.

His research standing in the international community is evidenced by Membership of the Editorial board of Scientific Reports, Nature and the Topic Advisory Panel for Pathogens MDPI. In recognition of his fish parasitology expertise and active participation in marine parasitology research internationally, earlier this year he became a member of the International Committee for International Symposium on Fish Parasites representing Australia, New Zealand and South-East Asia.

Nathan Bott strives to promote Australia as a centre for parasite research and by fostering international scientific interaction.

ASP Fellowship cont...

In 2023 he successfully applied for ASP funding for a Researcher Exchange for Prof Sho Shirakashi from Kindai University Japan to collaborate on blood flukes in Southern Bluefin Tuna and to run a short training workshop for researchers and PhD students. In 2024 he travelled to Japan with two of his PhD students to collect samples of parasites from Pacific Bluefin Tuna and strengthen his collaboration with Kindai University.

Nathan Bott has worked tirelessly for the Australian Society for Parasitology (ASP). He was the Executive Treasurer of ASP from 2019 to 2021, successfully managing the finances of one of Australia's most financially stable and successful scientific societies. He took oversight of over a million dollars in the Society's assets and investments in prudential manner. With the COVID-19 pandemic this responsibility took on greater importance with extraordinary financial decisions required to enable the society to continue to function and deliver for members. The strategic decisions Bott made since the start of the pandemic contributed directly to maintaining the Society's membership base and preserving its positive financial position. During his tenure as ASP Executive Treasurer, he began the complex process of steering the Society's investment portfolio towards sustainable and ethical investments. This involved a delicate process of managing the Society member's expectation and gathering information from a variety of sources. He not only provided leadership for his term on the ASP executive, but also supported the ongoing, future prosperity of the society by providing advice and mentoring the next ASP Treasurer. Since 2023 Nathan Bott has been contributing to the Concepts in Parasitology course (CiP), teaching fish parasitology. In 2024 he was instrumental in increasing the diversity of the CiP teaching team by inviting a female parasitologist to co-teach fish parasitology.

Bott has also been involved in outreach, for example, in November 2018 he gave an invited public lecture for the Australian Marine Sciences Association- Showcasing Victoria's Marine Science event in

Melbourne where he educated the public on his research and the life-cycles of marine parasites. He was also session chair for Marine Parasitology at the 14th International Congress of Parasitology in Daegu, South Korea in August 2018.

In view of his outstanding contributions to science, parasitology and the Society, Nathan Bott would be an extremely worthy recipient of the title, Fellow of the Australian Society for Parasitology.

2025 ASP Fellows, Nathan Bott (L & above) and Haylee Weaver (R)

2025 ASP Fellowship awarded to Haylee Weaver

Congratulations to 2025 Fellow of the Australian Society for Parasitology, Haylee Weaver, awarded at the 2025 ASP AGM. The citation for Haylee's Fellowship is published below

Haylee Weaver receiving her 2025 ASP Fellowship award from ASP President Danny Wilson

Haylee Weaver is a parasite taxonomist, with research interests in the taxonomy of parasites, and parasite-host ecology. Haylee has woven parasitology into her entire working career which has spanned her work at The Australian National University, the University of the Sunshine Coast and the Department of Climate Change, Energy, the Environment and Water. Haylee Weaver has 38 publications; as a taxonomist, her work and research helps our understanding of biodiversity – and the flow-on application of that knowledge for ecological management, conservation, biosecurity, human and veterinary medicine, agriculture and fisheries, and even research and discovery for drug targets and diagnostics. Haylee has been a member of the Australian Society for Parasitology since 2008 and the ASP Archivist since 2010, devoting more than 750 volunteer hours to this role.

Haylee Weaver completed her Bachelor of Science (Biological Science) and Bachelor of Environmental Science (Honours I), at the School of Ecology and Environment, Deakin University in 2003 and in 2008 graduated with a Doctor of Philosophy, Department of Molecular and Life Sciences, Central Queensland University with the thesis title: "Biodiversity of the parasite fauna from the rodent genera Pseudomys and Zyzomys from northern Australia".

Haylee began her career in academia, researching and lecturing in Parasitology and Ecology of Health and Disease and Conservation Biology at The Australian National University, and later the University of the Sunshine Coast lecturing in invertebrate biology and ecology.

Haylee worked for the Australian Biological Resources Study, Biodiversity Science Section, Department of Climate Change, Energy, the Environment and Water from 2015-2022 coordinating advice and expertise for queries regarding the taxonomy and nomenclature of Australia's fauna and flora, administering a research grant program, and working with scientists to improve capacity in, and increase knowledge of, the field of taxonomy and systematics and promoting the importance of taxonomy and systematics research as being the fundamental starting point for all other aspects of biological and ecological research, because current nomenclature is crucial for all decision-making. During this period Haylee also negotiated a Memorandum of Understanding between the Australian Faunal Directory and the World Register of Marine Species, for data sharing and collation of nomenclature and taxonomic data.

As the Director of Biodiversity Science & Knowledge Section for Parks Australia Division, Department of Climate Change, Energy, the Environment and Water, Haylee is responsible for the Australian Biological Resources Study (ABRS), Bush Blitz, Centre for Australian National Biodiversity Research (Australian National Herbarium), Biodiversity Informatics, providing information and research that contributes to understanding and documenting Australia's unique biodiversity, and the Australian National Species List database that presents over 200,000 current species names and taxonomy for Australian plants, animals and fungi.

At the International Congress of Parasitology (ICOPA XII) conference in Melbourne in 2010 Haylee Weaver was an "expert scientist" who gave an invited presentation at the Melbourne Conversations event: Climate Change, New Diseases and Parasites - What will it mean for Melbourne? on Tuesday 17 August at the Melbourne Recital Centre. This event highlighted the potential threats and disruption to our society imposed by infection in a changing environment and, importantly the suggestion of options to counter their impact. This public outreach event was supported by the Australian Society for Parasitology and part of ICOPA XII outreach program.

In the light of these contributions to parasitology and the ASP, we would like to nominate Haylee Weaver as a Fellow of the ASP.

Vale Professor Klaus Hans Franz Rohde 30 March 1932 – 26 August 2024

Professor Klaus Rohde was an eminent parasitologist, esteemed educator and prolific author whose contributions to the field of parasitology transformed our understanding of host-parasite relationships, biodiversity and parasite ecology. His passing leaves behind a legacy of rigorous scientific inquiry, mentorship and interdisciplinary collaboration.

Klaus was awarded a Fellow of the Australian Society for Parasitology in 1998.

Klaus Hans Franz Rohde

Early Life and Education

Born in Brandenburg/Havel, Germany, in 1932, Klaus pursued his early education in biology with great curiosity and determination. He earned his doctorate from the University of Münster in 1957, focusing on the behaviour and physiology of Paramecium under the supervision of Professor B. Rensch. His early career took him across the globe, from Germany to the University of Malaya, the University of Queensland and ultimately to New South Wales, where he held a professorship at the University of New England in Armidale.

Academic Career and Research Contributions

Klaus' research career was distinguished by an unwavering commitment to taxonomic, ultrastructural and ecological studies of parasites. As a Lecturer at the University of Malaya (1960–1967), he published taxonomic papers on turbellarians, cestodes, digeneans, aspidogastreans and monogeneans, refining his expertise in life cycle studies, histology and electron microscopy. He later became a Research Fellow in Bochum and completed his Habilitation at the University of Bochum in 1970.

From 1970 to 1972, Klaus was the first postdoctoral Research Fellow in the Department of Parasitology at the University of Queensland, where he focused on the ultrastructure of monogeneans. In 1972, he served as a Reader in the Department of Zoology at the University of Khartoum, Sudan, and joined a research expedition to the Red Sea with the University of Cambridge to study reef ecology. Subsequently, he returned to Australia and became Director of the Heron Island Research Station (1973–1976), where he conducted pioneering studies on the biodiversity of parasites in marine environments. His three-volume DSc thesis, entitled "Parasitological & Zoological Studies of Lower Invertebrates", remains a seminal work in the field.

Establishing a Legacy at UNE

Klaus joined the University of New England (UNE) in 1976, where he remained for the rest of his career, rising to a Personal Chair in 1993. His research at UNE advanced our understanding of parasitic flatworms, particularly the lesser-known groups Aspidogastrea and Amphilinidea. He was a pioneer in the use of electron microscopy to study the ultrastructure of the platyhelminth tegument, sense receptors and nervous system, providing key insights into their phylogeny. His work integrating ultrastructural data with phylogenetic analyses shaped modern parasitology.

In collaboration with Marion Georgi, Klaus was the first to complete the life cycle of

Vale Professor Klaus Hans Franz Rohde

an amphilinid cestode, *Austramphilina elongata*, demonstrating active larval penetration of the intermediate host, a ground-breaking discovery in helminthology. He also explored niche restriction in monogeneans, hypothesising that their differential distribution on fish gills facilitated reproduction rather than competitive exclusion. His research into latitudinal diversity gradients in monogeneans further contributed to our understanding of parasite biogeography.

From 1985 to 1999, Klaus maintained a highly productive collaboration with Dr Nikki Watson, co-authoring more than 90 publications on parasite morphology, microhabitats and ultrastructure. His work on ultrastructural evidence for platyhelminth phylogeny remains highly influential. His comprehensive morphological and physiological observations provided valuable insights into host-parasite relationships and adaptation mechanisms, reinforcing his reputation as a meticulous and innovative scientist.

Marine Parasitology and Theoretical Contributions

Klaus's impact on marine parasitology is profound. As the author of The Ecology of Marine Parasites (1982, 1993) and editor of Marine Parasitology (2005), he provided comprehensive syntheses of marine parasite ecology and zoogeography, shaping the field for generations to come. His research extended beyond descriptive taxonomy and phylogenetics; he was deeply engaged in theoretical ecology, particularly in the development of non-equilibrium concepts in ecological niche theory. He introduced the idea that parasite diversity in coral reefs and other ecosystems could be shaped by non-equilibrium conditions – a hypothesis that influenced broader ecological paradigms.

Mentorship and Influence

Beyond his scientific achievements, Klaus was an exceptional mentor and educator. He was widely respected for his dedication to nurturing young scientists, fostering an environment of intellectual curiosity and scientific rigour. His mentorship extended beyond the laboratory, as he actively supported students and colleagues in their professional growth. Many of his former students went on to hold prominent positions in parasitology and related disciplines, continuing his legacy.

Klaus was also a strong advocate for interdisciplinary research and global collaboration. He was an active member of several prestigious scientific societies and editorial boards, including the Australian Society for Parasitology and the International Journal for Parasitology, where his leadership and insights shaped the trajectory of parasitology research. His contributions extended beyond academia, with a steadfast dedication to addressing the impacts of parasitic diseases on both human and animal health.

Recognitions and Legacy

Throughout his distinguished career, Klaus received numerous accolades, including the Clark Medal from the Royal Society of New South Wales. He was an elected Fellow of the Institute of Biology (1985), the Australian Institute of Biology (1987) and the Australian Society for Parasitology (1998). Even after retirement, he maintained an active role as Professor Emeritus in the School of Environmental and Rural Sciences at UNE.

Professor Klaus Rohde will be remembered not only for his extraordinary scientific achievements but also for his generosity, humility and unwavering dedication to advancing knowledge. His pioneering contributions to the study of the phylogeny of platyhelminths, his explorations into the ecological niches of parasites and his studies of the biodiversity of marine parasites continue to inspire researchers worldwide. His work ensures that his legacy endures in the field of parasitology and beyond.

The Members of the Australian Society for Parasitology pay tribute to Klaus as an exceptional scientist, teacher and human being. His impact on parasitology will resonate for generations to come, a testament to his lifetime of curiosity, innovation and scholarly excellence.

Obituary by ASP Fellows Robin Gasser, Russell Hobbs and Ian Beveridge.

Vale Michael Alpers AO, FRS, FAA

Many Australians and Papua New Guineans, as well as medical researchers around the world, mourned the death of Michael Philip Alpers who passed away on 3rd December 2024, a few months after his 90th birthday.

Michael, who was the second and longest serving Director (1977 - 2000) of the Papua New Guinea Institute of Medical Research (PNGIMR), is best known for his long-term research into kuru. This prion disease caused an epidemic of transmissible spongiform encephalitis, lasting approximately 100 years, in the Fore people of the Papua New Guinea Eastern Highlands. After completing his medical training in Adelaide in the early 1960's, Michael went to what was then the Territories of Papua and New Guinea as the kuru research officer and played a central role in showing kuru could be transmitted to non-human primates, for which Carlton Gajdusek received the Nobel Prize in 1976.

In 1974 Michael joined the Gajdusek laboratory at the National Institutes of Health in Bethesda in the USA and, subsequently, was appointed to the staff of the Microbiology Department at the University of Western Australia. In 1977 Michael returned to recently independent PNG, replacing Dick Hornabrook (another kuru researcher) as the Director of the PNGIMR. Michael, with many collaborators including Gajdusek, John Collinge and Jerome Whitfield, continued to monitor the changing face of the kuru epidemic until it ended with the last case in 2009. While kuru remained a major research interest of his, as Director of the IMR Michael established research programmes to address more widespread health problems that were major causes of morbidity and mortality in the PNG population. This included research programmes on malaria and lymphatic filariasis, the two most important human parasitic diseases in PNG.

Michael Alpers photo taken at a 2016 meeting in Madang, PNG, to celebrate 40 years of malaria research at PNGIMR by Robin Anders

Vale Michael Alpers AO, FRS, FAA

Both these research programmes were highly productive in large part because of the collaborations Michael put in place between PNG and expatriate IMR staff and parasitology research scientists in Australia and many other countries, including the UK, USA and Switzerland.

IIn 1979, early in his directorship, Michael convened a meeting with Australian malaria research groups at The Walter and Eliza Hall Institute of Medical Research (Graeme Mitchell et al.), The Queensland Institute of Medical Research (Chev Kidson et al.) and the University of Newcastle (Bob Clancy et al.). This initiated many productive collaborations, which are still having a major impact on malaria research and training of PNG scientists today as the diaspora of scientists from these groups helped generate a new generation of Australian malaria researchers collaborating with the PNGIMR.

A major focus for Michael was the translatability of research findings for improving the health of Papua New Guineans and this is reflected in his and his colleagues' research outputs. Over three decades Michael co-authored close to 90 papers on various aspects of malaria research. These included: clinical and molecular epidemiological studies on Plasmodium falciparum and the other Plasmodium parasites that cause human malaria in PNG, as well as on the Anopheline mosquitos that transmit the infections; investigations into the effectiveness of various drugs and drug combinations, as well as the use of bed nets to prevent infection; and studies on the immune response to infection and a variety of antigens considered potential components of a malaria vaccine. Today malaria remains a significant cause of morbidity and mortality in PNG, but the application of existing and emerging tools will lead to greater control and, hopefully, eventual elimination of this devastating infection from PNG.

Lymphatic filariasis in PNG is caused by the mosquito-transmitted nematode Wucheria bancrofti and the disruption of the lymphatic system by this parasite results in severe pain and disability associated with organ and limb enlargement, which leads to social stigma. Michael's research on lymphatic filariasis was a long-term collaboration with James Kazura and his colleagues at the Case Western Reserve University in Cleveland, USA. Michael's colleague Moses Bockarie, who in 1996 was appointed Head of the PNGIMR Vector Borne Diseases Unit, was also a leading member of the team that initiated the research on mass drug administration that hopefully will achieve the elimination of lymphatic filariasis from PNG within the next decade.

Michael was a remarkable man with a passion for literature and music as well as the science, public health and epidemiology of tropical medicine. His successes studying kuru and other diseases in PNG for more than 50 years, and as the long serving Director of PNGIMR, derived in a large part from the deep interest and respect he had for the people of PNG and their many and varied cultures, particularly those of the Fore region, which was the epicentre of the kuru epidemic. An important part of Michael's legacy is the strong medical research institute he built, now led by PNG scientists who will provide the skills necessary to assess the progress and eventual success of these programmes to free the people of PNG from two devastating parasitic diseases.

Obituary by Robin F Anders, Department of Biochemistry and Chemistry, La Trobe University

Meet the ASP Executive Secretary

Jake Baum was elected into the position of ASP Executive Secretary, 2025 at the 2025 ASP AGM on Wednesday 2nd July 2025. He was nominated by Aaron Jex and Clare Anstead.

Jake Baum

Professor Jake Baum is a leading figure in parasitology, known for his groundbreaking work on malaria parasite biology, vaccine design, drug discovery, and diagnostic innovation. He began his career with significant contributions to host-pathogen coevolution during his PhD at the London School of Hygiene and Tropical Medicine. As a postdoc, he moved to Australia, to the Walter and Eliza Hall Institute (WEHI) in Melbourne, where he co-discovered the malaria protein PfRh5, a small protein that has ended up being pivotal in advancing the future of malaria vaccine development.

At the WEHI, Jake's research utilized cutting-edge techniques like super-resolution microscopy and cryoelectron microscopy, contributing major insights into the cellular mechanisms of malaria parasite invasion of red blood cells. His group's work on the actomyosin motor and the malaria ribosome structure has been highly influential, garnering extensive citations and facilitating structure-guided antimalarial drug design.

In 2013, after a decade in Melbourne, Jake moved to Imperial College London. As a Reader and then full Professor of Infectious Diseases and Cell biology, Jake expanded his group's research into drug discovery and diagnostics. His team screened thousands of compounds for antimalarial properties and developed digital diagnostic platforms. In the last three years at Imperial, Jake pivoted his research program to focus predominantly on the major challenge of developing next-generation malaria vaccines.

Finally, Jake was recruited to Head the School of Biomedical Sciences at UNSW Sydney, moving back to Australia with his family in 2022. At UNSW Jake continues his parasite work principally focussed on disruptive vaccine design and translation. Over his career, Jake has published over 120 papers, holds three patents, and has raised more than $25M in research funding. Jake has also been a mentor to junior researchers and a leader in the parasitology community, organizing conferences and supporting early career researcher events. His commitment to science education extends to public engagement activities, including innovative school-focussed projects on traditional remedies for malaria.

In recognition of his contributions to malaria science, Jake has been recognized with several awards, including a Victorian Tall Poppy Award, the WEHI Burnett Prize, the ASBMB Merck Millipore Research Medal and most recently 2023 the Research Australia Frontiers Award. In 2019 Jake was elected as a Fellow of the Royal Society of Biology in the UK.

Meet the ASP Treasurer

Samantha Emery-Corbin has been elected into the position of Treasurer, 2 July 2025. She was nominated by ASP members Aaron Jex and Clare Anstead.

Samantha Emery-Corbin

Samantha Emery-Corbin is a research fellow and project lead at Monash University. She has 15 years proteomic and mass spectrometry experience, and has worked with diverse (and often challenging) samples spanning clinical, agronomical, pathological, and archaeological fields, and with proteomics facilities at Monash, UNSW, APAF, Bio21 and WEHI.

Samantha received a Bachelor of Advanced Biology (Hons) from Macquarie University (MQU) and her PhD with Prof Paul Haynes at MQU with a Vice-Chancellor's commendation. In 2016 she commenced her postdoctoral research at WEHI with Professor Aaron Jex exploring proteomic signatures of antimicrobial resistance and post-translation modifications (PTMs) of neglected protistan pathogens. Her post-doctoral research, supported by a Jack Brockhoff fellowship, challenged eukaryotic dogma of what is "conserved" and "canonical" in post-translational regulation in parasites, and how these systems can drive resistance, or block transmission and infection cycles.

In 2021 Samantha joined the WEHI proteomics platform, where in her role as deputy facility manager she led >150 projects, with deep technical expertise for large-scale, biofluid workflows. Her expertise has been applied to pre-clinical models and Phase 1 trials, where she has pioneered DIA-MS (data-independent acquisition) workflows for unbiased drug-target identification, extracellular vesicles, and circulating sub-proteomes of patient biofluids. She continues this work as the R&D Lead at the Monash Proteomic and Metabolomic Platform, benchmarking new technologies and workflows for MS-based discovery.

Meet the ASP State Representative from Victoria

Patsy Zendejas was elected into the position of Victoria State Representative, 2025 at the 2025 ASP AGM on Wednesday 2nd July 2025. She was nominated by Lucas Huggins and Clare Anstead.

Patsy is originally from Mexico, but I've been living in Australia for the past 13 years. I've been a proud member of the Australian Society for Parasitology since 2018, which is also when I started my research career at La Trobe University, using population genetics to investigate the re-emergence of lymphatic filariasis in American Samoa. I recently completed my PhD at the University of Melbourne, where I focused on developing and applying molecular and genetic tools to study parasitic helminths in humans and animals across the Asia-Pacific and the Americas. My research is grounded in a One Health approach, and I'm passionate about understanding how parasites move between humans and animals to better inform public health interventions. Right now, I'm working on the genomic epidemiology of zoonotic soil-transmitted helminths like Strongyloides stercoralis and Ancylostoma ceylanicum. I'm especially interested in uncovering genetic signatures of zoonotic transmission and identifying genome regions that could lead to better, more sensitive diagnostic tools. Ultimately, my goal is to support sustainable and equitable control strategies in low-resource settings and contribute to the WHO 2030 Roadmap for Neglected Tropical Diseases through research that connects science with real-world impact.

ASP State Representative, Victoria, Patsy Zendejas

Meet the ASP State Representative from South Australia

Sonja Frölich has been elected into the position of South Australian State Representative, 2 July 2025. She was nominated by ASP members Melanie Rug and Tania De Koning-Ward.

ASP Student Representative, Sonja Frölich

Dr Sonja Frölich is a Lecturer in the School of Biological Sciences, at the University of Adelaide, specialising in molecular parasitology, advanced microscopy, and AI-powered image analysis. Her interdisciplinary research focuses on the developmental biology of the malaria parasite Plasmodium falciparum, investigating how invasion machinery (rhoptries) operates at the nanoscale to uncover new drug and vaccine targets.

Her decade-long career bridges veterinary and human parasitology, spanning work on livestock parasites (Toxoplasma and Eimeria spp.), invasive bacteria, and flaviviruses, with partnerships across academia, industry, and biosecurity. She is passionate about translating high-throughput screening tools into practical applications that strengthen Australia's agricultural and health sectors.

Outside the lab, Sonja serves on the Women in Malaria Communications Committee, advocates for diversity and equity in STEM, and leads outreach initiatives to inspire young people to see themselves in science.

As the new ASP State Representative for South Australia, she looks forward to supporting members, building local networks, and helping shape an inclusive and connected parasitology community.

Meet the ASP State Representative from Queensland

Deepani Fernando has been has been elected into the position of Queensland State Representative, 2 July 2025. She was nominated by ASP members Swaid Abdullah and Malcolm Jones.

ASP State Representative QLD, Deepani Fernando

Dr Deepani Fernando is a molecular parasitologist and Senior Research Officer in the Scabies Laboratory at QIMR Berghofer Medical Research Institute. She is a veterinarian and former Senior Lecturer at the University of Peradeniya, Sri Lanka. Driven by a strong interest in parasitology, Dr Fernando completed her PhD in molecular parasitology at QIMR Berghofer and The University of Queensland, Australia, focusing on scabies.

QIMR Berghofer's Scabies Group is one of the few research teams worldwide dedicated to developing solutions for scabies and its associated complications, covering biological, molecular, and clinical aspects. Dr Fernando is currently working on developing novel therapeutics and molecular diagnostics for scabies, creating molecular tools to test new therapeutic targets, and investigating the pathophysiology of scabies-induced itch to improve treatment outcomes.

Meet the ASP State Representative from ACT

Brendan McMorran has been has been elected into the position of ACT State Representative, 2 July 2025. He was nominated by ASP members Giel van Dooren and Nick Smith.

Since 2006 I have led research on the protective role of platelets in malarial infection, whilst working at the Menzies Research Institute, University of Tasmania and at the Australian School of Advanced Medicine, Macquarie University. I was appointed as an Associate Professor at the John Curtin School of Medicine, Australian National University in 2014. I currently serve roles in undergraduate teaching and am the Associate Director of Higher Degree Research at the John Curtin.

Congratulations to ASP Undergraduate prize winners

Charles Sturt University is proud to announce that two of its undergraduate students have received the prestigious Australian Society for Parasitology (ASP) Undergraduate Student Prize for 2025. This nationally recognised award is presented annually to students who achieve the highest academic performance in parasitology-related subjects.

Cade Lette, an Agricultural Science student, earned the prize for his outstanding results in ASC305 Parasitology, while Jenna Park, a Veterinary Science student, was awarded for her top performance in VSC323 Microbiology and Parasitology.

This recognition not only celebrates their academic excellence, but also highlights the critical role of parasitology in veterinary and agricultural sciences. The ASP Undergraduate Prize remains a significant national honour, spotlighting the next generation of scientists who will lead research and innovation in parasite biology and One Health.

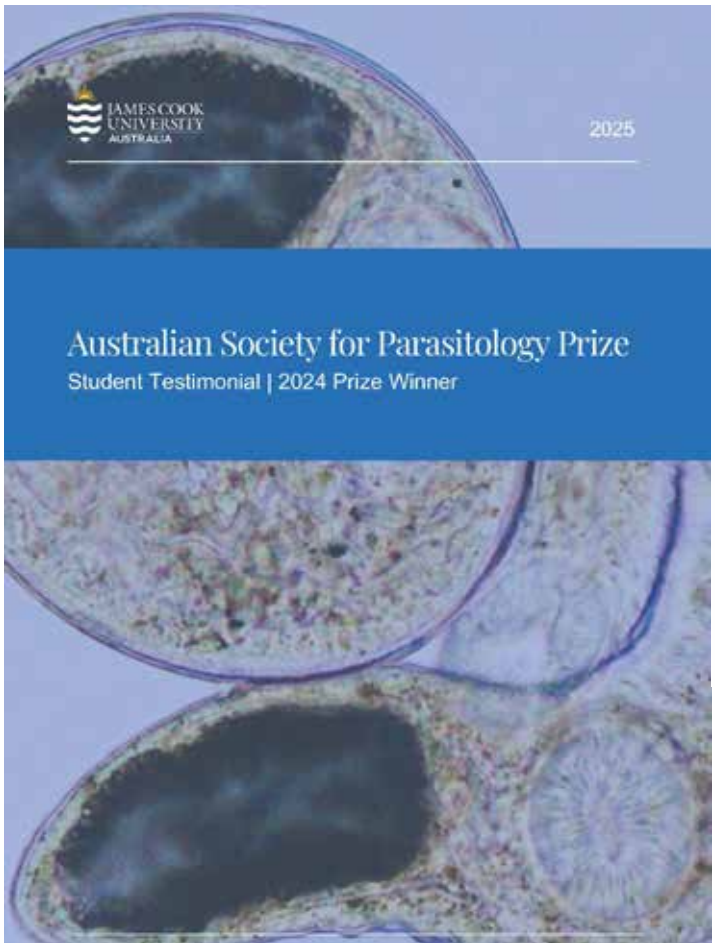
ASP Undergraduate Student Prize Winners Cade Lette (L) and Jenna Park (R) from Charles Sturt University

Congratulations to The University of Adelaide undergraduate student, Ryan Oxlad, who won the Australian Society for Parasitology (ASP) Undergraduate Student Prize for 2024.

ASP Undergraduate Student Prize Winner Ryan Oxlad, from The University of Adelaide

Congratulations to ASP Undergraduate prize winners

Congratulations to Natalie Smith from James Cook University, who won the JCU undergraduate academic prize; Bachelor of Veterinary Science Australian Society for Parasitology Prize 2024.



Congratulations to Rina Fu, Premier's Science Awards 2025: STEM Educator of the Year (Tertiary) Winner

Congratulations to ASP Member and 2025 Bridget Ogilvie Medalist Rina Fu who won the Premier's Science Awards 2025: STEM Educator of the Year (Tertiary) for excellence in a field of STEM education in a tertiary setting, and who has made outstanding contributions to enhancing student engagement in STEM.

"Scientist-artist Dr Rina Wong (Fu) is dedicated to inspiring people of all ages and abilities through creative, multimodal science engagement. She integrates original science songs, illustrated storybooks, radio broadcasts, her award-winning animated film – MicroToons, and her medical research into tertiary education. Renowned nationally and internationally for making science fun, Rina also makes complex science accessible including for the deaf communities and people living with autism. Rina develops innovative digital tools to enhance learning. Her outreach initiatives build STEM capabilities by fostering confidence and communication skills, connecting students with scientists across academia and industry to promote STEM beyond traditional settings."

https://www.wa.gov.au/organisation/department-of-energy-and-economic-diversification/premiers-science-awards-2025-stem-educator-of-the-year-tertiary-winner?fbclid=IwY2xjawOaFZhleHRuA2FlbQIxMABicmlkETFJMzhWeDZrV3U3cVZYU1Vrc3J0YwZhcHBfaWQQMjIyMDM5MTc4ODIwMDg5MgABHjYohgI1ELFjJNRnk_3zfxA8JLsxKiZfMdFtZzdg-aaspVw3gDkIzO7anp2l_aem_VF6FrRcRCT69qTrNyrgMaA

Premier's Science Awards 2025: STEM Educator of the Year (Tertiary) Winner, Rina Fu (image supplied by WA.gov.au)

Congratulations to our ASP Student Prize winners at ASP 2025

2025 ASP Student Prize winners at the 2025 ASP Annual Conference in Melbourne top L-R Joshua Levendis, University of Melbourne, Patsy A. Zendejas-Heredia, University of Melbourne, Jessica Home, University of Melbourne, Alexander Harris, Burnet Institute receiving their prizes from Aaron Jex and Hayley Bullen, conference co-chairs.

Congratulations to our 2025 ASP Conference Prize Winners!

- Joshua Levendis, University of Melbourne, best 5min presentation by a student at the 2025 ASP Annual Conference for his presentation "Detecting and characterising base modifications in *Plasmodium falciparum* with Nanopore direct RNA sequencing"

- Patsy A. Zendejas-Heredia, University of Melbourne for best 15min presentation by a student at the 2025 ASP Annual Conference for her presentation "From Tails to Toes: A next-generation sequencing approach to assess the genetic variability of *Strongyloides* spp. infections in children, dogs and long-tail macaques in Kampong Chhnang, Cambodia"

- Jessica Home, University of Melbourne, runner-up best 15min presentation by a student at the 2025 ASP Annual Conference for her presentation "A novel mechanism of clindamycin resistance in *Plasmodium*"

- Alexander Harris, Burnet Institute, runner-up best 5min presentation by a student at the 2025 ASP Annual Conference for his presentation "Declining antibody responses in children given the RTS,S malaria vaccine with repeated yearly booster doses"

Congratulations to our ASP ECR Prize winner at the 2025 ASP Annual Conference

Mary-Louise Wilde, won The Don McManus Tropical Health Research Centre & QIMR Berghofer Early Career Researcher Award received the prize from Darren Gray (QIMR)

Congratulations 2025 ASP Conference ECR Prize Winner

Congratulations to Mary-Louise Wilde, winner of The Don McManus Tropical Health Research Centre & QIMR Berghofer Early Career Researcher Award for the highest rated abstract submitted by an Early Career Researcher at the 2025 Australian Society for Parasitology Annual Conference in Melbourne, 30th June – 3rd July 2025 for her abstract "Building gene drives to directly target malaria parasites."

2025 ASP Annual Conference Sponsors

We would like to acknowledge the generous support of our 2025 ASP Annual Conference sponsors, thanks to Elsevier and the International Journal for Parasitology (IJP), IJP DDR and IJP PAW, Elanco, Vetoquinol, Abacus dx, Thermo Fisher Scientific, New England Biolabs, Southern Cross Diagnostics, Promega, Burnet Institute, Global Health TPA at Monash University, VectorBuilder, The Peter Doherty Institute for Infection and Immunity and the Don McManus Tropical Health Research Centre and QIMR Berghofer. The International Journal for Parasitology (IJP) and The University of Melbourne are sponsors of the Women in Parasitology Mentorship program.

Our 2025 ASP Conference sponsors, thanks We would like to acknowledge the generous support of our 2025 ASP Annual Conference sponsors, thanks to Elsevier and the International Journal for Parasitology (IJP), IJP DDR and IJP PAW, Elanco, Vetoquinol, Abacus dx, Thermo Fisher Scientific, New England Biolabs, Southern Cross Diagnostics, Promega, Burnet Institute, Global Health TPA at Monash University, VectorBuilder, The Peter Doherty Institute for Infection and Immunity and the Don McManus Tropical Health Research Centre and QIMR Berghofer, and The University of Melbourne.

2025 ASP Annual Conference

The 2025 ASP Annual Conference was held at Melbourne Connect, 700 Swanston St, Carlton VIC 3053 from June 30 – July 3, 2025. The Welcome Reception took place at Melbourne Connect on Monday June 30, from 6pm, the scientific program ran across three full days from 900am, Tuesday 1 July and the Conference concluded with dinner at the magnificent, State Library Victoria, 328 Swanston Street, Melbourne on the evening of Thursday July 3, 2025.

There were 279 Conference delegates (131 were students) attending the 2025 Australian Society for Parasitology (ASP) Annual Conference who spent the week discussing the latest research and state-of-the-art technologies in parasitology. The scientific program covered all parasitology themes from Veterinary Parasitology to Human Parasitology, with Malaria, Strongyloides, Bioinformatics, Microscopy, Livestock, Wildlife Parasitology, Fish Parasitology, Companion Animals and One Health - all aspects of parasitology research and that includes basic research in all areas of life science.

2025 ASP Conference Invited Speakers were:

- **Nancy Duah Quashie**, University of Ghana, Elsevier Plenary Lecture Series International Journal for Parasitology (IJP) Invited Lecturer
- **Samantha Emery-Corbin**, Monash University, Elsevier Plenary Lecture Series International Journal for Parasitology: Drugs and Drug Resistance (IJP:DDR) Invited Lecturer
- **Diane Barton**, School of Agricultural, Environmental and Veterinary Sciences, Charles Sturt University, Wagga Wagga, NSW, Elsevier Plenary Lecture Series International Journal for Parasitology: Parasites and Wildlife (IJP:PAW) Invited Lecturer
- **Florian Roeber**, Invetus Wongaburra Research Centre, Vetoquinol Invited Lecturer
- **Mary-Louise Wilde**, The University of Melbourne, prize winner of the Don McManus Tropical Health Research Centre and QIMR Berghofer ECR Prize
- **Rina Wong (Fu)**, Edith Cowan University, and Bridget Ogilvie Medalist 2025

On the first full day of the Conference we start with a networking breakfast event for our research students and early career researchers. Dr **Elizabeth Aitken** from The Peter Doherty Institute for Infection and Immunity at The University of Melbourne ran this event with her awesome mentors, **Rhea Longley** (WEHI), **Ala Tabor** (UQ), **Claire Sayers** (UNSW), **Adele Lehane** (ANU), **Herbert Opi** (Burnet Institute).

The Student Social Event at the Conference took place on Wednesday 2nd July, at The Clyde Hotel, and featured a fabulous quiz night. This event was organised by an amazing team of local students **Maddie Nam, Thi Thuy Nguyen, Gothami Welikadage, Natasha Sharma and Millicent Opoku.**

ECRs were encouraged to upskill during their lunchbreak with "Lunch bites!" short (20 minute) lunchtime sessions on each day of the conference where ASP mentors ran informative and interactive skills-based sessions: "How to deliver an Elevator Pitch about your science", "Interacting with the media when you are not sure how", and "Turning science ideas into products – where to start?" **Graham Mitchell AO, Sarah Preston, Hayley Bullen, Alex Loukas, Vern Bowles, Clare Anstead and Lisa Jones** were the mentors for Lunch bites.

We ran Veterinary Parasitology Day at the 2025 ASP Annual Conference on Tuesday 1 July, 2025, 10:30am – 3:30pm. Nine veterinarians and veterinary nurses attended the two 90 minute conference sessions on Pet Parasites and Livestock Parasites, followed by a discussion with the researchers.

Mentoring program for Women in Parasitology

As part of the 2025 ASP Annual Conference commitee members **Ghizal Siddiqui** and **Hayley Bullen** ran a mentorship day program for women in parasitology prior to the Conference. 30 participants attended this program which included a session with coach and mentor **Melissa Rosenthal** who delivered "Communication Skills in Negotiation" and Career Stories from ASP Panellists **Leann Tilley** (Melb Uni), **Karena Waller** (Monash), **Shookofeh Shamsi** (CSU), **Lisa Jones** (ASP), **Tania De-koning Ward** (Deakin) and **Simona John von Freyend.**

2025 ASP Student Conference Funding Scheme supported 89 ASP student members to attend the Conference, total funding $50,189.

We created a ASP2025 conference playlist on Spotify.

Parents or carers with children were able to watch and listen to the conference presentations live online during the conference in a room separate from the lecture theatres. A multi-faith prayer room was available during the conference. Delegates unable to attend due to illness or travel issues are able to watch the conference sessions live-streamed.

The ASP Annual Conference embraces the values of inclusiveness, social justice, environmental sustainability, scientific advancement, and education within the broader life science community. It is our goal to make this conference a great experience for everyone. Thus, we encourage all attendees to inform us about specific needs or any concerns – either during the conference or by contacting our organising committee (Email parasitologycommunicator@gmail.com with subject accessibility).We asked attendees to abide by the Conference Code of Conduct and Conference Policies. These can be viewed on the Conference website https://www.parasite.org.au/aspconference/advice/policy/

2025 ASP Annual Conference

Bernard Lee Singleton, the artist who created Gula guri Mayin https://www.parasite.org.au/outreach/gula-guri-mayin/ for the ASP, designed the 2025 ASP Conference logo. Bernard used components of Gula guri Mayin and created a unique logo for ASP2025. Bernard Lee Singleton is an artist born in Cairns and raised in the small Aboriginal community of Coen, Cape York. Bernard's mother is a Djabuguy woman born in Mona Mona mission and his father is an Umpila (east coast Cape York)/Yirrkandji man from Yarrabah mission.

Conference Co-Chairs: **Hayley Bullen** (Burnet Institute) and **Aaron Jex** (Walter and Eliza Hall Institute)

Conference Scientific Committee:

Elizabeth Aitken (University of Melbourne), **Nick Smith** (ASP Network for Parasitology), **Sarah Preston** (Federation University), **Lucas Huggins** (University of Melbourne) and **Ghizal Siddiqui** (Monash University)

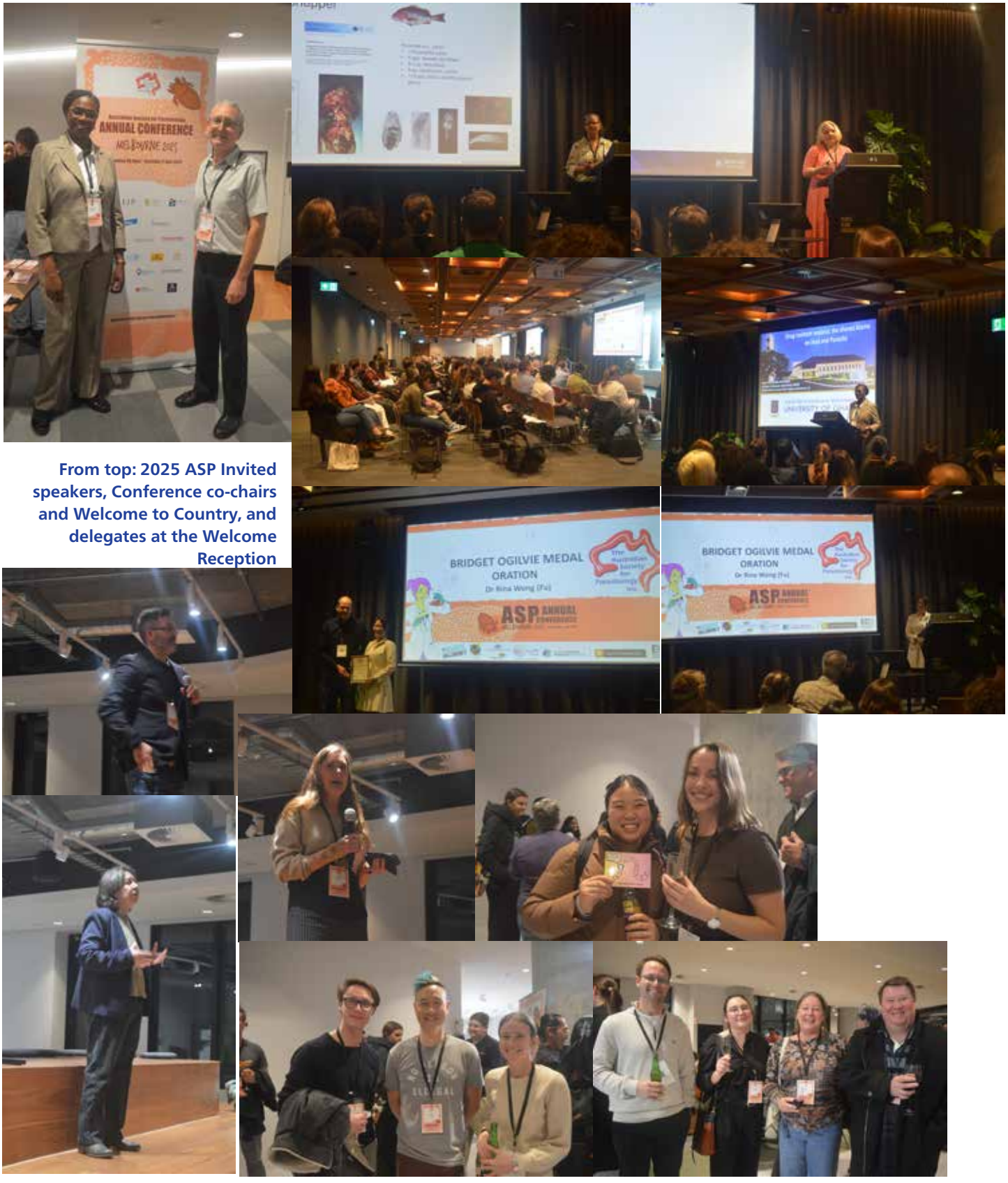
Conference Coordinator: **Lisa Jones**

Huge thanks to the amazing Student Volunteers who ran the registration desk and the AV at this conference:

Connor McHugh (JCU), **Rebecca Farnell** (Fed Uni), **Tanya King** (Fed Uni), **Elizabeth Mullens** (Fed Uni), **Alysha Literski** (Burnet), **Senna Steen** (Burnet), **Prerna Prashanth** (Bio21 Melb Uni), **Vivin Kokuhennadige** (Melb Uni), **Rachael Yong** (Deakin), **Michaela Grima** (Deakin), **Kahlia Szabo** (Deakin), **Millicent Opoku** (La Trobe), **Pradip Roy** (WEHI), **Amrita Vijay** (WEHI), **Jennifer Le** (Monash), **Rachael Yong** (Deakin), **Natasha Sharma** (Melb Uni), **Nic Ristevski** (WEHI), K**hoi Nguyen** (Burnet), and **Alex Lam** (WEHI).

Top: amazing 2025 ASP Conference volunteer team (top two images), the mentors and participants of ASP Women in Parasitology Workshop (third image down), our wonderful ECR breakfast event mentors on the first morning of the conference

2025 ASP Annual Conference photos



From top: 2025 ASP Invited speakers, Conference co-chairs and Welcome to Country, and delegates at the Welcome Reception

2025 ASP Annual Conference photos

2025 ASP Conference delegates at the Welcome Reception

2025 ASP Annual Conference photos

2025 ASP Conference sponsors and delegates at the Welcome Reception

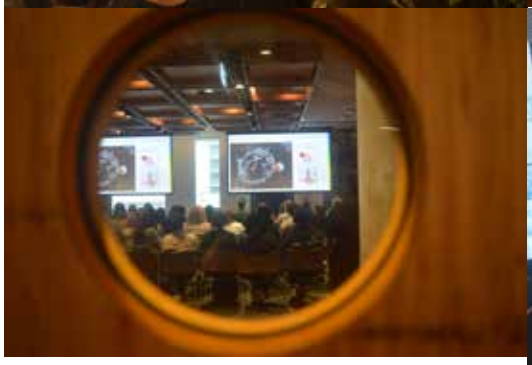
2025 ASP Conference delegates enjoying giving and sitting in the talks

2025 ASP Annual Conference photos

2025 ASP Conference delegates enjoying the presentations

2025 ASP Annual Conference photos



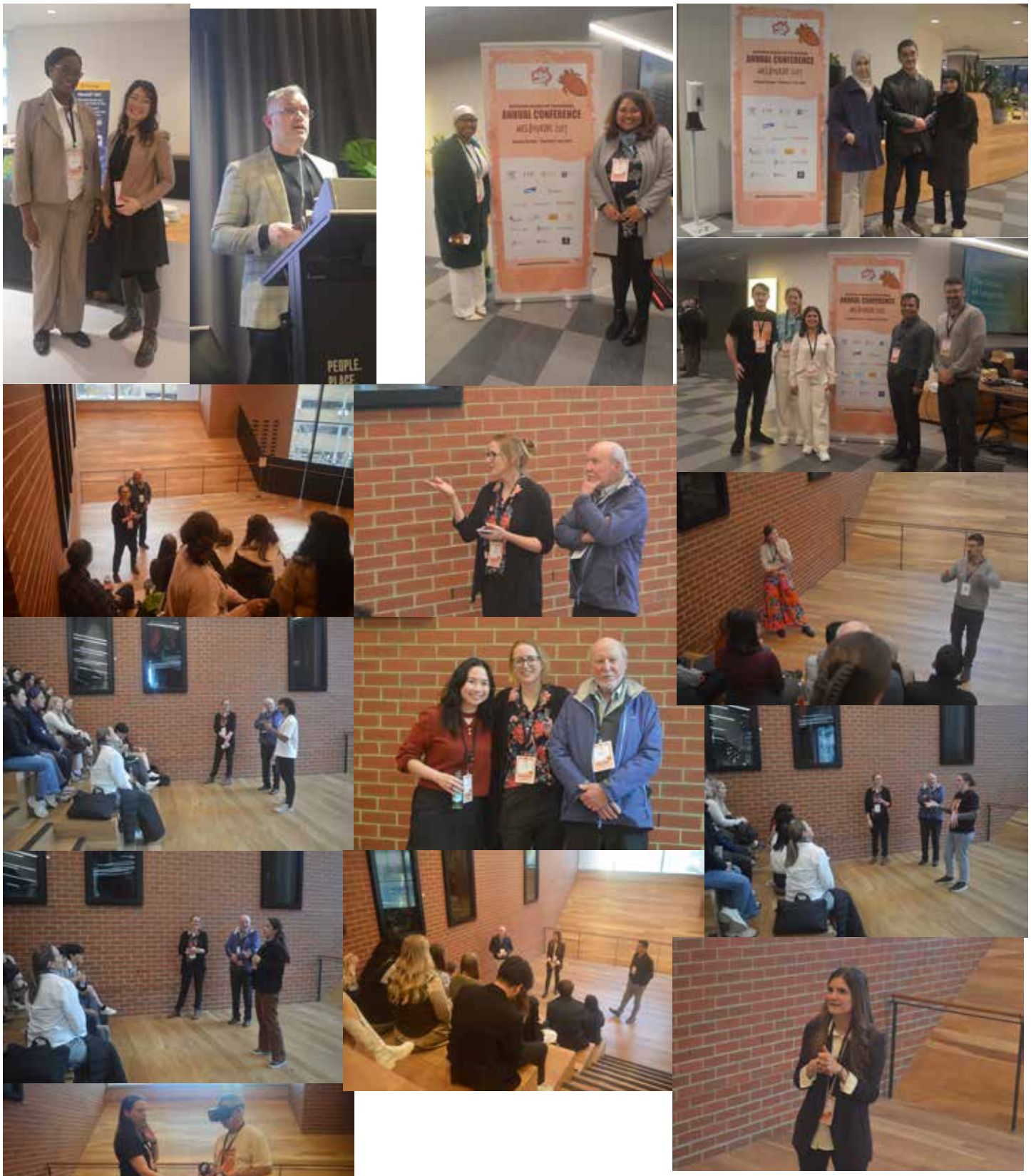








2025 ASP Conference delegates enjoying the presentations

2025 ASP Annual Conference photos



2025 ASP Invited Speakers, Lunchtime bites and conference delegates

2025 ASP Annual Conference photos

2025 ASP Conference delegates and the ASP AGM

2025 ASP Annual Conference photos

2025 ASP Conference dinner at State Library Victoria was very grand!

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2025 ASP Conference dinner at State Library Victoria was very grand!

Inspiring Future Scientists in Queensland's Remote North-West

In June, a team of passionate researchers from QIMR Berghofer travelled to Queensland's remote north-west to deliver hands-on research workshops designed to spark curiosity and inspire the next generation of scientists.

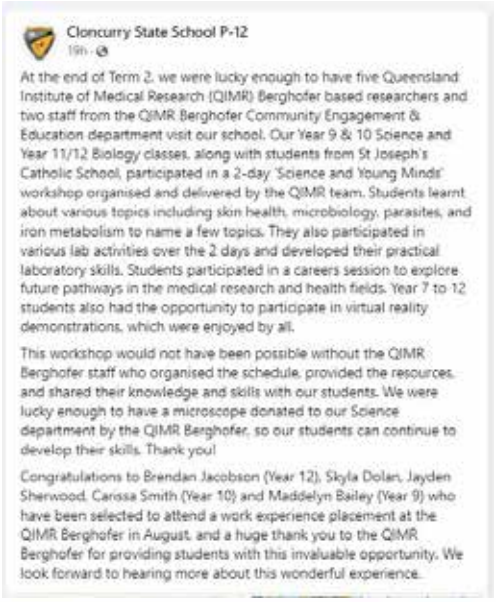
The visiting team included Scabies Senior Group Leader Associate Professor Katja Fischer, Senior Research Officer Dr Deepani Fernando, PhD student Sara Taylor, Applied Tropical Molecular Parasitology Head Dr Catherine Gordon, Molecular Nutrition Laboratory Head Associate Professor David Frazer, Research Officer Dr Luis Marin, Senior Research Officer Associate Professor Jodie Painter, and PhD student Zuriel Ceja. Joining virtually were Associate Professor Quan Nguyen, Group Leader in Genomics and Machine Learning, and Dr Daniel Rawle, Head of Emerging Viral Disease, who contributed discussions on exciting research topics based on student interests.

At Cloncurry State School P–12, high school students got a crash course in microbiology, iron metabolism, and parasite biology, including a peek under the microscope at scabies mites and intestinal parasites from local kangaroos. They swabbed the environment to streak agar plates, extracted DNA, ran gel electrophoresis, and even made their own DNA bracelets. They explored how iron influences human health, built neuron models, and learnt about mental health.

The students were very enthusiastic to learn about careers in health and medical research, asking thoughtful questions and showing impressive curiosity. Our researchers were blown away by the energy, engagement, and intellect of these young Queenslanders. We're also told the teachers were just as excited by the knowledge and inspiration the team brought to the school!

A huge thank you to Cloncurry State School for the warm welcome and wonderful hospitality. We hope to see some of these bright faces again — maybe one day in our labs!

QIMR Berghofer's Science for Health School Outreach Program brings a mini-laboratory experience to students, giving them the chance to explore how medical research improves health and to discover the possibilities of a career in science. This initiative was proudly supported by all four QIMR Berghofer research programs and the Australian Society for Parasitology.



Cloncurry State School P-12
19h ·

At the end of Term 2, we were lucky enough to have five Queensland Institute of Medical Research (QIMR) Berghofer based researchers and two staff from the QIMR Berghofer Community Engagement & Education department visit our school. Our Year 9 & 10 Science and Year 11/12 Biology classes, along with students from St Joseph's Catholic School, participated in a 2-day 'Science and Young Minds' workshop organised and delivered by the QIMR team. Students learnt about various topics including skin health, microbiology, parasites, and iron metabolism to name a few topics. They also participated in various lab activities over the 2 days and developed their practical laboratory skills. Students participated in a careers session to explore future pathways in the medical research and health fields. Year 7 to 12 students also had the opportunity to participate in virtual reality demonstrations, which were enjoyed by all.

This workshop would not have been possible without the QIMR Berghofer staff who organised the schedule, provided the resources, and shared their knowledge and skills with our students. We were lucky enough to have a microscope donated to our Science department by the QIMR Berghofer, so our students can continue to develop their skills. Thank you!

Congratulations to Brendan Jacobson (Year 12), Skyla Dolan, Jayden Sherwood, Carissa Smith (Year 10) and Maddelyn Bailey (Year 9) who have been selected to attend a work experience placement at the QIMR Berghofer in August, and a huge thank you to the QIMR Berghofer for providing students with this invaluable opportunity. We look forward to hearing more about this wonderful experience.

QIMR Berghofer's Science for Health School Outreach Program

QIMR Berghofer's Science for Health School Outreach Program

QIMR Berghofer's Science for Health School Outreach Program

Inspiring Future Scientists in Queensland's Remote North-West

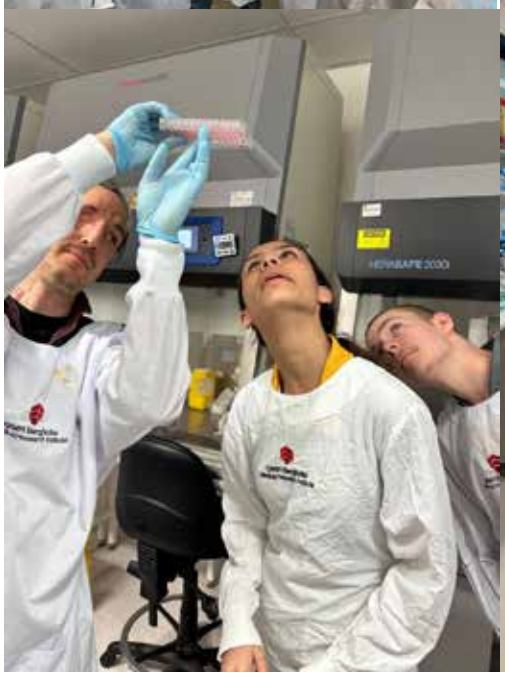
QIMR Berghofer's Science for Health School Outreach Program

QIMR Berghofer's Science for Health School Outreach Program








QIMR Berghofer's Science for Health School Outreach Program

QIMR Berghofer's Science for Health School Outreach Program

Tasmanian and Antarctic One Health Conference, Hobart, Tasmania, November 2024

Tasmanian and Antarctic One Health Conference, Hobart, Tasmania, November 2024

The Tasmanian and Antarctic One Health conference, sponsored by the Australian Society for Parasitology and the Antarctic and Southern Ocean Mission Integrator, was held on 25th November 2024. Organised by Nick Fountain-Jones, Jane Younger, Jia Huan Liew and Kate Hutson, the event attracted over 70 registrations, including around 50 in person and 20 online participants, and marks the third Tasmanian One Health conference.

The Conference opening address was delivered by Vice Chancellor Rufus Black who spoke of the benefits of a transdisciplinary approach – such as One Health – and how a collective might integrate customary knowledge and experience into holistic approaches.

The Keynote address was presented by Lee Skerrat (One Health Research Group Lead, the University of Melbourne) where he identified initiatives beyond biosecurity and emergency response to wildlife health. Stand out examples included the application of "saunas" for frogs infected with fungal infections (Batrachochytrium dendrobatidis) whereby they might elevate their temperature beyond that suitable for the fungus to thrive and treatment of Australian wildlife with sarcoptic mange caused by the mite Sarcoptes scabiei.

There were an additional 15 contributed talks, with panel discussions at the end of each session which enabled broader discussion amongst the presenters and participants. Major themes included One Health in Antarctica and island nations, preparation for avian influenza at national and local scales, emerging diseases and shared health between people and environments.

The day concluded with a horizon scan of how we might work across silos and leverage islands as One Health laboratories prior to a post conference celebration in the evening.

Parasite Pandemic: Unlocking Science Through Immersive Experience

ASP members Lisa Jones (ASP), Alex Maier (ANU) and Cecilia Nie (ANU) won an Inspiring Australia grant from the Australian Government to run National Science Week events in Canberra and Kioloa, NSW, August 9-16, 2025.

"Parasite Pandemic: Unlocking Science Through Immersive Experience" Inspiring Australia events were supported by the Australian Government as part of National Science Week and co-hosted by the Australian National University (ANU) and the Australian Society for Parasitology (ASP).

The team of 31 volunteers included 24 PhD and undergraduate students from ANU along with ANU staff volunteers. Through hands-on activities they sparked an interest in the science of parasites and celebrated the work of Australian parasitologists in the general public, with a focus on reaching young people aged 12-17 years. The team ran 50 events across five days (individual events listed at the end of the report), with two days in Canberra and three in Kioloa, NSW, and attracted a total of 940+ visitors (the breakdown was in 676+ in Canberra and 264 in Kioloa) from urban, regional and rural communities. The age range of the audience was 4 – 65+ year olds. From the sample of 125 participants surveyed Parasite Pandemic the largest group were aged 12-17 years, 27.73% and their parents aged 36-45 years, 21.85%. Targeted promotions aimed to attract people from all backgrounds and from the post-event survey 54% said they did not have a scientific background and 47% said that they were "more interested in science after this event" (52% said that they were "already interested in science before this event").

Images from Parasite Pandemic, National Science Week 2025 activities in Canberra and Kioloa, NSW.

The free publicity and media outreach provided by the National Science Week team was amazing; it started once the National Science Week grant was announced, and the team received advice and mentoring the whole time from the Science in Public, the ACT Inspiring Australia and the National Science Week teams and attended the Meet the Media event. As a result of this support, two media superstar PhD students from ANU, Cecilia Nie and Lizzy Durban gave five interviews (see list) as well as creating and posting reels, stories and other promotional content on social media accounts at ANU, ASP, Inspiring the ACT, National Science Week, and Inspiring NSW and designing posters for local distribution

National Science Week 2025 "Parasite Pandemic"

Images from Parasite Pandemic, National Science Week 2025 activities in Canberra and Kioloa, NSW.

National Science Week 2025 cont...

(email and print).

MEDIA INTERVIEWS

• City News article 31/07/2025 (Cecilia and Lizzy were on the front cover, and this magazine was in shops, hotels and venues around Canberra in the leadup and during National Science Week).

• Canberra Weekly article 06/08/2025

• Region Canberra article and YouTube video 08/08/2025

• 2CC Radio Canberra 31/07/2025

• ABC Canberra Radio 01/08/2025 (many of our visitors attributed this interview to the reason they had heard about our Parasite Pandemic events)

Parasite Pandemic was promoted across multiple platforms.

The program was created to encourage the target audience, 12-17 year olds, to attend, especially regional and rural audiences in Kioloa, NSW where young people face significant obstacles in accessing science programs. The three-day program at Kioloa, ANU attracted audiences from schools and community members as far away as Eden and Nowra (300 kms apart). The program was adapted for visitors with special needs to ensure that they were able to participate and enjoy the Escape Room and the Virtual Reality experiences. Visitors under the age of 12 enjoyed parasite science games, Virtual Reality, crafty parasite activities and looking at parasites down a microscope.

At least 50% of the Parasite Pandemic team were female parasitologists and female science students; they were able to inspire and act as role models for women and girls in STEM through running the workshops and presenting their parasitology research.

Indigenous knowledge was embedded in the program with the animation "Gula Guri mayin (Heal the body)" and large-print of the painting by indigenous artist Bernard Lee Singleton on display open to all visitors.

Favourite quotes from our survey respondents about what they enjoyed about Parasite Pandemic and what did they find out!

"I take my child to at least one Science Week event every year to support Science Week, expose them to different fields of science and spark their interest in science. I also love to learn new things too."

"I really hope to let my kids have more exposure to STEM. I want them to experience different kinds of science in a fun way, so they can feel the excitement and develop more interest in it."

"The quirky nature of having interesting things imparted in an interesting way"

"My Mum paid for the bus, and if I didn't go it would be a waste of money.", "my mum said that we were going", "My mum read it out to me and I got excited so I said yes" (Ed-thanks to all the mums!)

"We always take our kids to a national science week event"

"The packaging of activities all sounded fun. And my kids are curious. The topic sounded interesting and different."

"I wanted to bring my 11yo but it said 12 and above. I bought my girlfriends instead"

"We love science"

"I wanted to do something fun with my 15 year old son during National Science Week. He is very interested in all things science."

"escape rooms are cool", "I'm a huge science nerd and also love puzzles/ escape rooms"

"That I never want to be dinner for a Kissing Bug and have them poop on my face! And...more about how different parasites infect you."

"What scientists actually do in labs all day.", "What a parasite looks like under the microscope"

"Pipette skills, some of the researchers' focus areas, leech reproduction and feeding cycles", "I didn't know that leeches can be used for medical purposes."

"The enthusiasm of those running the event- it was contagious!"

"A lot of thought and planning had gone into all 3 sessions I attended. The escape room made the kids think. It was an opportunity to use real lab equipment and see specimens under a microscope. The virtual reality session was a neat way to learn where in an animal's body parasites can be live."

"I liked the escape room the most, because it really created a strong atmosphere and combined code cracking, teamwork, and trying things out carefully but boldly. My daughters and I enjoyed this activity the most."

"Parasite craft table and activity room for younger kids. Really good for engaging kids under 12 in this science. The craft, microscope and card games were great."

"I loved the VR activity, but my ultimate favourite was the escape room.", "The parasite zoo", "The live leeches"

National Science Week 2025 cont...

Images from Parasite Pandemic, National Science Week 2025 activities in Canberra and Kioloa, NSW.

ASP Parasite Podcast: What's eating you?

Welcome to What's eating you? the Parasite Podcast for the Australian Society for Parasitology.

"What's eating you?" ASP Parasite Podcast presenters (L-R) Alexandra Hudson, Sarah Preston and Lisa Jones with guest speaker Vern Bowles (below)

Join hosts Dr Sarah Preston from Federation University Australia, Lisa Jones, from the ASP and visiting comedian, the amazing comedian, Alexandra Hudson! Our "What's eating you?" team will question, quiz, and grill our expert parasitologists from the ASP.

Join us on our funny, informative, and always serious about science Parasite Podcast "What's eating you?". Find us where ever you listen to your podcasts! https://www.parasite.org.au/education/whats-eating-you-podcast/

Episode 2 of ASP Parasite Podcast: What's eating you? is all about Feral Pig parasites.

Our expert parasitologist is Dr Narelle Dybing from Australian Pork Limited – the National Feral Pig Action Plan and Murdoch University. Narelle's research has focused on the parasite diversity in, and risks posed by, invasive animals including wild dogs and urban foxes in WA and she is currently working for the National Feral Pig Action Plan where she talks to land mangers around Australia about the impacts of feral pigs and helps to support these land managers to work together to deliver coordinated, effective, and humane best practice management of feral pigs.

For this story, Narelle will give us her expert opinion about Feral Pig parasites.

Episode 3. What's eating you? *Cryptosporidium*

Episode 3 of ASP Parasite Podcast: What's eating you? is all about *Cryptosporidium*.

Our expert parasitologist is Professor Una Ryan from Murdoch University. Una's research has had a real impact. She was a pioneer of molecular epidemiology, especially of *Cryptosporidium*, discovering unsuspected environmental and zoonotic threats to human health and suggesting simple, practical ways to minimise these threats. Una's work has led to two patents and the development of new diagnostic tests, not just for *Cryptosporidium*, but also for a range of other parasites to which she has applied her skills in recent years.

For this story, Una will give us her expert opinion about *Cryptosporidium* parasites.

ASP Parasite Podcast: What's eating you?

Episode 4. What's eating you? Malaria

Episode 4 of ASP Parasite Podcast: What's eating you? is all about Malaria.

Our expert parasitologist is Dr Jill Chmielewski from Walter and Eliza Hall Institute of Medical Research. Jill works as a researcher, studying malaria, a parasitic disease which kills primarily young children in poorer parts of the tropics and sub-tropics.

For this story, Jill will give us her expert opinion about malaria parasites.

Episode 5. What's eating you? *Strongyloides*

Episode 5 of ASP Parasite Podcast: What's eating you? is all about *Strongyloides*.

Our expert parasitologist is Dr Cameron Raw from The University of Melbourne. Cameron is a Palawa man; Lecturer and Assistant Dean (Indigenous) in the Faculty of Science at The University of Melbourne. Cameron has been working in the Western Arnhem Land Dog Health Program led by Professor Liz Tudor at the Melbourne Veterinary School for the past ten years and is able to connect the veterinary research work that he is passionate about with serving Indigenous communities.

For this story, Cameron will give us his expert opinion about *Strongloides* parasites.

Episode 6. What's eating you? Giardia

Episode 6 of ASP Parasite Podcast: What's eating you? is all about *Giardia*.

Our expert parasitologist is Professor Michelle Power from Macquarie University. Michelle is particularly interested in parasite epidemiology and zoonotic risks, like the transmission of disease agents from humans to wildlife species. Michelle studies many pathogens with an emphasis on gut parasites and bacteria, and the interactions of these with diverse hosts like flying foxes, possums, koalas, Tasmanian devils, penguins, Australian sea lions and people. Michelle engages in many outreach activities, her Citizen Science project, Scoop a Poop, in collaboration with Taronga Zoo and the University of Sydney, enabled people to contribute to the global fight against antibiotic resistance.

For this story, Michelle will give us her expert opinion about *Giardia* parasites.

Episode 7. What's eating you? Liver Flukes

Episode 7 of ASP Parasite Podcast: What's eating you? is all about liver flukes.

Our expert parasitologist is is Dr Michael Smout from James Cook University. Mic's research has focused primarily on the search for carcinogenic molecules from the secretions of the human liver fluke *Opisthorchis viverrinni* – one of only three carcinogenic eukaryotic pathogens.

For this story, Mic will give us his expert opinion about liver flukes, wound healing peptides, the xWORM assay and future vaccine work.

National Science Week 2025

ASP members Claire Sayers, Nick Smith and Lisa Jones ran "Crafty Parasites" outreach for National Science Week for 60 Sydney primary school children, on 12 August 2025.


















Girl Guides Jamboree 2025

ASP members Lisa Jones and Nick Smith ran "Veterinary Parasitology Detective" workshops and activities for 300 Girl Guides at their 2025 Girl Guide Jamboree in northern NSW at the end of September 2025. The Girl Guides enjoyed the parasite Virtual Reality games, DNA extraction and looking at parasites under the microscope.

CiP Alumni Corner

2024 CiP alumni, Atefeh Fathi and Dr. Vinoth Rajendran were supported by the Elsevier/IJP/ASP Award to attend the 2024 Concepts in Parasitology (CiP) course at Moreton Bay Research Centre. Atefeh and Vinoth are profiled below:

Atefeh Fathi (above) and Vinoth Rajendran (below)

Atefeh Fathi, 2024 CiP alumni profile

My name is **Atefeh Fathi,** my family and friends call me Ati. I am originally from Iran and I have studied in an Iranian vet school and earned a DVM degree followed by gaining three years of experience in small animal clinics as a veterinarian.

As I had the dream of becoming a researcher since childhood, and an interest in parasitology from early start of vet school, in 2022 I moved to Japan to pursue a PhD in veterinary parasitology at Obihiro University. My current research focuses on the molecular biology of Babesia bovis, specifically its host cell modification in cerebral babesiosis. I am investigating how this parasite modifies infected red blood cells and its impact on cytoadherence in the host brain.

Outside of academics, living in northern Japan has sparked my passion for skiing during the winter and hiking in summer, which aligns with my love for nature and exploration. As a social media content creator, I also share my student life and adventures on Instagram.

By joining this course, I hope to enhance my expertise in parasitology, particularly through innovative laboratory techniques and clinical methods relevant to veterinary practice. I am eager to learn within Australia's unique environment, as its rich biodiversity provides an ideal setting to expand my understanding of parasitic infections and their management. I believe this course will also offer an excellent opportunity to connect with researchers across various fields of parasitology, broadening my perspective on parasites and their impact.

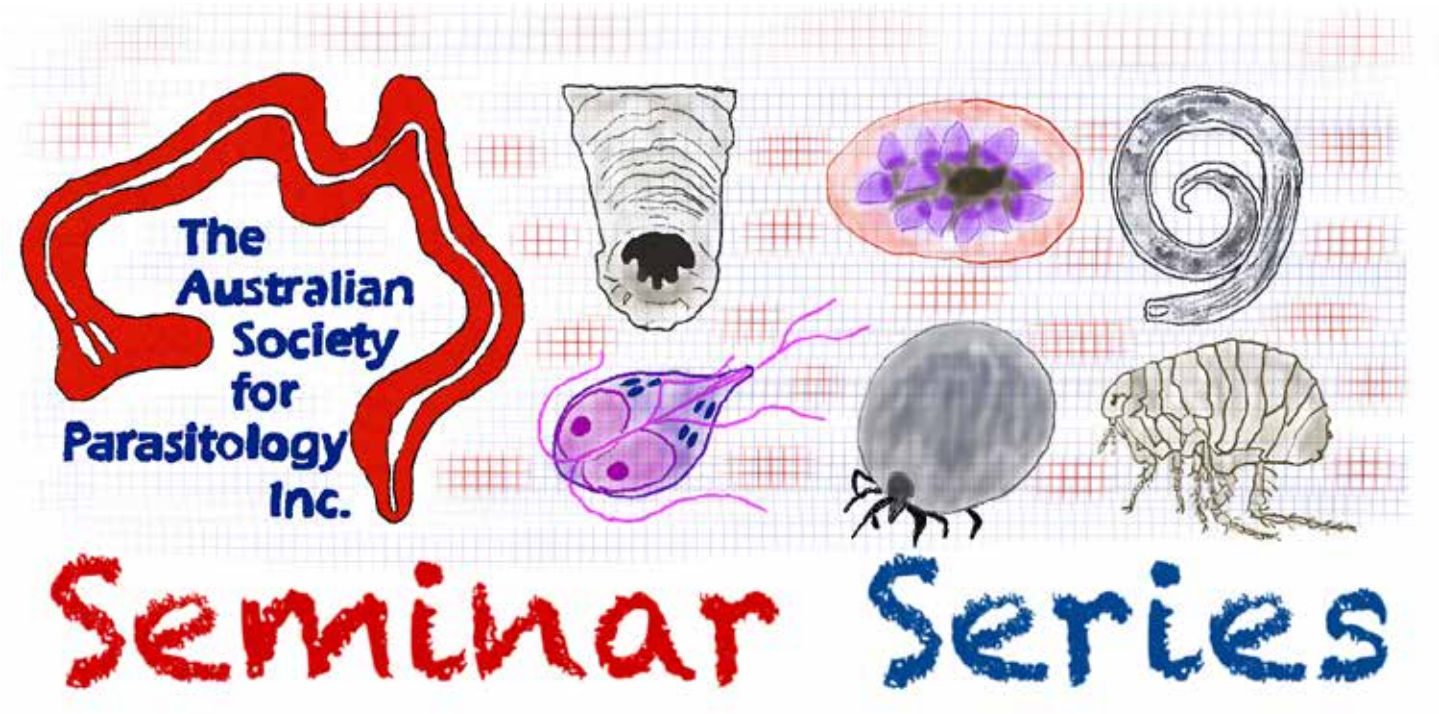
Dr. Vinoth Rajendran 2024 CiP alumni profile

I am an early career researcher (DST-INSPIRE Faculty), supported by the Ministry of Science and Technology, in the Department of Microbiology at Pondicherry University, India. My doctoral studies at the University of Delhi have focused on Antimalarial Chemotherapy targeting blood-stage infection. Since my doctorate, I have been involved in various malaria-related projects, furthering my knowledge of blood stage infections. My current work includes antimalarial drug delivery, drug repurposing, target-based drug development, and the study of host-cell miRNAs. Participation in CiP 2024 will enhance my understanding of human pathogenic parasites, with a particular focus on how parasites interact with their hosts. It will also expand my expertise in protozoan parasites and specific ectoparasites that affect wildlife. Led by esteemed parasitologists from Australia, this program provides an opportunity to network and exchange insights with international experts in parasite biology. Practical laboratory components and state-of-the-art methodologies will improve my practical abilities in parasitological research.

Atefeh Fathi and Dr. Vinoth Rajendran were recipients of the Elsevier/IJP/ASP Disadvantaged Researcher Award 2024.

In other CiP Alumni news, **Kai Hänggeli** (PhD candidate; supervisor: Prof. Andrew Hemphill; https://www.ipa.vetsuisse.unibe.ch/about_us/personen/haenggeli_kai/index_eng.html) from the Institute of Parasitology in Bern received an award (https://www.sstmp.ch/robin-b-gasser-award-for-early-career-academics) to attend the 2024 CIP course and also spent some time meeting people in Australia. Congratulations Kai!

ASP Seminar Series



Our final ASP Online Seminar for 2025 took place on Friday November 21st @ 1pm AEDT featuring Ashleigh Peck, Murdoch University presenting "Mapping Diversity and Vector Associations of Mosquito-Borne Parasites in Western Australia." and Maria Saeed, University of Melbourne presenting "Antibody-dependent neutrophil phagocytosis of *Plasmodium falciparum* infected erythrocytes is mediated by FcyRIIa" with co-chairs Ben Liffner, University of Adelaide and Stuart Ralph, University of Melbourne https://www.parasite.org.au/blog/asp-online-seminar-series-fri-21-november-1pm-aedt/

Ashleigh Peck is a third-year PhD Candidate at Murdoch University. Ashleigh has conducted a 2-year surveillance project to map mosquito biodiversity and disease risk across Perth, Western Australia's metropolitan area. By integrating traditional taxonomy and molecular methods, their research explores the genetic structure of mosquito populations and the ecological drivers (land cover and climate) influencing them. A core focus of this research is the application of xenomonitoring to investigate mosquito-borne pathogens, using PCR and next-generation sequencing to uncover the prevalence and diversity of parasites and viruses within Perth.

Talk title: Mapping Diversity and Vector Associations of Mosquito-Borne Parasites in Western Australia.

Abstract: Mosquitoes are the most significant vectors for human and animal diseases. Competent vectors and susceptible vertebrate hosts are required to maintain transmission of mosquito-borne disease (MBD). Therefore, MBD are maintained in a dynamic system shaped by the biodiversity of vectors, hosts, and pathogens, which varies over time and space. Through mosquito surveillance programs, the biodiversity of mosquitoes and blood-borne parasites they carry can be evaluated to uncover local disease transmission risks to humans and animals. Advancements in molecular techniques have enabled researchers to use mosquitoes as proxies to determine the prevalence of mosquito-borne diseases, a practice known as xenomonitoring. Xenomonitoring is a non-invasive, convenient and cost-effective surveillance method. In Western Australia, routine xenomonitoring only screens for mosquito-borne viruses of human importance. Therefore, the prevalence and transmission potential of mosquito-borne parasites, which can impact human and animal health, was previously unknown in Perth, Western Australia. In this presentation, I will discuss recently published results of my 2-year molecular surveillance study aimed at uncovering the diversity of mosquito-borne parasites,

ASP Seminar Series continued

Our seminar speakers (from L-R) Maria Saeed, University of Melbourne, Ashleigh Peck, Murdoch University and Anjana Rai, Menzies School of Health Research

including Haemosporida and filarial nematodes, in the Perth region. I will also provide insight into vector species associations, highlighting local transmission dynamics and potential associated risks.

Maria Saeed is a PhD student in the Rogerson Lab at the Peter Doherty Institute, University of Melbourne. Her PhD focused on exploring the role of functional antibodies and their interactions with immune cells in protection against malaria in pregnant women and children. Maria is currently awaiting thesis examination and is open to post-doctoral, research assistant and related job opportunities.

Talk Title: Antibody-dependent neutrophil phagocytosis of *Plasmodium falciparum* infected erythrocytes is mediated by FcyRIIa

FcyRIIIb, a glycosylphosphatidylinositol (GPI) linked receptor, is the most abundant FcyR on neutrophils followed by FcyRIIa. There is evidence that antibody dependent neutrophil phagocytosis (ADNP) protects against malaria, but the role of specific FcyRs involved is not clear. To probe the relative importance of FcyRIIIb and FcyRIIa in ADNP of *Plasmodium falciparum* infected erythrocytes (IEs), purified neutrophils from healthy donors were treated with tumor necrosis factor (TNF) to mobilize the intracellular FcyRIIIb to the surface followed by phosphatidylinositol phospholipase C (PIPLC) treatment to cleave FcyRIIIb. In TNF/PIPLC treated neutrophils, relative gMFI of FcyRIII decreased by 79% while FcyRIIa detection increased by 82%, compared to untreated neutrophils (gMFI = 100%). When opsonised IEs were incubated with TNF/PIPLC treated neutrophils, relative ADNP by FcyRIIIb-depleted neutrophils increased (585%+-108%) compared to untreated neutrophils (100%, p = 0.042). Using FcyR blocking we show that relative to no-blocker (phagocytosis = 100%), ADNP was reduced over five-fold by FcyRIIa blocker alone (~17%+-1.5%, p<0.05) and to the same degree by combined FcyRIIa and FcyRIII blockers (~24% +-5.5%, p <0.05). We found that FcyRIIa is the main phagocytic receptor mediating ADNP of IEs and FcyRIIIb acts as a decoy receptor.

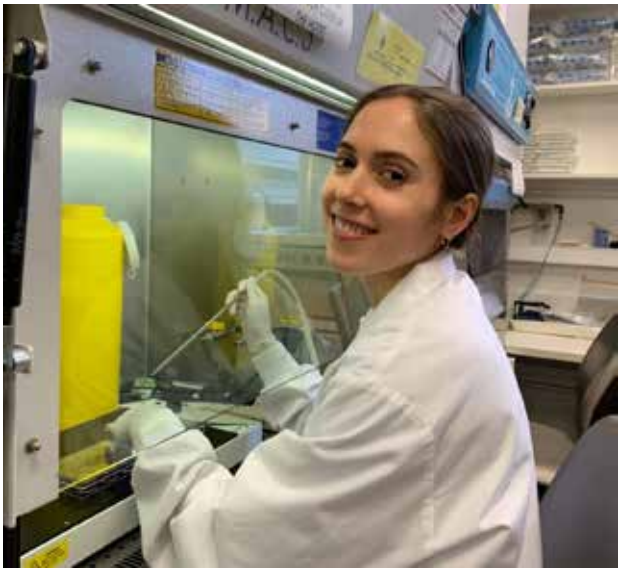
Our ASP Online Seminar Series event held on Fri 19 September @ 1pm AEST, featured Anjana Rai, Menzies School of Health Research presenting "Genetic evidence of cross-border *P. vivax* spread in pre-elimination regions of South Asia" and Shamit Singla, University of Adelaide presenting "Form follows function. How the spatial arrangement of protein molecules can help us understand their function." with co-chairs Ben Liffner, University of Adelaide and Grace Peters, University of New South Wales.

Anjana Rai is an early-career malaria researcher. Her research focuses on the genetics of Plasmodium vivax. Her work uses parasite genotyping to better understand the parasite relatedness and trace the infection's origin. Her work also focuses on utilising molecular approaches to study *P. falciparum* biology, to enhance our understanding of drug resistance.

Talk title: Genetic evidence of cross-border *P. vivax* spread in pre-elimination regions of South Asia

Plasmodium vivax is the predominant cause of malaria in South Asia. While countries such as Nepal, Bangladesh, and Bhutan have significantly reduced P. vivax cases over the past decade, cross-border transmission remains a major challenge to elimination efforts. Genetic data can offer valuable insights into

ASP Seminar Series continued



Our seminar speakers (from L-R) Shamit Singla, University of Adelaide and Jessica Home, University of Melbourne

transmission dynamics; however, until now, no high-resolution *P. vivax* data existed for Nepal, and only limited data were available from Bhutan and Bangladesh. Our study generated high-resolution genotyping data from these three countries using a novel 98-marker microhaplotype assay (vivaxGEN panel) and compared them to samples from higher-endemicity countries in the regions, including Afghanistan, India, and Pakistan. Samples were collected from clinical trial, therapeutic efficacy and cross-sectional surveys conducted between 2013 and 2023. Sequencing was performed using Illumina sequencing platforms. Genetic analyses included assessing within-host diversity via effective multiplicity of infection (eMOI) and relatedness via identity by descent (IBD). High-quality genotyping data were obtained from Nepal (n=19), Bhutan (n=27), and Bangladesh (n=34); sufficient data from Afghanistan (n=158), India (n=27), and Pakistan (n=30) were available for comparative analysis in the region. Bhutan, Nepal and Bangladesh exhibited the lowest eMOI, suggesting reduced superinfection. IBD analyses revealed three genetic clusters partitioning Bangladesh, Bhutan (partial), and the high-endemic countries. Bhutan showed two sub-populations, largely separating local and imported cases. This study provides the first detailed genetic picture of *P. vivax* in Nepal, Bhutan, and Bangladesh, and highlights the utility of microhaplotype genotyping in improving the detection of cross-border importations.

Shamit Singla is a 3rd-year PhD student in A/Prof Danny Wilson's lab, Malaria & Toxoplasma Biology Lab at University of Adelaide, working on the molecular mechanism underpinning malaria parasite infection. His research predominantly involves the characterisation of unknown proteins suspected to play a role in host cell invasion, an event that is both quick and spatially small. He explores the role of invasion proteins in this event using gene modification of malaria parasites and emerging microscopy techniques.

Talk title: Form follows function. How the spatial arrangement of protein molecules can help us understand their function.

Abstract: *Plasmodium falciparum* is responsible for the highest proportion of malaria morbidity and mortality. Within the parasites, rhoptries are essential secretory organelles responsible for host cell invasion. Rhoptry proteins exposed to the cytosol are suspected to play a crucial role in facilitating rhoptry function due to their ability to mediate interactions between other cellular components. However, the rhoptries are smaller than the diffraction limit of visible light, which poses challenges in elucidating the spatial arrangement of rhoptry proteins and the organelle structure during host cell invasion. Within our lab, we use a newly developed technology termed expansion microscopy that circumvents this problem by increasing the sample volume and spatially separating each protein, leading to better-resolved images.

Our online ASP Seminar Series Friday 15 August 2025 @1pm AEST, featured Jessica Home, The University of Melbourne presenting "Unravelling clindamycin resistance in *Plasmodium*." and Jem Murdoch, University of New South Wales presenting "Seeing the Wood for the Trees: Looking beyond the immunodominance of the malaria parasite surface protein CSP" with co-chairs Jill Chmielewski, Walter and Eliza Hall Institute and Grace Peters, University of New South Wales.

ASP Seminar Series continued

Our seminar speakers (from L-R) Jem Murdoch, University of New South Wales, Lenin De Silva Manage, Murdoch University and Joanne Lee, Australian National University

Jessica Home is a PhD candidate in the McFadden Lab at the University of Melbourne. Her research focuses on resistance to clindamycin, an apicoplast translational inhibitor, in malaria parasites. Using both human and rodent malaria models, Jessica is investigating the mechanisms underlying clindamycin resistance and the transmission efficiency of resistant parasites across the life cycle.

Talk title: Unravelling clindamycin resistance in *Plasmodium*

Clindamycin is a well-tolerated antibiotic that kills malaria parasites by targeting the apicoplast prokaryotic translational machinery, but mechanisms of resistance in *Plasmodium* remain largely unknown. We selected for clindamycin resistance in *P. falciparum (in vitro) and in P. berghei (in vivo).* Clindamycin resistant *P. falciparum* had acquired point mutations in the apicoplast-encoded 23S ribosomal RNA—the canonical mechanism of clindamycin resistance in bacteria. Notably, these mutants exhibited impaired development in mosquitoes, suggesting a fitness cost associated with disruption of the apicoplast translational machinery that should restrict spread of such resistance. In contrast, two independently generated clindamycin resistant P. berghei lines lacked mutations in the apicoplast-encoded translational machinery. Rather, sequencing revealed apparent loss-of-function mutations in nucleus-encoded genes encoding enzymes responsible for formylating the initiator methionine on tRNA. Formyl methionine is required for efficient translation initiation and protein stability in prokaryotes and thus likely occurs in the prokaryote-derived apicoplast. Intriguingly, changes to the machinery generating formyl methionine have never been connected to clindamycin resistance in any organism. To validate this novel resistance mechanism, we disrupted initiator methionine formylation genes in both *P. berghei and P. falciparum* and confirmed clindamycin resistance. Interestingly, methionine formylation mutants conferred lower resistance levels than 23S rRNA mutants but had no mosquito transmission impairment, suggesting weaker resistance but more facile spread. Clindamycin resistance in *Plasmodium* is thus more complex than anticipated, and further investigation of the methionine formylation pathway is imperative to dissect this new resistance mechanism.

Jem Murdoch is a PhD student in the school of biomedical sciences at UNSW under the supervision of Prof. Jake Baum and co-supervisor Dr Deborah Burnett. Prior to his PhD he was Jake's MRes student at Imperial studying molecular and cellular biosciences. His current research is focused on studying B cell immunology in the context of a Plasmodium falciparum pre-erythrocytic infection to identify novel non-CSP antigen targets through single-cell B cell receptor sequencing.

Talk title: Seeing the Wood for the Trees: Looking beyond the immunodominance of the malaria parasite surface protein CSP

Abstract: Human infection with malaria begins with the injection of sporozoites by the feeding mosquito. The sporozoite surface has a dense layer of one, immunodominant protein, called circumsporozoite protein (CSP) at ~1 million copies per cell. This protein contains 38 NANP amino acid tandem repeats which are highly immunogenic. The current licensed malaria vaccines being rolled out in Africa (RTS,S and R21) both target CSP, however they require multiple boosters to maintain high antibody titre, with vaccine efficacy waning overtime. Given CSP's immunodominance and prevalence, could it be acting as an immunological decoy, evolved to

ASP Seminar Series continued

Our seminar speakers (from L-R) Ashton Kelly, University of Queensland and Frankie Lyons, Walter and Eliza Hall Institute

evade an immune response from other critical cell surface proteins on the parasite? Here, we have developed a CSP-tolerant mouse model, immunising mice with human infective *Plasmodium falciparum* sporozoites to induce an immune response that potentially selectively targets other sporozoite surface proteins. We have performed 10x single-cell sequencing of the expanded B cell clones from immunized mice and generated a panel of monoclonal antibodies. Using these monoclonals, we hope to identify immunogenic non-CSP sporozoite specific antigens as potential targets for next generation malaria vaccines.

Our online ASP Seminar Series Friday 16 May 2025 @1pm AEST, featured Lenin De Silva Manage, Murdoch University presenting "Morpological and Moleclar Characterisation of Digeneas (Platyhelminthes: Trematoda) Endoparasitic in Marine Snakes of Sri Lanka." and Joanne Lee, Australian National University presenting "A Closer Look at Lipid Droplet Dynamics in *Plasmodium falciparum*: More than just fat storage" with co-chairs Jill Chmielewski, Walter and Eliza Hall Institute and Grace Peters, University of New South Wales.

Lenin De Silva Manage is a PhD student at the Harry Butler Institute, Murdoch University, Australia. His research is on the taxonomy, systematics, and biogeography of trematode fauna in marine fishes and marine snakes of Sri Lanka under the supervision of Prof. Alan Lymbery, Dr Storm Martin and Dr Erandi Pathirana. Lenin earned his Honours degree from Ocean University of Sri Lanka and completed his MPhil at the University of Peradeniya. Through research, he aims to enhance knowledge of parasite diversity, biogeography and aid in conservation.

Talk Title: "Morpological and Moleclar Characterisation of Digeneas (Platyhelminthes: Trematoda) Endoparasitic in Marine Snakes of Sri Lanka" Lenin De Silva Manage, Murdoch University

Abstract: Marine snakes are the most diverse group of extant marine reptiles, comprising over 70 species across multiple lineages. Despite hosting various metazoan parasites, their parasitic fauna remains poorly studied, with no prior records from Sri Lanka. Between August 2021 and August 2023, seven marine snake species collected from Sri Lankan fishery bycatch were examined for parasites: *Acrochordus granulatus, Cerberus rynchops, Hydrophis curtus, H. cyanocinctus, H. ornatus, H. schistosus, and H. spiralis.* Digenean trematodes identified included *Tubulovesicula laticaudi* and two *Harmotrema* species. Morphological and molecular analyses (COI mtDNA, ITS2, 28S rDNA) provided the first molecular data for *Tubulovesicula,* revealing polyphyly within Dinurinae. We propose restricting Dinurinae to taxa with a permanent sinus-organ, resurrecting Mecoderinae for those with a temporary sinus-organ, and transferring *Tubulovesiculato* the latter. The two species of *Harmotrema* are difficult to distinguish morphologically, suggest one may be *H. indica*, while the other likely represents a new species. Further studies are needed to resolve their taxonomy and species identities.

Jiwon (Joanne) Lee is a PhD candidate at the Research School of Biology, Australian National University, under the supervision of Prof. Alex Maier and A/Prof. Melanie Rug. Her research focuses on lipid storage and metabolism in *Plasmodium falciparum*, the deadliest human malaria parasite. Using various imaging techniques, including volume electron Microscopy and fluorescence microscopy, she investigates neutral lipid storage and mobilisation across parasite life

ASP Seminar Series continued

Our seminar speakers Xavier Barton, Murdoch University

stages. She also works as a biological microscopy specialist at the Centre for Advanced Microscopy, ANU.

Talk title: A Closer Look at Lipid Droplet Dynamics in *Plasmodium falciparum*: More than just fat storage.

Abstract: Lipid droplets (LDs) are organelles central to lipid and energy homeostasis across all eukaryotes. In the malaria-causing parasite *Plasmodium falciparum* the roles of LDs in lipid acquisition from its host cells and their metabolism are poorly understood, despite the high demand for lipids in parasite membrane synthesis. We systematically characterised LD size, composition and dynamics across the disease-causing blood infection. Applying split fluorescence emission analysis and 3D Focused Ion Beam-Scanning Electron Microscopy, we observed a decrease in LD size in late schizont stages. LD contraction likely signifies a switch from lipid accumulation to lipid utilisation in preparation for parasite egress from host red blood cells. We demonstrate connections between LDs and several parasite organelles, pointing to potential functional interactions. Chemical inhibition of triacylglyerol (TAG) synthesis or break-down revealed essential LD functions for schizogony and in counteracting lipid toxicity. The dynamics of lipid synthesis, storage and utilisation in *P. falciparum* LDs might provide a target for new anti-malarial intervention strategies.

Our online ASP Seminar Series Thursday 24th April 2025 @1pm AEST, celebrated World Malaria Day featuring Frankie Lyons, Walter and Eliza Hall Institute (WEHI) presenting "Transmission-blocking nanobodies targeting *Plasmodium falciparum* fertilisation antigens" and Ashton Kelly, University of Queensland (UQ) presenting "Understanding the molecular basis of immune heterogeneity in NK cells during controlled infection with *P. falciparum"* with co-chairs Jill Chmielewski, WEHI and Stuart Ralph, University of Melbourne.

Frankie Lyons Bio: Frankie's interest in parasitology began as a Master's student at LSHTM, undertaking a research project in Prof. Rob Moon's lab on gene editing in *Plasmodium knowlesi.* After a couple of years in publishing, Frankie returned to the lab as a PhD Candidate at WEHI, supervised by Prof. Wai-Hong Tham and Dr. Melanie Dietrich. Her PhD project incorporates biochemical techniques, structural biology and in vivo assays to identify and characterise nanobodies that block *Plasmodium falciparum* transmission.

Talk Title: "Transmission-blocking nanobodies targeting *Plasmodium falciparum* fertilisation antigens."

Abstract: Malaria parasite fertilisation occurs in the midgut of female Anopheles mosquitoes. By blocking fertilisation in the mosquito, we can stop transmission of the malaria parasite. I will present work on using nanobodies to block malaria parasite transmission. In particular, I have generated nanobodies targeting fertilisation antigen Pfs48/45, one of the leading transmission-blocking vaccine candidates. I have used biochemical and structural approaches to characterise nanobody interactions and examined the ability of nanobodies block fertilisation of the malaria parasite using standard membrane feeding assays with *Anopheles stephensi.* This work demonstrates the potential of nanobodies as a versatile antibody format that can reduce malaria transmission.

Ashton Kelly Bio: Ashton is a Postdoctoral research fellow at the Institute for Molecular Biosciences at The University of Queensland, in Professor Denise Doolan's lab. Her work over the last few years has focussed on understanding the unique molecular signatures at a single-cell and bulk proteomic and transcriptomic level in the context of blood stage *P. falciparum* infection. We aimed to understand the variable immune responses between individuals during controlled

ASP Seminar Series continued

Our seminar speakers Ernest Teo, Hokkaido University

infections. During her PhD Ashton employed an integrated systems immunology approach—combining mass cytometry, bulk proteomics, and single-cell transcriptomics of sorted natural killer (NK) cells—to identify both pre- and post-infection immune signatures that contribute to these variable host responses. Having successfully established these high-dimensional profiling techniques within our lab, Ashton developed experimental and analytical pipelines that have advanced the understanding of human immune heterogeneity. Ongoing work uses these platforms to explore host-pathogen interactions in *Plasmodium* infection, with expanding interests in viral co-infections. Outside of the lab Ashton is an awesome rugby union player looking forward to another great season with the UQ Red Heavies!

Title and abstract: "Understanding the molecular basis of immune heterogeneity in NK cells during controlled infection with *P. falciparum*"

Malaria, caused by *Plasmodium* species parasites, remains a significant public health burden across the globe, with infected individuals exhibiting a diverse spectrum of clinical outcomes, ranging from asymptomatic to severe disease. However, the molecular mechanisms underlying immune heterogeneity remain poorly understood. Natural Killer (NK) cells, positioned at the innate-adaptive immune interface, have been implicated in controlling Plasmodium parasite burden, yet the role of specific NK cell subpopulations in malaria remains largely unexplored. In this study we leveraged samples from Controlled Human Malaria Infection (CHMI) trials to investigate NK cell heterogeneity and its association with variable infection outcomes. Individuals were classified as "good" or "bad" responders based on parasite multiplication rate (PMR) following infection. Using a systems immunology approach, we employed single-cell RNA sequencing, single-cell proteomics, and bulk proteomics to characterise distinct NK cell populations and molecular signatures associated with differential immune responses to infection. Our findings revealed distinct NK cell subpopulations at baseline with unique transcriptional and proteomic profiles associated with good or bad responders following infection. scRNA-seq identified highly heterogeneous populations of NK cells, including multiple novel populations within the CD56+CD16+ compartment. Notably, good responders exhibit transcriptional signatures associated with immunoregulatory phenotypes driven by cytokine modulation. Single-cell proteomics further highlighted highly inflammatory NK populations in poor responders across multiple NK cell populations. Additionally, bulk proteomics identified proteins linked to parasite replication and immune function pre- and post-infection. Our findings underscore the critical role of NK cells in malaria immunity and reveal previously unrecognised heterogeneity within this population. Additionally, our study demonstrates the power of multi-omics approaches in dissecting immune responses, particularly within small immune cell populations, providing insights into potential targets for malaria intervention strategies.

Our online ASP Seminar Series Friday 21st March 2025 @1pm AEDT, featured Ernest Teo, Hokkaido University presenting "What allows ticks to tick? The effects of climate on the geographic distribution and the abundance of ticks – extended." and Xavier Barton, Murdoch University presenting "Do Ticks Care About the Environment?" with co-chairs Jill Chmielewski, Walter and Eliza Hall Institute and Emma McHugh, University of Melbourne.

Ernest Teo is a Japan Society for the Promotion of Science (JSPS) postdoctoral fellow at Hokkaido

ASP Seminar Series continued

University, Japan. Prior to his postdoctoral fellowship, he was a PhD candidate at The University of Queensland, Australia, where he studied the effects of climate on the abundance and geographic distribution of Australian ticks, most notably, Ixodes holocyclus, the eastern paralysis tick. Nowadays, Ernest is more preoccupied with ticks that have a much wider geographic distribution, as well as the disease ecology of their zoonotic diseases (although he still has a soft spot for anything *I. holocyclus*-related).

Talk Title: "What allows ticks to tick? The effects of climate on the geographic distribution and the abundance of ticks – extended." Ernest Teo, Hokkaido University

Abstract: What allows a tick to tick? There are various factors as to why ticks tick; one of these factors is climate. Andrewartha and Birch (1954) regarded the problem of the abundance and the geographic distribution of species to be two sides of the same coin, and also proposed that the weather accounted for the abundance of thrips and grasshoppers in South Australia – thus, could the weather, and hence the climate account for both the distribution and abundance of species? For ticks in particular, more and more studies have revealed that the weather, and hence the climate, may affect ticks in more ways than two. Apart from macro effects such as geographic distributions and abundance of ticks, climate has also been shown to affect ticks at the micro-scale (e.g. activity of individual ticks), as well as at many levels in between. In the past, such studies have mostly been observational, correlational, and theoretical. With advancements in technologies allowing individuals to track, consolidate, store, access, and subsequently use big data however, sophisticated methodologies and tools to project the distributions of species and to account for their abundances have been increasingly available. In this seminar, I intend to discuss how climate allows a tick to tick; deliberate on the possible effects of climate change on ticks; and highlight how we can use tools to further our understanding of the distribution and abundance of ticks.

Xavier Barton is a PhD candidate at Murdoch University, Western Australia, affiliated with Cryptick Lab and the Harry Butler Institute. His research focuses on investigating the population structure of ticks from a systematic perspective. Specifically, his current project is using ddRADseq to analyse the population genetic structures of *Amblyomma triguttatum* (ornate kangaroo tick) and other significant species. Xavier integrates this genetic data with environmental and microbial information to gain a comprehensive understanding of these species in their ecosystems. His research aims to provide further insight into how ticks and tick-borne pathogens are spread throughout a landscape, particularly in Australia where a significant knowledge gap is present.

Talk title: "Do Ticks Care About the Environment?" Xavier Barton, Murdoch University

Abstract: Ticks are some of the most important arthropod ectoparasites when it comes to disease transmission, vectoring a wide range of pathogens worldwide. Understanding their population structure helps us predict their movement and how these pathogens spread. In this talk, I'll present my study using ddRADseq to assess the population structure of *Amblyomma triguttatum* (ornate kangaroo tick) in the Swan Coastal Plain of Western Australia. I'll also discuss my initial findings on whether environmental factors influence the population structure observed.

Please get in touch with co-chairs Ben Liffner, University of Adelaide and Grace Peters, University of New South Wales or email secretary@parasite.org.au with suggested speakers!

Also some fieldwork images of bank voles, wood mice and yellow-necked mice from 2024 ASP seminar speaker, Elise Ringwaldt, University of Tasmania

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ASP Journal Report presented at the 2025 ASP AGM

Danny Wilson, ASP Vice-President

Much of the ASPs ability to support student and ECR training opportunities and outreach comes from the efforts and ongoing success of the societies three Journals; the International Journal for Parasitology, IJP-DDR and IJP-PAW. I am happy to pass on that led by the amazing efforts of the Journal editors, Brian Cooke for IJP, Kevin Saliba and Andrew Kotze for IJP-DDR, and Andy Thompson for IJP-PAW, with support from their editorial teams, our Journals have maintained highly competitive impact factors.

For IJP, after a strong year last year where the Journals impact factor bucked the trend of lowering impact factors across microbiology Journals, the impact factor lowered to 3.2, a great effort across the last two years that ranks IJP 9th out of 43 Journals in Parasitology. Just a reminder that authors working at affiliated universities and Institutions in Australia and New Zealand can request the Open Access fee to be waived for their publications in the IJP as part of the Read & Publish agreement negotiated by the Council of Australian University Librarians and Elsevier. This means that you don't pay anything to publish in IJP, but the Society and all members still benefit from the royalty income.

IJP PAWs impact factor increased to 2.2 and submissions are again up so far this year, a fantastic result for the Journal. IJP-PAW is maintaining its impressive record of growth and contribution to the Society.

Again, after defying the trend last year, IJP DDRs impact factor dropped to 3.4 in 2024. Pleasingly, the ASP saw a substantial increase in income from IJP-DDR as the Journal joined IJP and IJP-PAW as a significant contributor to royalty income.

I would like to thank all the IJP editors, their editorial boards, editorial staff and Elsevier for their contributions to the success of the Journals.

Submissions for all 3 Journals are up so far this year, pointing to a strong result going forward. All three Journals saw a welcome increase in open access income over the last year as well.

However, one of the challenges going forward is the continuing reduction in Journal subscription income for IJP, still the most significant single source of regular income for the ASP. Over the last 10 years the average reduction in Journal subscription income has been 6%, with this number reaching 19% in the 2024/25 royalty year.

Working with our Publisher Elsevier, the IJP Editors, the Executive and Council, it was decided that to ensure the ASP was able to continue normal activities going forward, the publishing model for IJP would undergo a staged transition from one where inhouse Editorial support is available to that used by IJP-PAW and IJP-DDR, where the Editorial support is managed by Elsevier. This staged transition will occur over 2026 and 2027, enabling the IJP Editorial team to adjust to the change. This 7 year agreement was signed with Elsevier in May this year. While the decision to change a model that has served the ASP and researchers so well was difficult, the alternative was to reach a stage where, despite implementation of stricter budgeting, to maintain normal activities the ASP would need to

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increasingly draw down on its financial assets over the next several years. Going forward, we expect instead for the ASP to be able to grow assets from 2028 and open up new opportunities for investing in ASP member training and support without substantially increasing costs to members.

As mentioned, the IJP suite of Journals are a key driver of the ASPs ability to support training and travel opportunities for our students and EMCRs. I encourage all members to consider sending their manuscripts to our Journals. This not only supports ASPs income and strengthens the field leading research being published in our Journals, it also allows you to receive the 20% ASP member discount on open access publication charges and may also allow you to access the Open Access Fee waver for IJP.

Please make international collaborators aware that when they are selecting a Journal to publish with, if they become international ASP members for the grand sum of $50 Australian, they too can receive the 20% ASP member discount on Open Access publication charges.

Maria Meuleman, Editorial Assistant (left) and Andrew Kotze (above) have both recently retired and we thank and wish them the very best.

I would like to highlight the contribution of two members of the IJP Journals who are retiring from their positions.

Firstly, Maria Meuleman will be stepping down from her role as Editorial Assistant for IJP. Maria has been an important part of the IJP Editorial process since 1995 and has provided assistance for many of us as we publish with the Journal. Maria, members of the ASP, the ASP Council, Executive and myself wish you all the best for the next chapter of your life.

Andrew Kotze, Joint Chief Editor of IJP-DDR, will also be retiring from this role. Andrew was one of the inaugural Chief Editors for IJP-DDR and focussed on multi-cellular parasite drug development and resistance. Andrew has worked diligently, along with Joint Chief Editor Kevin Saliba, to raise IJP-DDRs standing as a priority Journal to publish in the field. Andrew, members of the ASP, the ASP Council, Executive and myself wish you all the best for the next chapter of your life.

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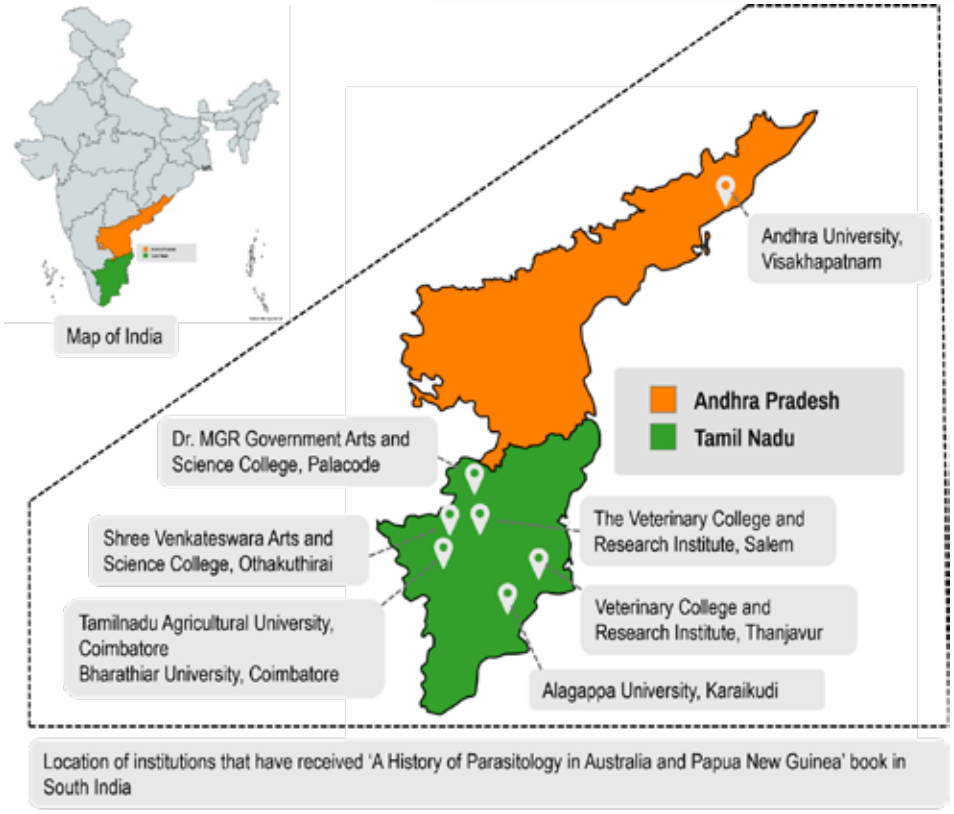
International ASP member Dhanasekaran (Dhana) Sakthivel has carried out some amazing outreach activities in Southern India. Dhanah has distributed 12 copies of the ASP commissioned book 'A History of Parasitology in Australia and Papua New Guinea' to multiple educational institutions located in regional areas of South India with the aim to reach students from marginalised communities. Vignesh Rathinasamy and Brian Cooke from James Cook University (JCU) have enabled the delivery of the books to Dhana in India. Dhana has travelled around the state of Tamil Nadu and delivered the books to seven institutions. He also had the chance the talk to the students about his doctoral research on host-parasite interactions in Australia and highlighted the cutting-edge parasitology research environment in Australia (including the amazing work of the ASP) to undergraduate and postgraduate students from selected institutions in the state of Tamil Nadu, India. Staff and students have praised the generosity of the ASP to provide and deliver the books at free of cost and staff in particular have emphasized the usefulness of the book to bring awareness about parasitology research, institutions and significant developments parasitology research in Australia to their students. Dhana believes that his efforts will motivate the students to pursue their higher studies in parasitology in Australia or elsewhere. Images showing where the books have been distributed and the recipients.



Location of institutions that have received 'A History of Parasitology in Australia and Papua New Guinea' book in South India

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Images (L) of educational institutions located in regional areas of South India receiving a "History of Parasitology in Australia and Papua New Guinea" and (R) Maria Meuleman, IJP Editorial Assistant with Ian Beveridge (Special editor IJP and co-author of "History of Parasitology..." book (bottom)

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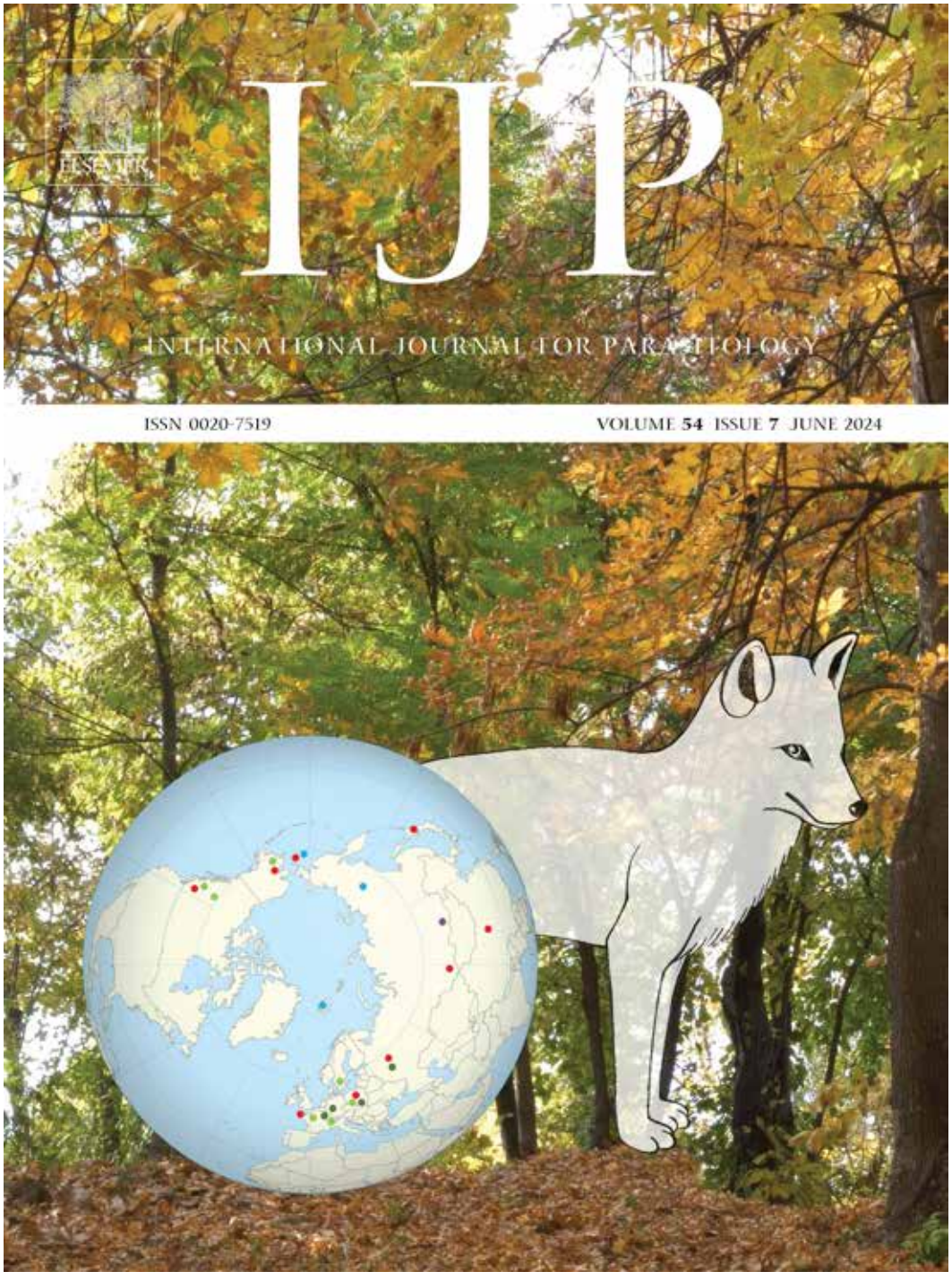

June (54:07) https://tinyurl.com/5c4pu5m9

Da Silva, A.M., Afonso, E., Raoul, F., Giraudoux, P., Mergey, M., Umhang, G., Courquet, S., Rieffel, D., Millon, L., Knapp, J., 2024. Assessing the role of individual foxes in environmental contamination with *Echinococcus multilocularis* through faecal samples. Int. J. Parasitol. 54, 321-332.

https://doi.org/10.1016/j.ijpara.2024.03.003

Echinococcus multilocularis environmental contamination by red foxes

Original image courtesy of S Courquet (University Hospital Center of Besançon, France) and map from Gringer, Public domain, via Wikimedia Commons.

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July (54:08/09) https://tinyurl.com/5exvw3ta

Chmelová, Ľ., Kraeva, N., Saura, A., Krayzel, A., Veira, C.S., Ferreira, T.N., Soares, R.P., Bučková, B., Galan, A., Horáková, E., Vojtková, B., Sádlová, J., Malysheva, M.N., Butenko, A., Prokopchuk, G., Frolov, A.O., Lukeš, J., Horváth, A., Škodová-Sveráková, I., Feder, D., Yu. Kostygov, A., Yurchenko, V., 2024. Intricate balance of dually-localized catalase modulates infectivity of *Leptomonas seymouri* (Kinetoplastea: Trypanosomatidae). Int. J. Parasitol. 54, 391-400.

https://doi.org/10.1016/j.ijpara.2024.04.007

Extremely abundant but understudied

Original cover image courtesy of Martina Tesařová, Institute of Parasitology, Czech Republic.

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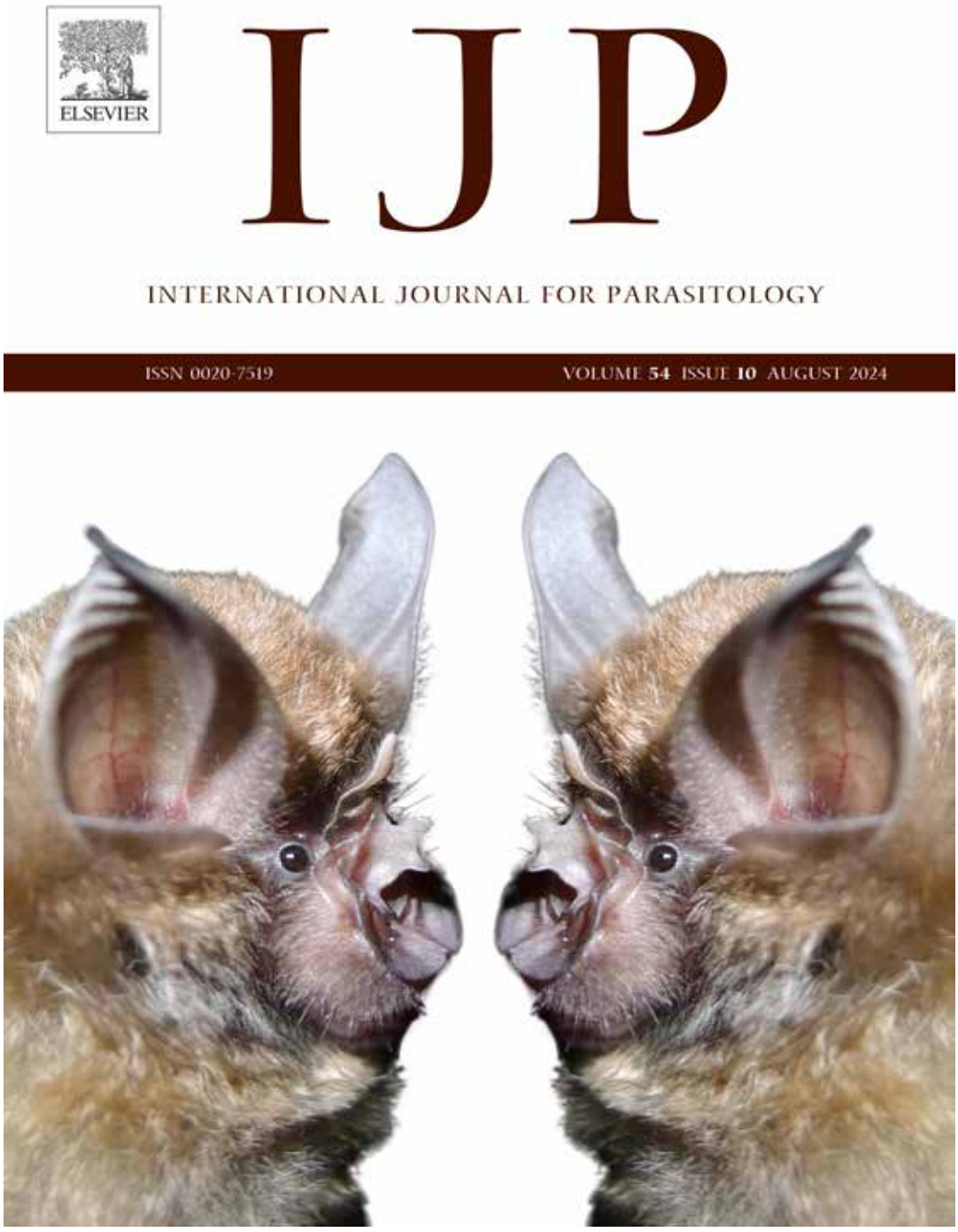

August (54:10) https://tinyurl.com/55725c72

Werb, O., Matuschewski, K., Weber, N., Hillers, A., Garteh, J., Jusu, A., Turay, B. S., Wauquier, N., Escalante, A. A., Pacheco, M. A., Schaer, J. 2024. New member of *Plasmodium* (*Vinckeia*) and *Plasmodium cyclopsi* discovered in bats in Sierra Leone—nuclear sequence and complete mitochondrial genome analyses. Int. J. Parasitol., 54, 475-484. https://doi.org/10.1016/j.ijpara.2024.05.002

https://www.sciencedirect.com/science/article/pii/S0020751924001085

Discovering *Plasmodium* malaria parasites in Sierra Leone´s bats

Original cover photo courtesy of Natalie Weber (Max Planck Institute of Animal Behavior, Germany).

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September (54:11) https://tinyurl.com/5n7suh9h

Sharma, N., Au, V., Martin, K., Edgley, M.L., Moerman, D., Mains, P.E., Gilleard, J.S., 2024. Multiple UDP glycosyltransferases modulate benzimidazole drug sensitivity in the nematode *Caenorhabditis elegans* in an additive manner. Int. J. Parasitol. 54, 535-549.

https://doi.org/10.1016/j.ijpara.2024.05.003

Non-redundant roles of multiple *Caenorhabditis elegans* UDP-glycosyltransferases (UGTs) in modulating benzimidazole drug potency in vivo

Original image provided courtesy of Nidhi Sharma and John Gilleard, University of Calgary, Canada.

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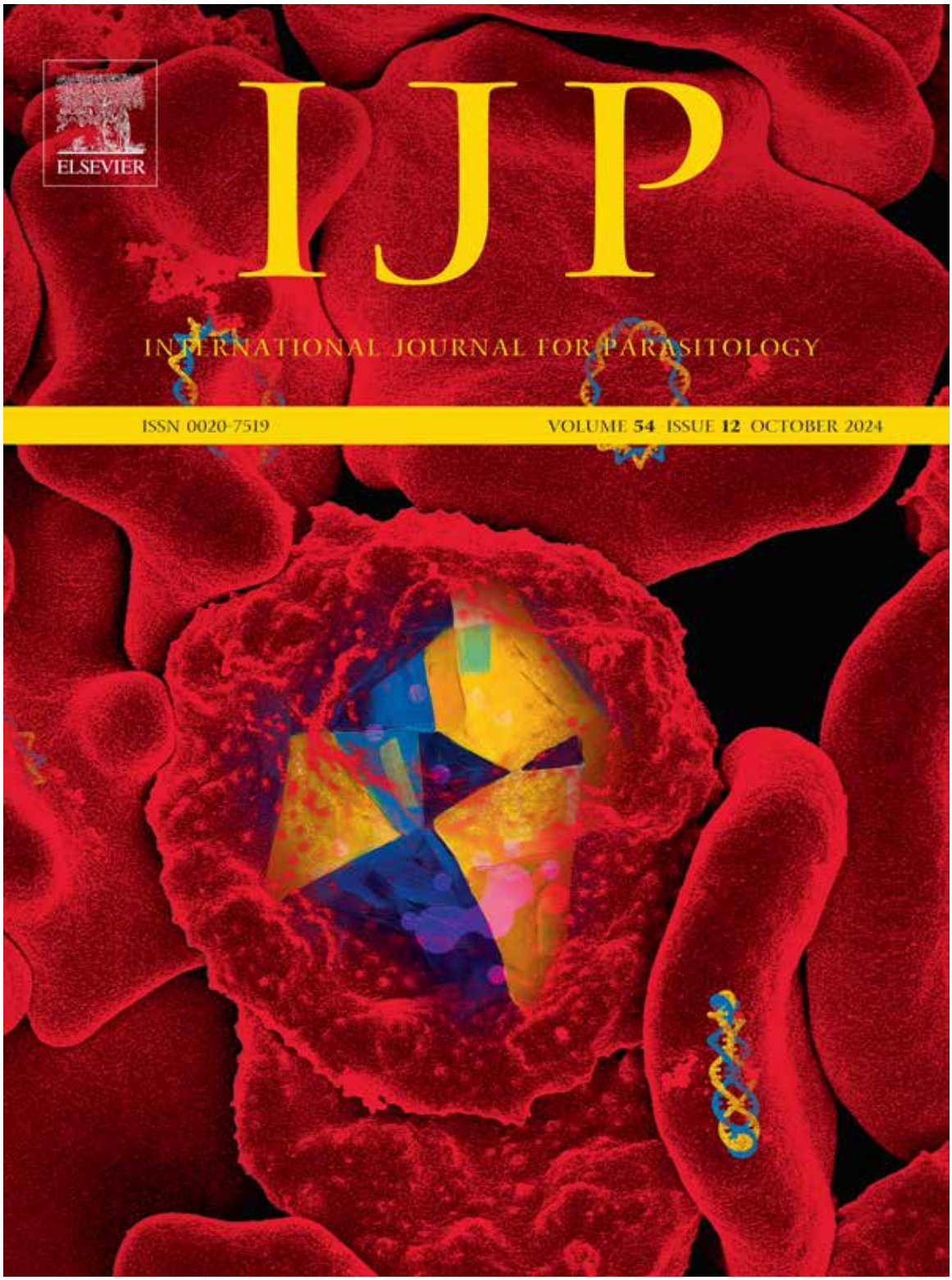

October (54:12) https://tinyurl.com/4vkdka4m

Mohammad, K., Appasani, S.L., Ito, M., Percopo, C., Desai, S.A., 2024. Optimized plasmid loading of human erythrocytes for *Plasmodium falciparum* DNA transfections. Int. J. Parasitol. 54, 597-605.

http://dx.doi.org/10.1016/j.ijpara.2024.04.011

Original cover art by Austin Athman, Visual & Medical Arts, Rocky Mountain Laboratories, NIAID, National Institutes of Health, USA. The cover of this IJP issue containing our manuscript was designed by Austin Athman and Anita Mora of the Visual & Medical Arts Unit of RTB/NIAID/NIH (USA) and shows a successfully transfected parasite in an infected human erythrocyte surrounded by uninfected erythrocytes containing DNA plasmid.

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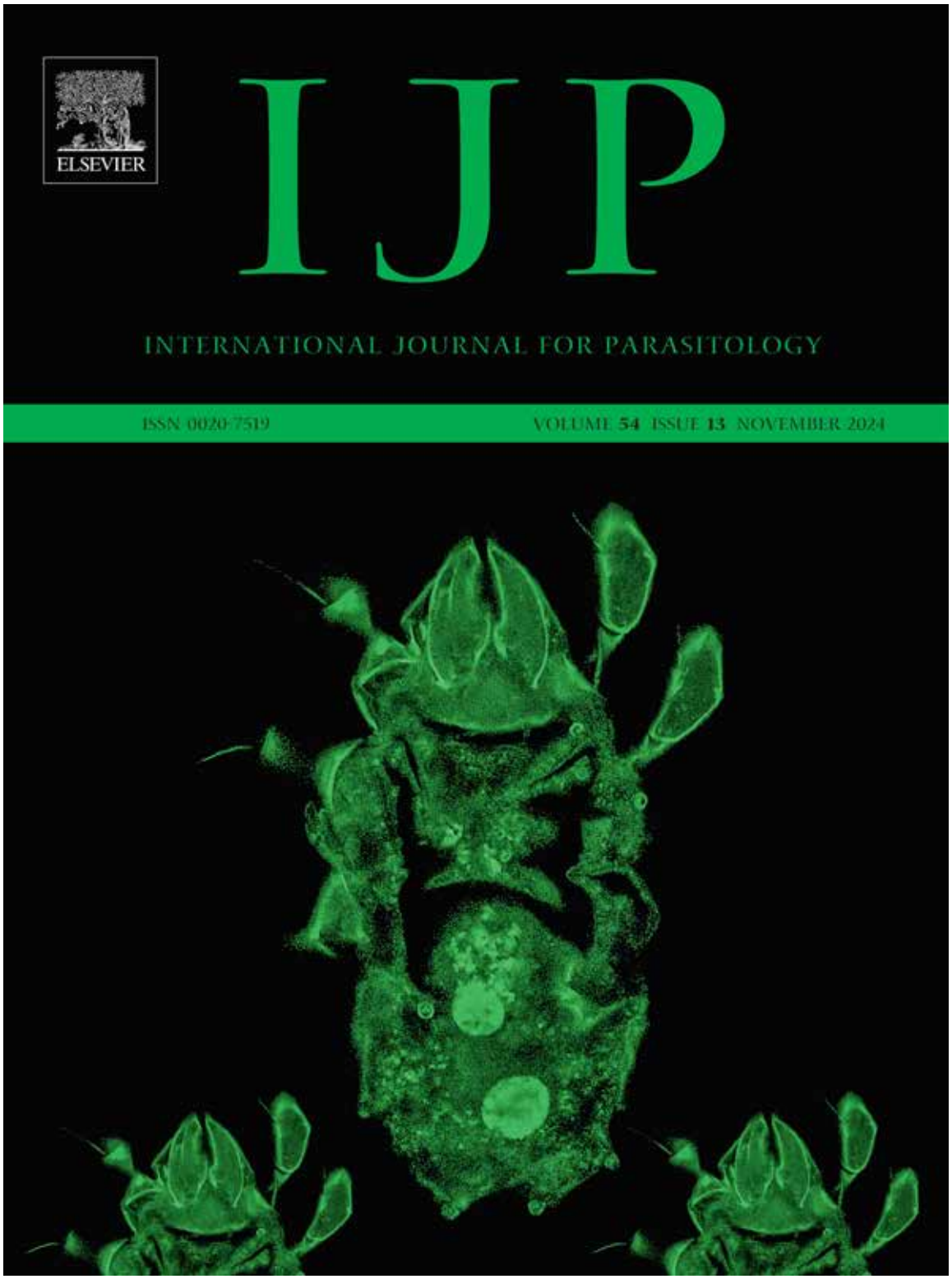

November (54:13) https://tinyurl.com/mpwp84n6

Klimov, P.B., Hubert, J., Erban, T., Perotti, M.A., Braig, H.R., Flynt, A., He, Q., Cui, Y., 2024. Genomic and metagenomic analyses of the domestic mite *Tyrophagus putrescentiae* identify it as a widespread environmental contaminant and a host of a basal, mite-specific Wolbachia lineage (supergroup Q). Int. J. Parasitol. 54, 661-674.

https://doi.org/10.1016/j.ijpara.2024.07.001

The mould mite mystery: how *Tyrophagus putrescentiae* can contaminate your research!

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The cover showcases the iconic San Miguel Island fox, a symbol of resilience and ecological significance. We investigated the recovery and subsequent challenges faced by this subspecies, particularly with the emergence of the acanthocephalan parasite *Pachysentis canicola*. The foxes' story underscores the delicate balance between environmental conditions and parasitism in shaping population dynamics, offering vital insights into the complexities of wildlife health management.

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Please enjoy interviews from **Tharaka Liyanage, Alexander Gofton, Viviana Gonzalez-Astudillo, Ellyssia Young, Alice Birckhead & Shokoofeh Shamsi and Katherine Adriaanse** about their recent IJPPAW publications.

Image of Tharaka Liyanage (R) with superviser A/Prof Jasmin Hufschmid on Phillip Island , the main study site for this bandicoot research.

K.L.D. Tharaka D. Liyanage, Michael Lynch, Oluwadamilola S. Omotainse, Chunlei Su, Jasmin Hufschmid, and Abdul Jabbar recently published "Molecular detection and characterisation of T*oxoplasma gondii* in eastern barred bandicoots (*Perameles gunnii)* in Victoria, Australia" and we interviewed **Tharaka Liyanage** about this publication.

Spotlight on Research

Molecular detection and characterisation of *Toxoplasma gondii* in eastern barred bandicoots (*Perameles gunnii*) in Victoria, Australia

By Dr Tharaka Liyanage

Melbourne Veterinary School, The University of Melbourne

Introduction

Dr Tharaka Liyanage completed his PhD under the supervision of A/Prof Jasmin Hufschmid and Professor Abdul Jabbar at the Melbourne Veterinary School, University of Melbourne. His research focuses on wildlife parasitology and the development and application of molecular and serological diagnostic tools for the detection of infectious diseases in Australian marsupials. His recent study is the first to use molecular tools to detect and genetically characterise Toxoplasma gondii in eastern barred bandicoots (*Perameles gunnii)*, a critically endangered marsupial now restricted to reintroduced populations in Victoria.

1. Tell us about your recent publication on Toxoplasma gondii *in eastern barred bandicoots and why it matters for their conservation?*

Our study is the first to apply molecular techniques to detect and genetically characterise *Toxoplasma gondii* in eastern barred bandicoots (*Perameles gunnii*), a marsupial species deemed functionally extinct on mainland Australia until relatively recently. After having been successfully introduced to three islands off the coast of southern Victoria, the species has since been reclassified as endangered. Using a highly sensitive qPCR assay, I screened over 100 carcasses and found that nearly 20% were infected with *T. gondii.*

Because eastern barred bandicoots often die during the acute phase of infection, before producing the antibodies that can be detected in serological tests such as the modified agglutination test (MAT). Molecular diagnostics therefore play a vital role in revealing the true prevalence and impact of *T. gondii* in this species, with direct implications for conservation health monitoring.

Genetic analysis showed most infections were caused by the globally dominant type II genotype, with

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Images of Dr Tharaka Liyanage

two isolates showing a unique type II-like variant. Both type II and type III genotypes appear capable of causing severe toxoplasmosis in eastern barred bandicoots, highlighting their extreme susceptibility. This is a significant potential concern for the conservation of bandicoot populations.

2. What are some of the challenges in researching parasitic and other diseases in bandicoots?

Studying disease in eastern barred bandicoots is particularly challenging due to their biology and conservation status. These small, ground-dwelling marsupials are highly susceptible to *T. gondii* and typically die quickly after infection. This rapid progression means that live animal testing rarely detects acute infections, limiting our understanding of infection dynamics in the wild.

Fieldwork also presents difficulties: carcasses are small, quickly scavenged, or decompose rapidly, which affects sample quality and diagnostic success. In our study, most specimens were collected opportunistically after vehicle trauma, highlighting the dependence on chance sampling for disease surveillance.

Additionally, because the species is endangered and restricted to introduced populations on Phillip Island, French Island, and Churchill Island, experimental or invasive studies are not easily feasible. Despite these constraints, molecular tools such as qPCR and genotyping have enabled us to examine infections post-mortem and gain valuable insights into disease risks.

3. What's next for this research?

As part of a broader collaborative project led by Dr Michael Lynch, we're expanding our investigation of *T. gondii* impacts using complementary methods, serology, qPCR and histopathology. These studies indicate that bandicoots typically die within weeks of exposure, before an IgG response develops, reaffirming that toxoplasmosis poses a major threat to these reintroduced populations.

Our next steps include mapping *T. gondii* genotypes in other hosts that share habitats with bandicoots, especially feral cats, the definitive hosts and other potential intermediate hosts. This will help clarify transmission pathways and identify parasite strains posing the greatest risk.

As part of my PhD, I've also developed a novel multispecies ELISA capable of detecting both acute (IgM) and chronic (IgG) *T. gondii* infections across multiple marsupial species, including bandicoots. Once fully validated, this assay will address a critical diagnostic gap in wildlife toxoplasmosis surveillance.

In the longer term, we aim to explore

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sublethal and behavioural effects of *T. gondii,* such as whether infection alters risk-taking behaviour or increases susceptibility to secondary threats such as predation or vehicle strikes. Ultimately, our goal is to integrate parasite monitoring into conservation planning to better manage disease risks in future reintroduction and recovery programs.

Acknowledgements:

This work was made possible through collaboration with veterinarians from Zoos Victoria, including Dr Michael Lynch, and the Phillip Island Nature Parks team, who provided access to samples and population data from reintroduced bandicoots.

Read the publication:

K.L.D. Tharaka D. Liyanage, Michael Lynch, Oluwadamilola S. Omotainse, Chunlei Su, Jasmin Hufschmid, Abdul Jabbar, Molecular detection and characterisation of *Toxoplasma gondii* in eastern barred bandicoots (Perameles gunnii) in Victoria, Australia, International Journal for Parasitology: Parasites and Wildlife, Volume 27, 2025, 101071, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2025.101071

https://www.sciencedirect.com/science/article/pii/S2213224425000367

Abstract: Australian marsupials are particularly susceptible to *Toxoplasma gondii,* an introduced zoonotic protozoan parasite. Molecular diagnostic methods are a highly specific approach for the detection of parasitic infections such as ***T. gondii.*** Importantly, molecular methods are useful for the characterisation of *T. gondii* to understand the genetic diversity of the parasite. The eastern barred bandicoot (*Perameles gunnii)* is a small native marsupial species classified as Critically Endangered. Although the species has previously been described as highly susceptible to infection with *T. gondii,* there is currently no information on the genotypes occurring in this species. This study employed qPCR for the detection of *T. gondii* in opportunistically obtained tissue samples from eastern barred bandicoot carcasses (n = 113) from Victoria, followed by determination of genotype using a DNA sequence-based virtual restriction fragment length polymorphism (RFLP) method. Overall, 19.5 % of the samples were positive for *T. gondii* using qPCR. The RFLP analysis revealed the dominance of *T. gondii* type II while a type II-like genotype was found in two isolates. This is the first study to provide information on prevalent genotypes of *T. gondii* in eastern barred bandicoots. Epidemiological studies of definitive and intermediate hosts, including further genotyping, are recommended to better understand *T. gondii* epidemiology for the successful recovery of eastern barred bandicoots in Australia.

Image copyright Alexander Gofton field work photo of tick collecting https://doi.org/10.1016/j.ijppaw.2024.100982

Makenna Short, Kira Lowe, Michelle Michie, Ina Smith, Kim Blasdell, Alexander G. Maier and Alexander W. Gofton recently published "Tick-borne piroplasms and trypanosomes incidentally detected in eastern grey kangaroos (Macropus giganteus) during a mortality and morbidity event in southern New South Wales, Australia" and we interviewed **Alexander Gofton** about this publication:

1. Alexander, please tell us about your latest publication in relation to the eastern grey kangaroo and why it's important?

Our study investigated tick-borne parasites in eastern grey kangaroos during a mortality event in coastal southern NSW between 2022-2023. We analysed blood samples from 89 kangaroos and found four different parasite species: *Babesia macropus,* a novel *Theileria* species (Theileria sp. AU_1048), *Trypanosoma gilletti,* and *Trypanosoma vegrandis*.

The most significant finding was the novel *Theileria* species, which we detected in over 15% of kangaroos.

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Images (top) Graphical abstract and (bottom) Fig. 1. Location of eastern grey kangaroo samples collected by wildlife carers in the south coast of NSW between May 2022 and August 2023.

https://doi.org/10.1016/j.ijppaw.2024.100982

This parasite had previously been found only in ticks, but our work shows it's actually a widespread kangaroo parasite in eastern Australia, likely transmitted between Ixodes holocyclus ticks and kangaroos. Interestingly, *Babesia macropus* (which has caused previous mass mortality events) was found in only two animals, suggesting other factors were at play in this particular event.

We also documented the first reports of *T. gilletti* and *T. vegrandis* in eastern grey kangaroos, expanding our understanding of these parasites' host ranges.

Animals were also screened for Wallal and Warrego viruses due to the fact that many animals were experiencing blindness and photophobia. However, all samples were negative for these viruses.

This research is important because it reveals the complex relationships between native Australian wildlife and their parasites. While these parasites are typically harmless to healthy animals, they can become problematic when animals face environmental stressors. The work fills crucial gaps in our knowledge of parasite diversity in Australian marsupials and provides baseline data for future wildlife health monitoring.

2. What are some of the challenges associated with researching health impacts to Australian animals and declining wildlife populations?

One of the biggest challenges is distinguishing between correlation and causation. In our study, we detected parasites during a mortality event, but we couldn't definitively say they caused the deaths. Wildlife health is incredibly complex and animals face multiple stressors simultaneously, from vehicle strikes to plant toxins to climate impacts. Another major challenge is sample collection. We rely heavily on wildlife carers and veterinarians who are already stretched thin, and samples often come from animals that are already severely compromised. Getting comprehensive health data and adequate sample sizes from wild populations is always difficult.

3. What is next for this research?

We need to better understand whether this novel *Theileria* species actually causes disease or if it's just an incidental finding. This requires controlled studies with clinical and pathological data, which is challenging with wild animals. We're also interested in expanding our understanding of parasite diversity across different marsupial species and geographic regions. Long-term, we'd like to develop better diagnostic tools and establish baseline parasite prevalence data for healthy populations, so we can better interpret findings during mortality events. This kind of foundational work is essential for wildlife health surveillance and conservation planning.

Read the publication:

Makenna Short, Kira Lowe, Michelle Michie, Ina Smith, Kim Blasdell, Alexander G. Maier, Alexander W. Gofton,
Tick-borne piroplasms and trypanosomes incidentally detected in eastern grey kangaroos (*Macropus giganteus*) during a mortality and morbidity event in southern New South Wales, Australia, International Journal for Parasitology: Parasites and Wildlife, Volume 25, 2024, 100982, ISSN 2213-2244,

https://doi.org/10.1016/j.ijppaw.2024.100982

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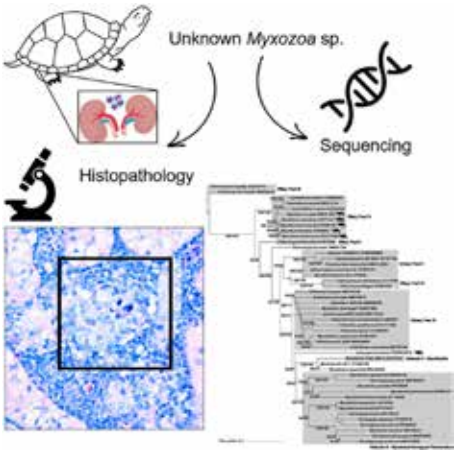
Images copyright Alexander Gofton field work photos of tick collecting https://doi.org/10.1016/j.ijppaw.2024.100982

https://www.sciencedirect.com/science/article/pii/S2213224424000786

Abstract: Tick-borne haemoparasites, including piroplasms and trypanosomes, are almost ubiquitous in Australian wildlife, with some associated with health impacts to individual animals and declining wildlife populations. An array of ecologically distinct piroplasm and trypanosome species occur throughout Australia although many of these species and their sylvatic ecologies are poorly characterised. Between May 2022 and October 2023, an anecdotally reported localised eastern grey kangaroo (*Macropus giganteus)* morbidity/mortality event occurred in coastal southern New South Wales, Australia, characterised by animals presenting with blindness, emaciation, lethargy, ataxia, and astasia. Here we used molecular techniques to identify tick-borne piroplasms (*Babesia* and *Theileria*) and trypanosomes in affected animals. Blood (n = 89) and liver (n = 19) samples were collected after the humane euthanasia of wild animals due to welfare concerns, and brief notes on the animal's health were recorded. In total, 20 (22.5%) animals were infected with tick-borne haemoparasites, including a novel *Theileria* sp. nov. (14, 15.7%), *Babesia macropus* (2, 2.2%), *Trypanosoma gilletti* (5, 5.6%), and *Trypanosoma vegrandis* (1, 1.1%). Liver samples were also screened for Wallal and Warego viruses due to animals' blindness, but were negative. This is the first report of *T. gilletti and T. vegrandis* in eastern grey kangaroos, although they have been previously reported in high numbers in ticks which commonly parasites this host. The novel *Theileria* sp. was previously reported in questing *Ixodes holocyclus* and in ticks from an opportunistically collected eastern grey kangaroo and red-necked wallaby (*Notamacropus rufogriseus*). However, we show for the first time this *Theileria* sp. can occur widely in eastern grey kangaroos. Ultimately, this small study did not intend, and is not able to draw inference regarding the pathogenicity of these haemoparasites to eastern grey kangaroos and it is likely that other factors, such as chronic Phalaris grass toxicity, had a role in this localised mortality/morbidity event.



Images Graphical Abstract https://doi.org/10.1016/j.ijppaw.2025.101061

Zachary Low, Telleasha L. Greay, Swaid Abdullah, Phoebe A. Chapman, and Viviana Gonzalez-Astudillo, recently published "Renal myxosporidiosis by an unknown Bivalvulidan myxozoan parasite in Murray River turtles (*Emydura macquarii*) in Australia" and we interviewed **Viviana Gonzalez-Astudillo** about this important research:

1. Viviana please tell us about your latest publication in relation to renal myxosporidiosis by an unknown Bivalvulidan myxozoan parasite in Murray River turtles in and why it's important for the Murray River turtles population?

Describing new organisms is always an exciting and multi-disciplinary process and can teach us so much about the intricate balance our native animals sustain with their habitats and complex microenvironments they carry within their bodies. Finding a previously undescribed myxozoa parasite in these turtle occupies an intriguing area in parasitology - we

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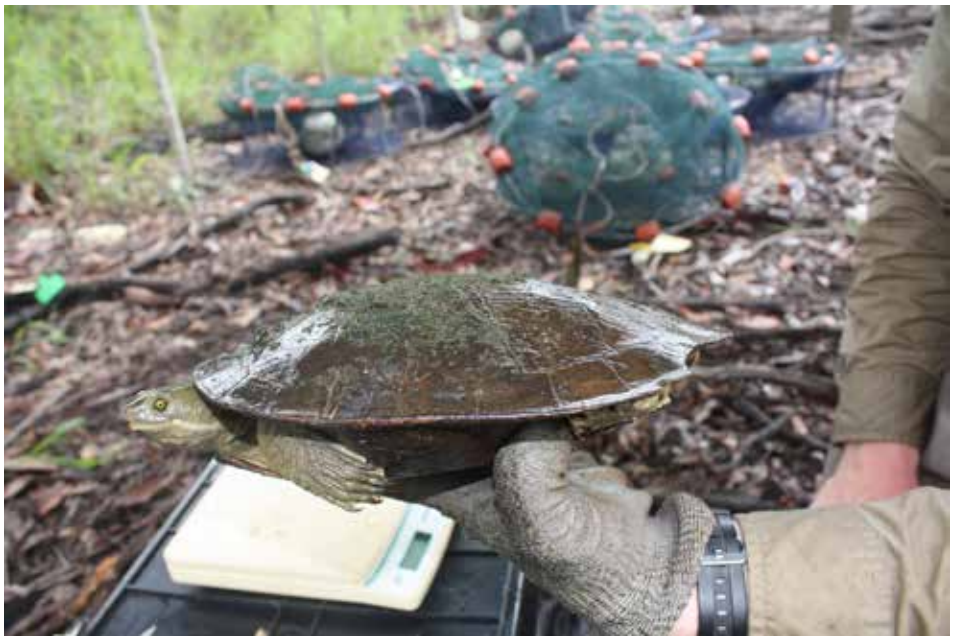
are not yet sure if they can act as harmful parasites or perhaps exist in a more benign symbiotic or mutualistic relationship with their turtle host. We found inflammation in the kidneys associated with their presence, however, it appeared to be subclinical in nature, which may suggest their presence may not have immediate health consequences for Murray River turtles. Despite of the uncertainties, these findings will become the foundation of future research.

2. What are some of the challenges associated with researching parasitic and other diseases of turtles?

The identification and subsequent characterization of diseases in turtles - and wildlife more broadly - can create a constellation of challenges and I am happy to include a few I often face. There is a sampling paradox - we work with the circumstance that wildlife disease research often begins with opportunistic sampling rather than systematic collections. Our Murray River turtle finding exemplifies this issue: the affected renal tissue appeared completely normal to the naked eye. Had we not made the decision to examine healthy-looking tissues microscopically, these undescribed organisms would have remained invisible to science. There is also a diagnostic dilemma - unlike our domestic animals, wildlife lacks the extensive foundation of validated tests and established physiological baselines that guide our clinical decision-making. There is an extraordinary species diversity in nature, so it is frequent that we found ourselves in unchartered territory. For example, when analysing blood samples for these turtles, we had to extrapolate from parameters validated in other chelonids - an imperfect but necessary approach requiring expertise and caution. Other challenges include tissue preservation artefacts which can obscure true lesions, and funding constraints that often limits research to diseases requiring urgent intervention. For me as a veterinary pathologist dedicated to wildlife conservation, these obstacles make disease research even more rewarding. It is a dynamic, constantly evolving field that not only requires but thrives on



Images female Murray River turtles. Top right Photo copyright, Brenda Baddily and bottom left Photo copyright DETSI 2021

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multidisciplinary collaborations.

3. What is next for this research?

The story does not end here - and as it usually happens in science, this finding leaves more questions than answers. Now that we have documented the existence of these organisms and their capacity to invade apparently healthy renal tissue, we are in a much better position to monitor for any broader clinical and ecological implications. Being vigilant will help us understand whether these myxozoan organisms might influence Murray River turtles at a larger scale, or perhaps affect the species which share their aquatic ecosystems.

Read the publication:

Zachary Low, Telleasha L. Greay, Swaid Abdullah, Phoebe A. Chapman, Viviana Gonzalez-Astudillo,
Renal myxosporidiosis by an unknown Bivalvulidan myxozoan parasite in Murray River turtles (*Emydura macquarii*) in Australia, International Journal for Parasitology: Parasites and Wildlife, Volume 27, 2025, 101061, ISSN 2213-2244,

https://doi.org/10.1016/j.ijppaw.2025.101061

https://www.sciencedirect.com/science/article/pii/S2213224425000264

Abstract: This case series provides the first published record of a myxozoan parasite in Murray River turtles (*Emydura macquarii)* in Australia. Thirteen turtles were captured for an eco-toxicology study and underwent postmortem examinations. From these, three were found to have interstitial nephritis and spores within the affected renal tubules. Molecular characterisation was performed with PCR which yielded positive results for myxozoan DNA in the three infected samples. DNA sequencing and phylogenetic analysis of 18S rRNA sequences positioned the unknown species in a distinct clade, closely related to, but separate from, histozoic clades II and III. This discovery contributes significantly to the understanding of myxozoan diversity and ecology, highlighting a potential new threat to the health of Murray River turtle populations and possibly other aquatic reptiles. The discovery of this myxozoan species not only broadens the known host range of myxozoans but also raises concerns about the conservation of affected turtle populations due to its possible pathogenic nature.

Ellyssia T. Young, Jessica McKelson, Daniel Kalstrom, Lachlan Sipthorp, Leanne Wicker, Damien Higgins, Caroline Marschner, David S. Nichols, David Phalen, Aaron C. Greenville, Scott Carver, recently published "Pharmacokinetics and safety of topical fluralaner in koalas (*Phascolarctos cinereus)*" and we interviewed **Ellyssia Young** about this important research:

1. Ellyssia, please tell us about your latest publication in relation to evaluating the pharmacokinetics and clinical safety of fluralaner in koalas and why it's important for the koala population?

This study was undertaken by a team of scientists to test whether a single dose of fluralaner (Bravecto®

Image Ellyssia Young, University of Sydney, working on sarcoptic mange in koalas

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Spot-On) which has been used to treat sarcoptic mange in wombats, may also be of use in koalas. There is currently no documented effective single dose treatment for sarcoptic mange in koalas. Sarcoptic mange is an emerging disease in koalas, with only a few reported cases. However, these studies have documented severe impacts of sarcoptic mange in koalas, with koalas typically being affected with the severe pathology, known as crusted mange, which has significant impacts on koalas' health, welfare and survival. In Victoria koalas are threatened by land modification, anthropogenic activity, various diseases and low genetic diversity and hence are vulnerable to decline. Koalas are also particularly susceptible to stress, hence the availability of safe, less invasive and efficacious chemotherapeutic agent options is important for use in treating sarcoptic mange in koalas, in care by wildlife carers and veterinarians, and in free-ranging koalas. This study provided fundamental information regarding the safety of use in healthy captive koalas, and that fluralaner was absorbed and circulated in the blood at levels that should be efficacious against sarcoptic mange mites, in comparison to previous studies.

2. What are some of the challenges associated with researching Sarcoptic mange disease of koalas?

Alopecia is a commonly occurring symptom of sarcoptic mange in many affected species with varying degrees of alopecia observed between hosts, and generally quantified as an observable proportion of hair loss . The koalas in this study displayed low levels of alopecia in comparison to many other impacted species, either closely or distantly related. This along with the reclusive and arboreal nature of koalas makes spotting and assessing them for disease intrinsically harder.

3. What is next for this research?

The obvious next step was to undertake clinical trials on mange affected koalas, to quantify clinical resolution of mange infection via mite prophylaxis. I undertook this with the assistance of two wildlife carers in Victoria for a 12 month time period, however there was only a couple of cases of mange admitted into these facilities, which were either already deceased, or euthanised on welfare grounds due to advance stage of infection. Due to PhD time constraints I could not pursue this further, however, follow up research would be beneficial to provide an evidence base for wildlife carers, land managers and veterinarians. Further study into the population and landscape level impacts and drivers of sarcoptic mange in koalas would also be of benefit to inform disease management strategies.

Read the publication:

Ellyssia T. Young, Jessica McKelson, Daniel Kalstrom, Lachlan Sipthorp, Leanne Wicker, Damien Higgins, Caroline Marschner, David S. Nichols, David Phalen, Aaron C. Greenville, Scott Carver, Pharmacokinetics and safety of topical fluralaner in koalas (*Phascolarctos cinereus*), International Journal for Parasitology: Parasites and Wildlife, Volume 25, 2024, 100999, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2024.100999

https://www.sciencedirect.com/science/article/pii/S2213224424000956

Images (above) of sarcoptic mange in koalas - these photos are courtesy of Dutch Thunder Wildlife Shelter.

Abstract: Sarcoptic mange (etiological agent *Sarcoptes scabiei*) is among the most important parasitic diseases of some marsupial species and has been an emerging disease of koalas, causing welfare and conservation implications. Fluralaner (Bravecto® MSD Animal Health), an ectoparasiticide of the isoxazoline class, has been demonstrated as a long-lasting and efficacious chemotherapeutic agent against sarcoptic mange in multiple mammal species and may also be beneficial for impacted koalas. Here, we evaluated the pharmacokinetics and clinical safety of fluralaner in koalas. Healthy captive individuals were treated topically with 85 mg/kg fluralaner administered to the interscapular epidermis. Following treatment, fluralaner was detected in plasma using ultra-performance

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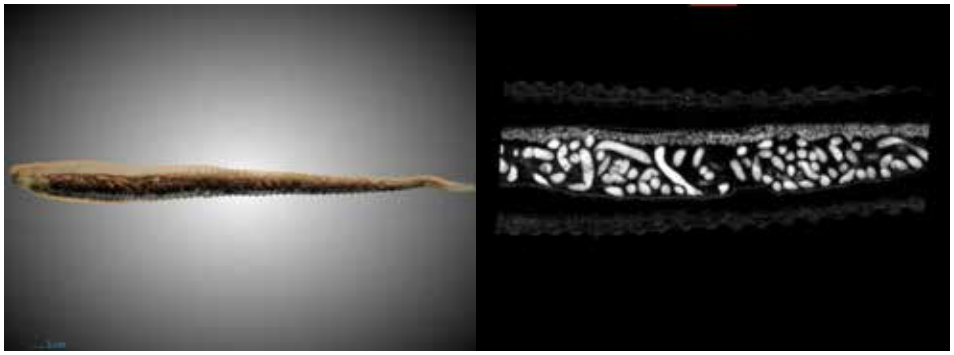
liquid chromatography and tandem mass-spectrometry over a 12-week period. The mean maximum plasma concentration (Cmax) was 66.4 ng/mL; mean time was Cmax of 2.71 days; plasma elimination half-life (T1/2) was 30.91 days; and mean residence time (MRT) was 27.38 days. Haematological, blood biochemical, animal husbandry and clinical observations, over the same time period, demonstrated fluralaner was well tolerated. Overall, this research suggests fluralaner is a safe and long-lasting chemotherapeutic agent that may be efficacious against *S. scabiei* in koalas. Further research focussed on quantifying efficacy in captive and field settings, and across a range of disease severities would be valuable.

Alice Birckhead, Ryan O'Hare Doig, Ann Carstens, David Jenkins, Shokoofeh Shamsi recently published "Exploring the anatomy of Linguatula serrata using micro-computed tomography" and we interviewed Alice Birckhead and Shokoofeh Shamsi about this important research.

1. Alice and Shokoofeh, please tell us about your latest publication in relation to this new tool, micro-computed tomography, and why it's important for parasitology research.

Micro-CT has been available for decades but has rarely been applied in parasitology. In our study, we used this method to visualise both the internal and external anatomy of *Linguatula serrata* specimens stained with 0.3% phosphotungstic acid or 1% iodine. The technique allowed us to virtually examine the parasites in multiple planes and 3D, giving us a far more complete picture of their structure.



Images from our study, including a 3D reconstruction of an adult female *L. serrata* specimen stained with 1% iodine. courtesy Alice Birckhead and Shokoofeh Shamsi

Compared with traditional dissection, micro-CT is a non-invasive approach — specimens remain intact and can be re-examined or archived for future reference. Beyond morphology, micro-CT also holds promise for studying host–parasite interactions by visualising parasites in situ within tissue samples or small animal models.

2. What are some of the challenges associated with using micro-computed tomography?

One of the main challenges was handling the enormous datasets generated. Micro-CT files are extremely large, and without a high-performance computer it's difficult to visualise the scans in detail. This work was only possible thanks to the support and facilities of the South Australian Health and Medical Research Institute (SAHMRI), which provided the necessary equipment and expertise.

3. What is next for this research?

This project is part of an ongoing research program within Shamsi's team, carried out in collaboration with our wonderful national and international colleagues and students. Over the past decade, we've made substantial progress in understanding the distribution and host range of *Linguatula* in Australia.

However, many questions remain. We are now focusing on the zoonotic potential of this parasite, developing improved diagnostic tools, particularly for pet dogs, which can play an important role in transmission, and exploring how new imaging and molecular approaches can enhance detection and species identification. There's still a great deal to learn, and this research continues to evolve as we uncover more of the story.

Read the publication:

Alice Birckhead, Ryan O'Hare Doig, Ann Carstens, David Jenkins, Shokoofeh Shamsi,
Exploring the anatomy of *Linguatula serrata* using micro-computed tomography,
International Journal for Parasitology: Parasites and Wildlife, Volume 25, 2024, 101002, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2024.101002

https://www.sciencedirect.com/science/article/pii/S2213224424000981

Abstract: Micro-computed tomography

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(micro-CT) is an emerging tool in parasitology that can assist in analysing morphology and host-parasitic interactions. It is a non-destructive, cross-sectional imaging technique that offers good resolution and the ability to create three-dimensional (3D) reconstructions. Here, we used micro-CT to study *Linguatula serrata*, which is a zoonotic pentastome parasite that infects dogs and ruminants throughout the world. The aims of this study were to describe the internal and external anatomy of adult *L. serrata* specimens using micro-CT, and to describe and compare specimens stained with 0.3% phosphotungstic acid (PTA) and 1% iodine (I2). Ten adult *L. serrata* specimens were subjected to micro-CT examination. The specimens were fixed in 70% ethanol and stained with 0.3% PTA or 1% I2. Both stains offered good tissue contrast. The main identifying external features of *L. serrata (*hooks, mouth, buccal cadre) were clearly visible. Virtual sections and 3D reconstructions provided a good overview of the coelomic cavity, with visualisation of the digestive tract, nervous system, and male and female reproductive organs. These micro-CT images and morphological descriptions may serve as an anatomical reference for *L. serrata,* in particular, the internal anatomy which has not been described in recent years.

Exploring the anatomy of *Linguatula serrata* (image courtesy Alice Birckhead, CSU)

Katherine Adriaanse, Tamara Morgan, Robin B. Gasser, Anson V. Koehler recently published "First record of Isospora amphiboluri in the thorny devil, Moloch horridus" and we interviewed Katherine Adriaanse about this important research.

1. Katherine, please tell us about your latest publication in relation to the thorny devil and why it's important?

In this publication we showed identified *Isospora amphiboluri* infection in a population of captive thorny devils (*Moloch horridus*). This research is important for two reasons. Firstly, thorny devils are an amazingly unique desert species and there is very little known about them at all, so understanding a little more about their internal parasites helps us understand them more as a species, as well as understanding potential risks to their population. Secondly, this research challenges the premise that *Isospora* sp. are host species specific which has implications for the management of this parasite in a clinical context as well as potential risks to new, naïve populations.

What are some of the challenges associated with researching the thorny devil, and in particular comparing results between captive and wild populations?

Although considered relatively common throughout their range, there are very few studies looking at wild populations of thorny devils – those studies that do exist largely focus on their behaviour and distribution, rather than health parameters and parasites. In terms of captivity, thorny devils have very specific husbandry requirements and therefore are only kept by a very small number of institutions. This makes them pretty challenging to study both in the wild and in captivity, and especially difficult to compare the two.

What is next for this research?

There are no set plans for ongoing research as samples are very difficult to come by (if anyone has any,

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Parasites and Wildlife

Thorny devil, *Moloch horridus*, image copyright Katherine Adriaanse

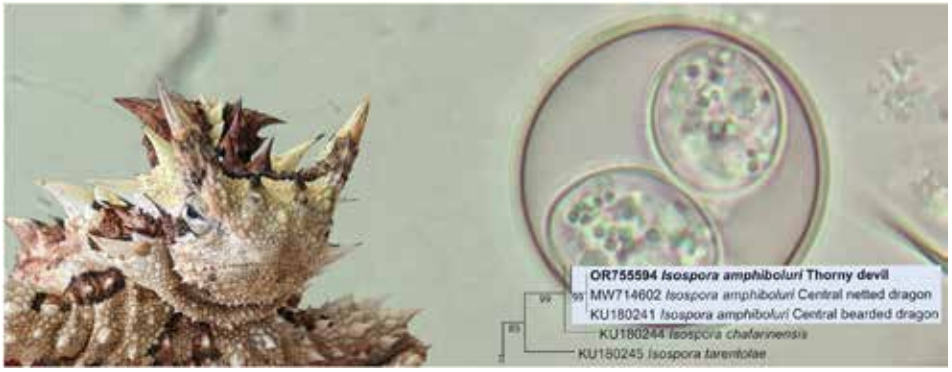
please let us know!), but it would be very interesting to know if Isospora amphiboluri is also present in wild populations of thorny devils. We would also like to prove true colonisation of the gut by *I. amphiboluri* with histopathology and also try and understand if there is any pathology associated with infection in the devils but samples will have to be opportunistic.

Read the publication:

Katherine Adriaanse, Tamara Morgan, Robin B. Gasser, Anson V. Koehler, First record of *Isospora amphiboluri* in the thorny devil, Moloch horridus, International Journal for Parasitology: Parasites and Wildlife, Volume 25, 2024, 100983, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2024.100983

https://www.sciencedirect.com/science/article/pii/S2213224424000798

Abstract: Poor long-term survival (Mean = 2.16 y; 95% CI 1.68–2.65) was identified in a captive population of thorny devils (*Moloch horridus)* held at the Alice Springs Desert Park in the Northern Territory, Australia, over a period of 27 years. There was no significant difference in survival time (after acquisition) of wild-caught individuals compared captive born animals, or males compared to females. Limited information was available regarding the cause(s) of death for animals found dead or euthanased. Health of the live population at the time of the study (n = 14) was assessed by clinical history review, physical examination, and faecal examination. Large numbers of coccidian oocysts measuring 20–24 µm in diameter were identified upon faecal examination. Molecular investigation of genomic DNA from these samples identified *Isospora amphiboluri* based on the sequences of partial regions of the mitochondrial cytochrome c oxidase subunit 1 gene (cox1) and the nuclear small subunit of ribosomal RNA gene (SSU). Isospora amphiboluri was originally described from the bearded dragon (Pogona barbata) and has since been recorded in the inland bearded dragon (*Pogona vitticeps*) and the central netted dragon (*Ctenophorus nuchalis*). The present case expands the host range for I. amphiboluri. Histological examination of tissues was not available, and therefore the potential role of I. amphiboluri in morbidity and mortality of *M. horridus* is not clear. Further research is required to understand if colonization with *I. amphiboluri* is pathogenic in this species.



Graphical abstract https://doi.org/10.1016/j.ijppaw.2024.100983

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Parasites and Wildlife

Thorny devil, *Moloch horridus*, images copyright Katherine Adriaanse https://doi.org/10.1016/j.ijppaw.2024.100983

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Drugs and Drug Resistance

https://www.sciencedirect.com/journal/international-journal-for-parasitology-drugs-and-drug-resistance

Editors In Chief: Sarah Preston & Kevin Saliba

Facebook: www.facebook.com/IJPDDR/

Please enjoy interviews with ASP early career researcher, Jessica Home and ASP member Teresa Carvalho about their IJPDDR publications and abstract about Global equine parasite control guidelines from some ASP members.

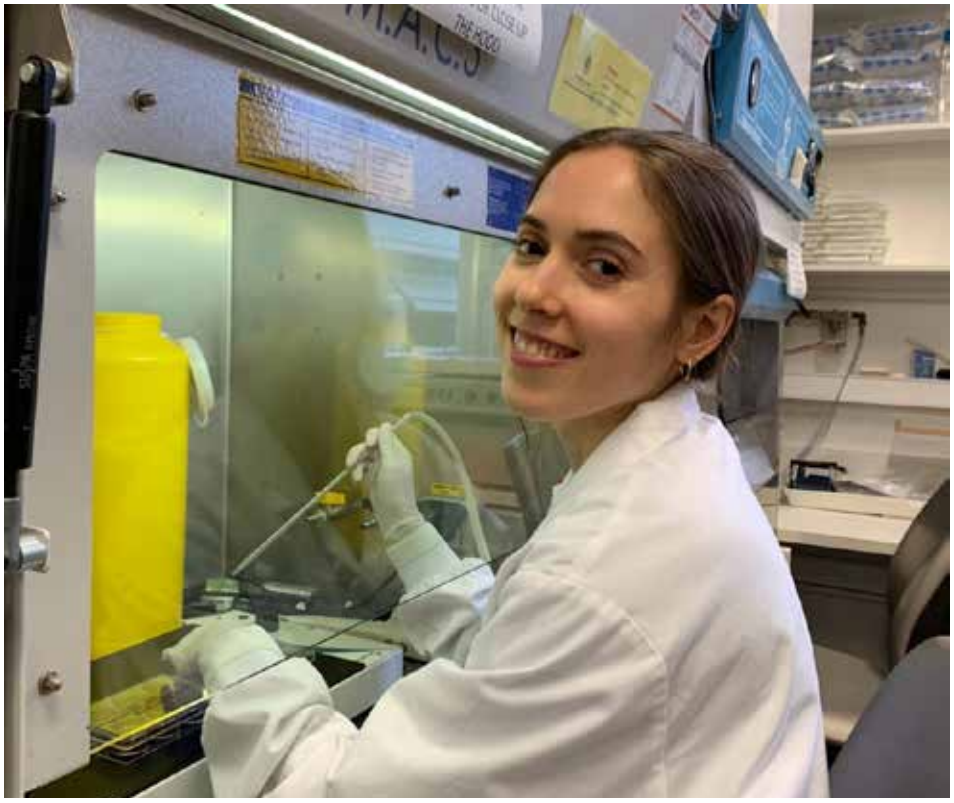

Image of Jessica Home culturing *Plasmodium* gametocytes to infect mosquitoes

Jessica L. Home, Geoffrey I. McFadden and Christopher D. Goodman, recently published "Resistance to apicoplast translational inhibitors in *Plasmodium*" and we interviewed **Jessica Home** about this research:

1. Jessica, please tell us about your latest publication in relation studying Plasmodium *resistance to apicoplast-targeting antibiotics, and why it's important for malaria research?*

I am thrilled to publish my paper in an ASP journal. In addition to being a highly respected journal, it strengthens my links to the Australian parasitology community which has supported me through presentations at the annual meetings, training at the Concepts in Parasitology course, and through the networking and mentoring I get from belonging to the society.

Drug resistance remains one of the biggest challenges in eliminating malaria. Resistance has arisen against nearly every antimalarial used clinically, and therefore the identification of new drug targets and development of strategies is essential to slow or prevent the spread of resistance.

Antibiotics that exhibit antimalarial activity play an important role in malaria control. For instance, doxycycline is regularly prescribed as a chemoprophylaxis for travellers to malaria-endemic regions, and tetracycline, clindamycin or doxycycline are used in combination with fast-acting antimalarials as a second-line treatment therapies. However, despite their long-standing clinical use, our understanding of how malaria parasites develop resistance to these antibiotics remains limited.

Antibiotics kill malaria parasites by targeting the apicoplast—an essential, non-photosynthetic plastid that originated from a secondary endosymbiotic event between an ancient apicomplexan parasite and a red alga. Although most of the apicoplast's genes have transferred to the nucleus, it retains a small 35 kb genome that encodes its own prokaryotic-like translational machinery, making it vulnerable to antibiotics that disrupt bacterial protein synthesis.

Our review brings together current knowledge of *Plasmodium* resistance to antibiotics in the tetracycline, lincomycin and macrolide classes, with a particular focus on clindamycin, doxycycline, and azithromycin. We also discuss why, despite widespread antibiotic use for malaria and non-

Volume 36 Issue No.1 December 2025

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Drugs and Drug Resistance

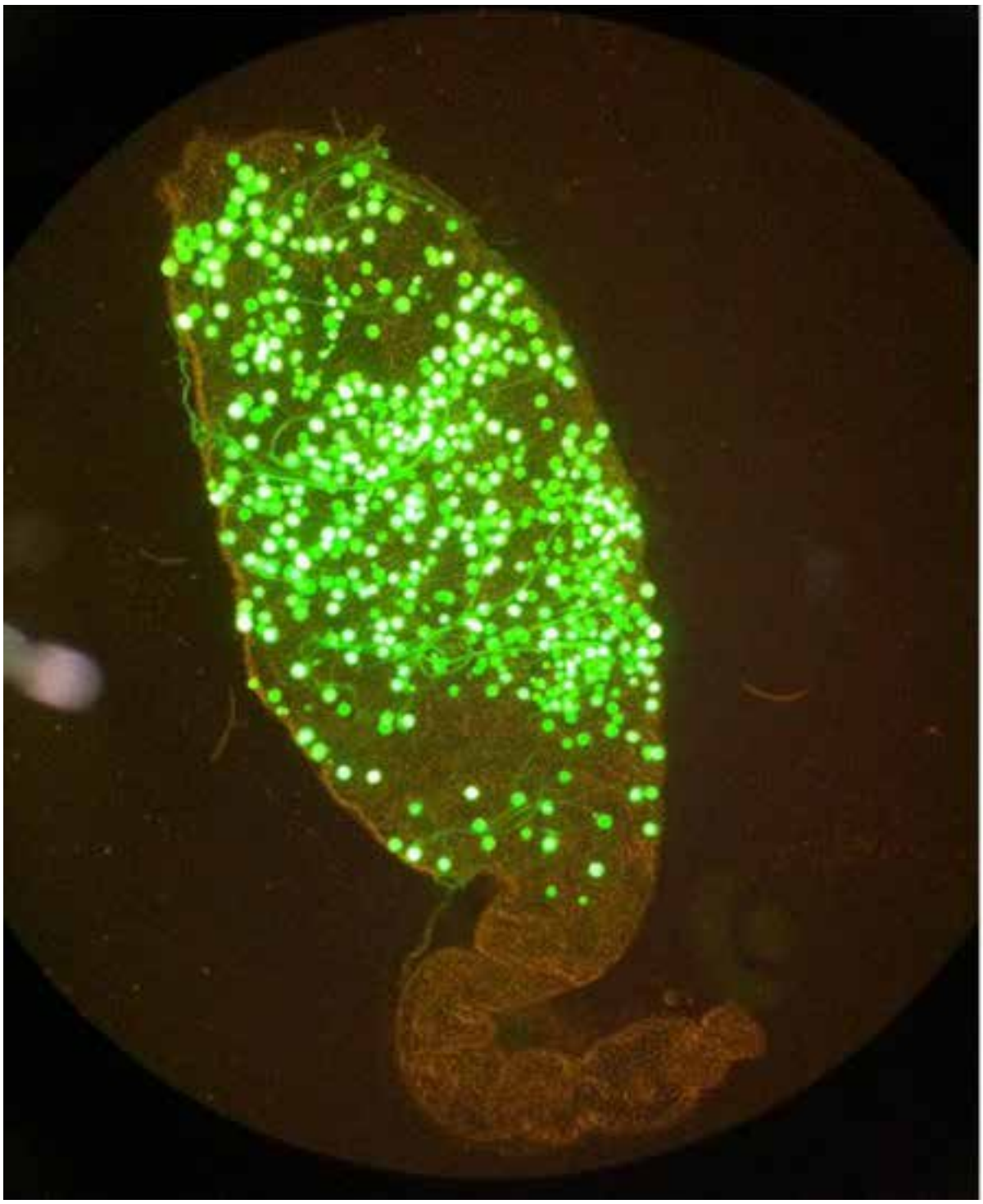

Image taken down microscope of mosquito midgut containing GFP fluorescing *Plasmodium* oocysts.
Photo taken by Vanessa Mollard.

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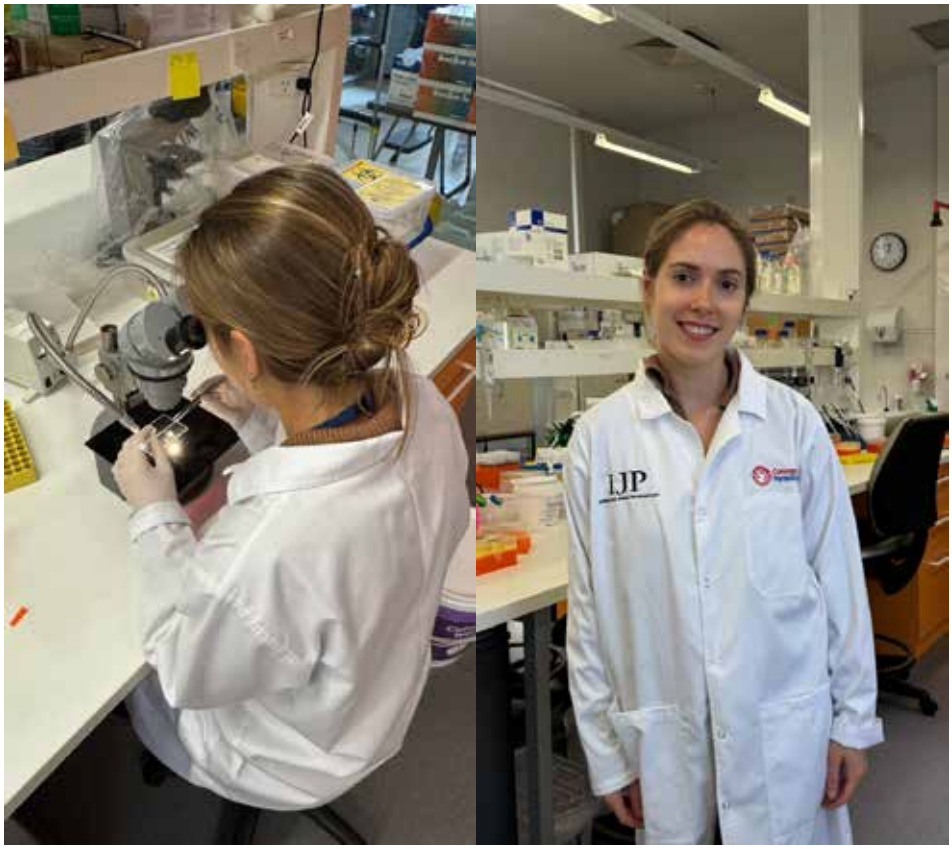
malarial infections, resistance in *Plasmodium* remains rare—especially for doxycycline. Understanding the molecular and evolutionary basis of this resistance (or lack thereof) is important for guiding how these antibiotics are to be used in malaria prevention and treatment, and informing strategies that preserve the long-term efficacy of antimalarials.

2. What are some of the challenges associated with researching resistance mechanisms?

Identifying and understanding mechanisms of drug resistance in the lab can help dissect the molecular targets of new antimalarials and guide resistance surveillance in the field. However, this can be challenging when resistance is not conferred by modification at the predicted drug target site. In such cases, determining how mutations cause resistance often requires additional experiments which often leads to an investigation of new biological pathways. This process can be time-consuming but can result in valuable insights into parasite biology.

A particular challenge in studying resistance to apicoplast-targeting antimalarials is the inability to genetically confirm potential resistance-conferring mutations that occur in the apicoplast genome. Typically, resistance mechanisms are Identified by first selecting for resistant parasites (*in vivo* or *in vitro*), sequencing their genomes, and then reintroducing the identified mutation into wild-type, drug-sensitive parasites to confirm causality. However, because there is currently no method to genetically manipulate the apicoplast genome in Plasmodium, this confirmation step cannot be performed. As a result, linking



Dissection of mosquito midguts to assess parasite load (Jessica Home)

specific mutations in the apicoplast to resistance depends on multiple independent selection experiments and whole genome sequencing analysis to build consistent evidence.

Another challenge lies in the variability between *in vitro* and *in vivo* resistance selections. In vitro selections in *P. falciparum* is the most common way to explore resistance in the lab, but the mechanisms that arise in culture do not always reflect what occurs in nature. Similarly, while resistance selections in the rodent malaria model *P. berghei* can be performed in vivo, species differences can lead to distinct resistance outcomes. The most informative strategy, when possible, is to conduct both in vitro and in vivo selection experiments. Identifying resistance mechanisms that appear across both models increases confidence that they are biologically relevant and likely to emerge in the field.

3. What is next for this research?

In the lab, we are currently investigating the mechanisms underlying clindamycin resistance in malaria parasites. This research has uncovered a novel mechanism that hasn't been described in any organism before, and we're currently investigating this resistance pathway at the molecular level. I am also attempting to select for doxycycline-resistant parasites *in vitro*, but so far without success, which reinforces the idea that *Plasmodium* is refractory

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Blood-fed mosquitoes. Photo taken by Vanessa Mollard

to developing resistance to this antibiotic. Over the next year, we aim to complete this work and publish our findings. Ultimately, we hope these studies will deepen our understanding of the evolution and molecular basis of clindamycin resistance in *Plasmodium* and help inform surveillance of clindamycin resistance in the field.

Read the publication:

Jessica L. Home, Geoffrey I. McFadden, Christopher D. Goodman, Resistance to apicoplast translational inhibitors in *Plasmodium*, International Journal for Parasitology: Drugs and Drug Resistance, Volume 28, 2025, 100597, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2025.100597

https://www.sciencedirect.com/science/article/pii/S221132072500020X

Abstract: The spread of drug-resistant *Plasmodium* threatens malaria control efforts. Thus, understanding the mechanisms of resistance is crucial for implementing effective treatments and prevention strategies. The prokaryote-like translational machinery encoded by the apicoplast is the apparent target of several antibiotics with antimalarial activity. Among them, doxycycline and clindamycin are widely used for malaria treatment and/or chemoprophylaxis. However, the mechanisms underlying *Plasmodium* resistance to apicoplast-targeting antibiotics, and the evolution of such resistance mechanisms, remain largely unknown. In this review, we summarise reported cases of resistance to apicoplast translational inhibitors uncovered in either laboratory or clinical settings. We highlight the potential evolutionary pathway of doxycycline resistance, explore why resistance to these antibiotics remains rare in the field, and assess whether expanding their use in malaria treatment and prevention is a viable strategy.

Liana Theodoridis and Teresa G. Carvalho recently published "Antimalarial drug resistance and drug discovery: learning from the past to innovate the future" and we interviewed **Teresa Carvalho** about this research:

Nov 2025 - ASP Newsletter feature of our recent IJP: DDR publication

"Antimalarial drug resistance and drug discovery: learning from the past to innovate the future"

1. Teresa, please tell us about your latest publication in relation to

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antimalarial treatments currently in clinical use and why research efforts should focus on developing novel chemical classes of compounds to help fight drug resistant malaria?

Our review provides a comprehensive analysis of current antimalarial treatments and their significant limitations due to parasite drug resistance. The stark reality is that resistance has emerged against all existing antimalarial therapies, including the current "gold standard" artemisinin-based combination therapies (ACTs). What's particularly concerning is that artemisinin resistance, first detected in Southeast Asia around a decade ago, has now been confirmed in Africa, the continent that bears the highest malaria burden globally.

We argue that a critical issue in antimalarial drug development is that the majority of current treatments are simply derivatives of previous compounds. In fact, no truly novel chemical scaffolds have been implemented into clinical practice since 1996. This over-reliance on existing chemical classes makes parasites more likely to develop cross-resistance mechanisms. For example, mutations in the *P. falciparum* multi-drug resistance 1 gene (PfMDR1) confer resistance to multiple drugs simultaneously, potentially rendering entire drug classes redundant.

The emergence and spread of artemisinin-resistant malaria parasites over the past 15 years has already led to a recent rise in global malaria cases. While the first malaria vaccines (RTS,S and R21/Matrix-M) have been approved, their limited efficacy (RTS,S achieves only 36% efficacy) highlights that we cannot rely solely on vaccination. Novel chemical classes with diverse modes of action are essential to stay ahead of parasite evolution and achieve the ambitious goal of malaria eradication by 2050.

ASP member Teresa Carvalho

2. What are some of the challenges associated with researching malaria therapeutics?

Malaria therapeutic research faces several interconnected challenges. For example, the complex life cycle of Plasmodium parasites presents a unique obstacle given that an ideal antimalarial should be active against multiple parasite stages (liver, blood, and mosquito stages). However, most current drugs only target specific parasite forms. For example, artemisinin interrupts haemoglobin digestion in the erythrocytic stages and therefore has no effect on mature gametocytes and liver stages due to the lack of haemoglobin in these parasite forms.

In addition, there's a fundamental challenge in balancing drug discovery approaches. Phenotypic screening methods, while excellent for identifying bioactive compounds, don't reveal the mechanism of action, which complicates downstream drug development. Conversely, target-based approaches often show lower success rates in identifying truly novel compounds and may miss

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drugs that work through unexpected mechanisms. In addition, parasitic complexities such as drug absorption mechanisms and stage-specific drug susceptibility contribute to high drop-off rates in late clinical trial stages.

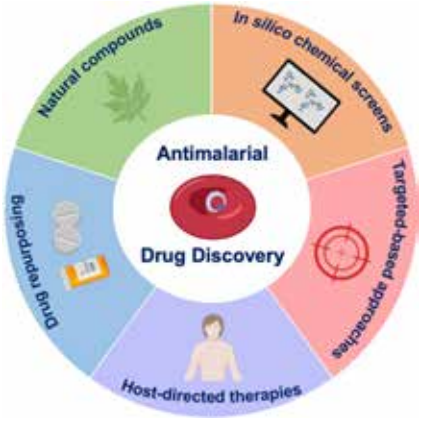
Importantly, the financial reality cannot be ignored. Malaria predominantly affects low-income countries, making it less attractive for pharmaceutical investment compared to diseases prevalent in wealthy nations. Developing a new drug from scratch is time-consuming and expensive, typically taking 10 to 15 years and costing billions of dollars. These are the main reasons why strategies like drug repurposing of FDA-approved compounds have gained traction.

Finally, there's the challenge of insufficient knowledge about parasite-host molecular interactions, which has particularly hindered the development of host-directed therapeutics. This promising approach targets host molecules essential for parasite survival rather than parasite proteins, potentially circumventing traditional resistance mechanisms. However, without detailed understanding of these interactions, progress remains limited for now.

3. How can researchers avoid parasite drug resistance?

While completely avoiding drug resistance may be impossible given the parasite's evolutionary adaptability, we can implement several strategies to significantly delay its emergence and spread.

First and foremost, we must prioritize the development of novel chemical scaffolds with diverse modes of action. Resistance mutations often confer



Graphical image https://doi.org/10.1016/j.ijpddr.2025.100602

cross-resistance within a drug class, so chemically distinct compounds are crucial. For example, our review highlights innovative approaches like harmiquins (molecular hybrids that combine chloroquine scaffolds with β-carboline rings to achieve dual inhibition activity) showing potent efficacy against both chloroquine-sensitive and chloroquine-resistant strains.

Second, combination therapies are essential. The current use of artemisinin-based combination therapies (ACTs) exemplifies this by pairing the short-lived artemisinin with longer half-life partner drugs. Recent modelling suggests that triple artemisinin-based combination therapies (TACTs) could further delay resistance emergence and reduce treatment failures. However, we must ensure these combinations use drugs with truly different mechanisms of action.

Third, exploring host-directed therapeutics offers a paradigm shift. By targeting host molecules or pathways essential for infection rather than parasite proteins, we remove the parasite's ability to genetically adapt. Our review discusses promising examples, such as BCL-2 family inhibitors that impair parasite growth by inducing eryptosis of infected red blood cells. While still in early stages, this approach represents a potentially resistance-proof strategy.

Fourth, researchers should simultaneously pursue multiple discovery avenues. Our review collates diverse strategies including phenotypic screening, in silico and target-based approaches, drug repurposing, and exploration of natural compounds from plants, deep-sea organisms, and Amazonian biodiversity. By casting a wide net, we increase the likelihood of discovering compounds with unprecedented mechanisms.

Finally, natural products deserve renewed attention. Nature has provided artemisinin and quinine, two of our most important antimalarials. Deep-sea organisms experiencing extreme conditions produce unique metabolites not found elsewhere, while Amazonian biodiversity remains largely untapped. These sources may harbor compounds with novel scaffolds that parasites have never encountered.

The key message of our review is

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that fighting drug resistance requires innovation, diversity, and a multi-pronged approach rather than iterative modifications of existing drugs.

Read the publication:

Liana Theodoridis, Teresa G. Carvalho, Antimalarial drug resistance and drug discovery: learning from the past to innovate the future, International Journal for Parasitology: Drugs and Drug Resistance, Volume 28, 2025, 100602, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2025.100602

https://www.sciencedirect.com/science/article/pii/S2211320725000259

Abstract: The emergence and spread of artemisinin-resistant malaria over the past 15 years has led to a recent rise in global malaria cases and represents a major public health concern. Following decades of intense research efforts, the first malaria vaccine has been approved for clinical use in October of 2021. However, its 36 % efficacy highlights the ongoing need for novel and effective drugs to combat malaria. The majority of current antimalarials are derivatives of previous efficient compounds whilst new treatments with diverse chemical scaffolds have not been implemented into clinical practice since 1996. We argue that current research efforts should focus on developing novel chemical classes of compounds to help fight drug resistant malaria. Here we provide a comprehensive review of the antimalarial treatments currently in clinical use and discuss their significant limitations due to parasite drug resistance. Further, we discuss various approaches to antimalarial drug discovery and offer new perspectives on the topic, informing on current methods, both rarely and extensively used. Collating the most recent and up-to-date drug discovery strategies will not only maximise current global research efforts but will ensure all possible drug development avenues are trialed. This review provides innovative insights to circumvent antimalarial drug resistance and diversify malaria therapeutics.

Global equine parasite control guidelines:

Martin K. Nielsen, Alison Pyatt, Jodie Perrett, Eva Tydén, Deborah van Doorn, Tina H. Pihl, Jennifer S. Schmidt, Georg von Samson-Himmelstjerna, Anne Beasley, Ghazanfar Abbas, Abdul Jabbar, Global equine parasite control guidelines: Consensus or confusion?, International Journal for Parasitology: Drugs and Drug Resistance, Volume 28, 2025, 100600, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2025.100600

https://www.sciencedirect.com/science/article/pii/S2211320725000235

Abstract: Equine parasite control has historically been characterized by confusing and conflicting information, posing significant challenges for veterinarians and horse owners to make evidence-based decisions. Since 2012, equine parasite control guidelines have been developed and published for different parts of the world to address this situation and provide trusted sources of current guidance. At the 2024 International Equine Infectious Disease Conference in Deauville, Normandy, France, lead authors of equine parasite control guideline documents published in the USA, UK, Sweden, Denmark, the Netherlands, Australia, and Europe convened and presented their guidelines. This led to a discussion of differences and similarities between the guidelines and an effort to identify current research needs in this area. In general, all guidelines recommend a surveillance-based approach for equine parasite control, emphasizing the importance of anthelmintic resistance testing. Some guidelines have a focus on controlling *Strongylus vulgaris,* while others primarily focus on cyathostomins, ascarids and tapeworms. Although the same four anthelmintic drug classes are marketed in most countries, there are some differences between product portfolios available, most notably between Australia and other countries. European countries have various degrees of prescription-only restrictions on anthelmintic products, whereas products are available over the counter in Australia and the USA. Commercially available diagnostic portfolios differed somewhat between countries and affected recommendations made as well. In conclusion, the guidelines are in general agreement and are based on the same general principles. One major challenge is communicating the recommendations effectively to end-users, which should be made a priority going forward.

ASP Researcher Exchange, Travel and Training and JD Smyth Postgraduate Student Travel Funding Scheme, Mentorship scheme, Honours and Grant Recipients and 2025 ASP Conference

ASP Researcher Exchange, Travel and Training Funding Scheme

Congratulations to the ASP Researcher Exchange, Travel and Training and JD Smyth Postgraduate Student Travel awardees from the March 2024 funding round.

The next deadline for applications is 30th March 2026.

JD Smyth Postgraduate Travel Award winner

Jessica Ellen Canning, PhD student, Burnet Institute and Monash University, for a 3-month Researcher Exchange Researcher Exchange with industry collaborators at Sumaya Biotech GmbH & Co KG with laboratories at the Department of Parasitology, Heidelberg University, Germany, Dr. Richard Thomson Luque to apply the tetramer technology to samples collected in the SUM1-101 Phase 1b trial, conducted in preexposed adults in Bagamoyo, Tanzania. Feb 2026- May 2026.

Thi Thuy Nguyen, PhD candidate, The University of Melbourne, for a Researcher Exchange Researcher Exchange with Training Institute of Hygiene and Tropical Medicine (IHMT), Universidade Nova de Lisboa, Dr. Carla Maia, from May to July 2025, to gain specialised expertise in vector-borne Leishmania transmission and training in sand fly collection and morphological classification, 7th May – 8th July 2025.

Researcher Exchange, Travel and Training Award winners

Mr **Bahar E Mustafa,** PhD candidate University of Melbourne, Australia for a Researcher Exchange Researcher Exchange to visit Freie Universität Berlin, School of Veterinary Medicine, Robert-von-Ostertag-Str. 7, 14163 Berlin, Germany (September 2025 -March, 2026) to visit Prof. Ard's lab to perform critical experiments of artificial tick feeding for my PhD project to enhance our understanding of host seeking behaviour and other physiological/biological parameters of ticks and will be published in prestigious scientific journals.

Debela Abdeta Efa, PhD candidate The University of Melbourne for a one year Researcher Exchange Researcher Exchange to visit Prof.Getachew Terefe, Addis Ababa University, Ethiopia Laboratory and field work in Ethiopia to enhance the control of CE in Ethiopia, contributing to tackling a neglected tropical disease. https://www.aau.edu.et/

Deonne Walther, James Cook University to attend the MBL Biology of Parasitism Course at Woods Hole, Jun 12, 2025 - Jul 30, 2026

Grace Peters, PhD Candidate at UNSW for a Researcher Exchange Researcher Exchange to visit Imperial College, London between the 2nd to the 23rd of March at the Ono Lab and to the Wellcome Sanger Institute at Cambridge for malaria vaccine research.

Dr. **Ashton M Kelly,** Postdoctoral Research Fellow, University of Queensland, for a Researcher Exchange Researcher Exchange April – May 2025 to visit the Yazdanbakhsh and Roestenberg laboratories at Leiden University, The Netherlands, Europe to gain expertise in data integration and analysis methods developed in Europe to further my research on immune heterogeneity during blood-stage *P. falciparum* infection and to learn cutting-edge data integration techniques, particularly Extreme Gradient Boosting (XGBoost) and DIABLO to integrate high-dimensional CyTOF and RNA-seq data.

Funding Assistance is available to members of the ASP for Researcher Exchanges, Training Courses, Visiting International Lectureships, Workshops and Grant Writing Retreats.

The ASP aims to: promote and facilitate interaction between colleagues, peers and potential research partners; communicate the scientific achievements of its members; and create professional development opportunities for them, in particular for postgraduate students and early

ASP Fellowships
1 January 2026

ASP Researcher Exchange, Travel and Training Awards & JD Smyth
30 March 2026

John Frederick Adrian Sprent Prize
30 September 2028

Bancroft-Mackerras Medal for Excellence
30 September 2026

Bridget Ogilvie Medal
30 September 2026

www.parasite.org.au

News from the ASP Network for Parasitology

career postdoctoral fellows. Therefore, the ASP provides funding assistance for its members to undertake important, relevant travel. This may include exchanges between laboratories (ranging from a few weeks up to a year); or training courses (like the annual Biology of Parasitism Course at Woods Hole); or to finance lecture tours by esteemed international scientists; or to organise and host workshops and/or grant writing retreats that promote or foster significant collaboration between ASP members (e.g. for NHMRC Programs, ARC Centres of Excellence and other large scale research undertakings). This funding scheme does not support travel to attend conferences, with the exception of the JD Smyth Postgraduate Student Travel Award.

JD Smyth Postgraduate Student Travel Award

Financial assistance is to be provided to full-time postgraduate student members of at least 6 months standing who are enrolled at a recognised Australian University for the purpose of travelling overseas to gain knowledge on techniques that may not be available in Australia, to form liaisons that may benefit their careers in the longer term and to promote the cause of parasitology in Australia. The fellowship is not provided for the primary purpose of attending a conference. The maximum value of the fellowship is to be determined annually by the Council. Recipients are to be chosen by a selection committee appointed by Council.

Applications should include details of the travel to be undertaken, the applicants research, evidence of the supervisor's support and an abbreviated CV. If attendance at a conference is to form part of the travel then a copy of the conference abstract should also be included. The application must include a CV.

Awardees will be required to provide a report of their trip within three months of return from their travel.

https://www.parasite.org.au/awards/jd-smyth-postgraduate-travel-awards/

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 researchers 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. Importantly, mentors need not be from an individual's home institution. The scheme covers mentorship across all aspects of working in parasitology including research, teaching, leadership, communication and outreach and other areas of professional development.

Congratulations to the Parasitologists awarded recent ARC and NHMRC Grants:

ARC Discovery

Associate Professor **Giel van Dooren**; Dr **Adele Lehane (**Australian National University)

Competition for nutrients lies at the heart of the host-parasite relationship. The intracellular parasites Toxoplasma and *Plasmodium* encounter different nutrient environments as they infect different organs of their host. This project aims to test the hypothesis that these parasites adjust key metabolic pathways in response to changes in nutrient availability, and that these adaptations are critical for facilitating parasite infection. Using cutting-edge experimental approaches, the project will identify the enzymes and metabolic pathways that enable intracellular parasites to respond to changing nutrient environments. Our study will reveal metabolic vulnerabilities in parasites that can be exploited in future therapeutic interventions.

$1,137,340, 3 years

Associate Professor **Melanie Rug**; Professor Dr **Alexander Maier** (Australian National University)

Neutral lipid metabolism is central to development of the malaria parasite. However, access to essential lipids is restricted in mosquitoes. Hence, the parasite stockpiles neutral lipids in lipid droplets. Originally thought to be mere fat storage organelles, they are now known to have essential roles in membrane dynamics and lipotoxic stress release in many eukaryotic cells. This project aims to characterise lipid droplet function in the malaria parasite *Plasmodium falciparum* using a combination of innovative imaging techniques, reverse genetics and proteomics analysis. The anticipated knowledge gain in understanding lipid droplet biogenesis and degradation might provide novel avenues for not only treating malaria, but also other diseases.

$961,819, 3 years

ARC Linkage Projects

Dr **Anson Koehler; Professor Robin Gasser;** Dr Shane Haydon; Dr Melita Stevens (The University of Melbourne) with MELBOURNE WATER CORPORATION

This project aims to establish Australia's first advanced genomics–bioinformatics platform for Cryptosporidium – a waterborne parasite that threatens water security, agriculture and environmental management. In collaboration with the water industry, it will use whole-genome sequencing to generate high-quality reference genomes, develop high-throughput detection tools, and analyse species diversity and transmission pathways.

Expected outcomes include improved molecular surveillance, enhanced risk assessment and strengthened biosecurity strategies. This research will support sustainable water management, reduce contamination risks, improve environmental monitoring and position Australia as a leader in parasite genomics and water research.

$715,575, 3 years

ARC Linkage Infrastructure, Equipment and Facilities

Professor Ian Cockburn; Associate Professor Michael Frese; Professor Adrienne Nicotra; Professor Thomas Huber; Professor David Tscharke; Associate Professor **Giel van Dooren** (Australian National University)

This application will support the purchase of 5-laser Cytek Aurora spectral flow cytometer to be housed at the Australian National University. Spectral flow cytometers allow for the rapid acquisition of large amounts of data about individual cells and have applications in many fields of the life sciences. Acquiring this technology will enhance research in veterinary microbiology, environmental pest control, synthetic biology, and plant sciences. This investment will accelerate research, foster collaborations, and help maintain the position of institutions in the Australian Capital Territory at the forefront of innovative biological science.

$358,159, 1 year

Congratulations to **Dr Rhea Longley** on receiving National Health and Medical Research Council (NHMRC) e-Asia 2025 funding to develop an evidence-based strategy supporting the Philippines' goal of malaria elimination. This work will apply serological markers to detect hidden Plasmodium vivax infections, strengthening both surveillance and intervention efforts

2026 ASP Annual Conference

We hope you enjoyed the 2025 ASP Annual Conference in Melbourne in July.

Next year the ASP Annual Conference will take place from the evening of Monday 29th June - Thursday 2nd July 202 at Mantra on View Hotel, Gold Coast, QLD with the conference dinner at Sea World and featuring "Delightful Dolphins" We hope to see you all there! More details coming soon.

With best wishes,

Nick and Lisa

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

ASP Researcher Exchange, Travel and Training and JD Smyth Postgraduate Student Travel Funding Scheme reports

JD Smyth Postgraduate Travel Award Report

Thi Thuy Nguyen (PhD candidate - The University of Melbourne)

Supervisors: Dr. Vito Colella, Dr. Lucas Huggins, Prof. Robin B. Gasser, Prof. Gad Baneth

Host institute: Institute of Hygiene and Tropical Medicine, Universidade Nova de Lisboa.

Host Lab: Medical Parasitology Unit – Dr. Carla Maia

Duration: 23 June – 17 August 2025

I was honoured to receive the prestigious JD Smyth Postgraduate Travel Award, which supported the establishment and application of our novel nanopore sequencing assay to elucidate Leishmania transmission dynamics in Portugal at the Institute of Hygiene and Tropical Medicine, Universidade Nova de Lisboa.

News from the ASP Network for Parasitology

Outcomes

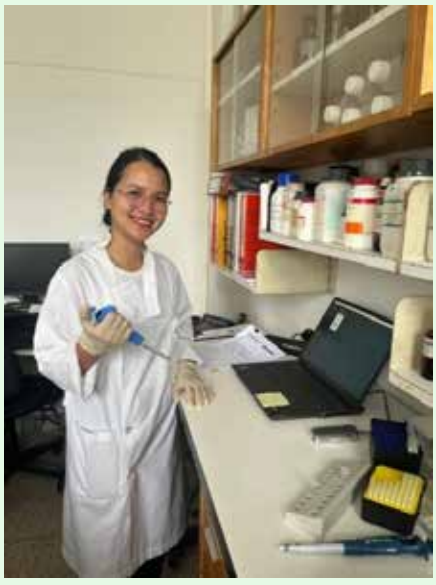
Research: Prior to my arrival, nanopore sequencing nor metabarcoding had ever been conducted within my host's laboratory. Nonetheless, we successfully established and applied a pan-Leishmania diagnostic technique I have developed during my PhD program to sand fly, dog, and cat samples from various studies conducted by my host laboratory in Portugal, demonstrating the feasibility of our novel assay across different laboratory environments. Interestingly, we were able to detect species that typically circulate in North Africa and Asia through different reservoirs and vectors. A manuscript on this novel finding is in preparation and will provide a comprehensive investigation of Leishmania transmission in the Iberian Peninsula.

New collaboration: Alongside introducing nanopore sequencing technique to the Portuguese team, I had the opportunity to share broader laboratory expertise in qPCR design and data analysis with young researchers. I also promoted the annual ASP Conference and the Concepts in Parasitology Advanced Course to encourage their participation in these international training opportunities.

New skills: With the support of both the Australian and Portuguese research teams, this exchange helped me develop essential skills for conducting research independently. I learned to adapt to a different working system and lab setting, manage material and equipment transport for remote studies, and overcome challenges in sourcing reagents within limited timeframes. These experiences have strengthened my problem-solving and organisational abilities, which I believe are crucial for PhD candidates preparing to become independent researchers.

I would like to sincerely thank the Australian Society for Parasitology for supporting this research exchange through the JD Smyth Postgraduate Travel Award. This opportunity has greatly advanced my PhD project, allowed me to develop essential skills, and build valuable international collaborations. I am also very grateful to my supervisors and collaborators in Australia and Portugal for their guidance, support, and encouragement throughout this internship. This experience has been truly enriching, both professionally and personally.

Photos (this page and previous) of Thi Thuy Nguyen on her JD Smyth Postgraduate Travel Award to Institute of Hygiene and Tropical Medicine, Universidade Nova de Lisboa.



ASP Researcher Exchange, Travel and Training and JD Smyth Postgraduate Student Travel Funding Scheme reports

Name: **Bahar E Mustafa**

Institution: Melbourne Veterinary school, The University of Melbourne, Australia

Dates of Researcher Exchange: 17–28 March 2025

Summary of activities

I visited The Institute for Parasitology and Tropical Veterinary Medicine, School of Veterinary Medicine, Freie Universität Berlin, Germany to attend the lab of Prof. Ard Nijhof (17-22 March 2025). During this visit, I receive practical hands-on training in artificial tick feeding (with a particular focus on capillary tick feeding and tick saliva collection). Additionally, I also carried out tick sampling work alongside Prof. Ard Nihof's team.

The visit proved to be highly valuable to strengthen our ongoing collaboration with Prof. Ard Nijhof's lab, which primarily focuses on ticks and tick-borne diseases (TTBDs).

Following the laboratory visit, I also attended 16th International Symposium on Ticks and Tick-borne Diseases (ISTTBD-XVI) held on 26 – 28 March, 2025, Weimar, Germany, where I got a wonderful opportunity for oral presentation on systematic review of artificial tick feeding. I am pleased to inform you that abstract was selected as one of the six best abstracts at ISTTBD and therefore, I had honour to compete for the Sinnecker-Kunz Award for early career researchers (ECRs)- which I successfully won.

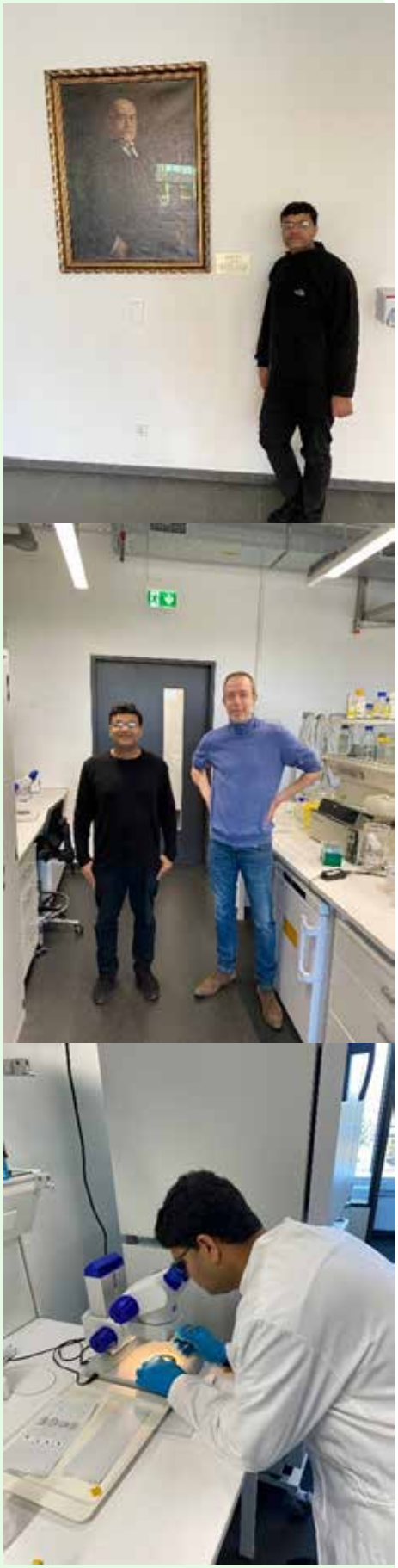
Here is the list of the outcomes linked to my Germany's visit.

i) Gained practically hand-on experience: Tick capillary feeding and saliva collection.

ii) Strengthening of ongoing research collaboration with Prof. Ard Nijhof's laboratory.

iii) Strengthening of my ongoing PhD research project: The conference provided me with a great opportunity to interact with other research group people and principal investigators, and they have provided me their valuable insights on improving my project design which will help to improve the outcome of my PhD project.

iv) Professional recognition: By presenting my work for competing the Sinnecker-Kunz Award for early career researchers (ECRs)- which I successfully won. (https://ittbd-symposium.com/programme-abstracts/prizes-awards).



Photos of Bahar E Mustafa on his Researcher Exchange to The Institute for Parasitology and Tropical Veterinary Medicine, School of Veterinary Medicine, Freie Universität Berlin, Germany

State News

WA

Murdoch University

Out and About

Goldfields Nullarbor Rangelands Biosecurity Association (GNRBA) AGM and Field day

Last November, **Narelle Dybing** was fortunate to be asked to attend and demonstrate a wild dog necropsy at the Goldfields Nullarbor Rangelands Biosecurity Association (GNRBA) AGM and Field day in Kalgoorlie. This was a great opportunity to talk about our long term research study, in collaboration with WA DPIRD, into wild dog parasites in Western Australia to the pastoralists and GNRBA committee members. Narelle was able to demonstrate exactly what we do with our samples to ensure we are getting as much information as we can out of our specimens. The demonstration was a success with over 40 attendees at the field day watching the demonstration. This was also an opportunity to try and recruit more land managers to contribute to our research by keeping any carcasses that were dispatched.

Ag Institute careers night

Narelle was also invited to attend the WA Ag Institute's Careers Night on 2 April 2025, to talk to future under- and postgraduate students about Murdoch University's Agricultural degrees including in Veterinary and Agricultural sciences. Many discussions were had about what careers students can expect after their degrees including careers in Parasitology.

Narelle was also joined by Caroline Jacobson and Lea Lebeur. It was also nice to catch up with Alysia Kepert, University of Western Australia, formally from the Royal Agricultural Society of Western Australia, who assisted in producing educational parasitology activities in the West Australian Newspapers and the large international parasitology display "Parasites undercover" in 2017. This was an epic collaboration with Murdoch University, Department of Health, and Australian Society for Parasitology.

Photo Narelle Dybing, Caroline Jacobson and Alysia Kepert

Murdoch University open day

The Murdoch University open day was held on 5 April where the Parasitology group held a display for prospective students. The display was manned by Dr **Amanda Ash, Dr Storm Martin and Dr Narelle Dybing** throughout the day. This display had interesting specimens from a range of livestock and domestic animals and humans as well as a range of parasites found on and in saltwater fish from Storms research projects including newly discovered trematodes.

Images clockwise from top Narelle Dybing, Amanda Ash and Storm Martin Narelle Dybing, Caroline Jacobson and Alysia Kepert and photo

Narelle Dybing at the GNRBA AGM and Field Day at Kalgoorlie.

State News continued

Victoria

State Outreach event

On the 27th of February 2025 VIC state members gathered for the Summer Social with a Splash of Science Event. Over 35 members gathered from a wide range of Universities and Institutes across the state including Federation University, The University of Melbourne, RMIT, La Trobe University and The Walter and Eliza Hall Institute. We got the chance to hear two fascinating and excellently delivered talks from recently finished (or finishing) PhD candidates:

1) **Gothami Welikadage** (The University of Melbourne). Talk title: Identifying potential insecticide protein targets in the Australian sheep blowfly using RNA interference.

2) **Leni Horner** (Federation University). Talk title: Immune responses to strongyles in horses with and without pituitary pars intermedia dysfunction.

After an engaging round of questions for both speakers, attendees had the chance to mingle, catch-up and discussed the 2025 ASP conference at Melbourne Connect!

Here are some photos from the past Vic State Outreach events!

ASP State Outreach events for Victoria

State News continued

ASP State Outreach events for Victoria

State News continued

IGCC

Congratulations to Dr **Anson Koehler,** University of Melbourne, who, at the 8th International Giardia & Cryptosporidium Conference (IGCC) in Melbourne, received the Huw Smith Award in recognition of his contributions to: 'Innovation, Communication, and Interdisciplinary Collaboration in Cryptosporidium or Giardia Research', with a particular emphasis on diagnosis or environmental transmission.

https://www.igcc2025.au/awards

Anson Koehler receiving his award at IGCC

University of Melbourne

A huge congratulations to Drs **Ushani Atapattu and Patsy Zendejas-Heredia** who graduated with their doctorates in December 2024. **Ushani,** supervised by **Dr Vito Colella,** Dr Anke Wietholter and **Prof Rebecca Traub** has completed her PhD on elucidating the epidemiology of canine vector-borne pathogens and their geoclimatic and socioeconomic determinants in Sri Lanka and Australia. She has overcome many challenges throughout her candidature to generate a fascinating thesis identifying novel vector-borne pathogens in Sri Lanka, many of which are zoonotic and may be responsible for reemerging filariases in this nation. **Patsy,** supervised by Dr **Vito Colella,** Dr **Shannon Hedtke** and Prof **Warwick Grant,** completed her PhD on the harnessing of molecular tools for the control of zoonotic soil-transmitted helminths. For the time being, **Ushani** will be staying on in the Translational Research in Parasitology Group (TRiP) at the University of Melbourne's Veterinary School. Congratulations to **Patsy** who has a new role as Associate Research Fellowat Deakin University, School of Medicine.

Federation University

In November 2024, **Elizabeth Mullens** gave an excellent presentation on PhD project entitled "Parasite galectins as a novel source of anti-inflammatory" at the Western Alliance Symposium in Lorne, Victoria. More recently in February, Tanya King gave a fascinating presentation on her PhD work exploring the use of saliva antibodies as a marker for strongyle worm burden in horses at the recent Victorian Infection and Immunity Network Conference at Lorne. Tanya has also recently won the award for "Best Science Bite" presentation by a student.

Also from Federation University, **Leni Horner** captivated attendees at the ASP Victoria Summer Social Event with her presentation (aforementioned) which summed up a huge body of work she has recently completed over the course of her PhD. Leni is currently in the process of setting up a livestock parasite management business called VermiVanguard through which she offers educational workshops for horse owners and professionals plus a faecal egg count service for horses and sheep. If you're interested in finding out more follow Leni's Facebook page for VermiVanguard:

https://www.facebook.com/people/VermiVanguard/61570370733124/

Other exciting news from **Sarah Preston's** Team includes an upcoming internship that **Rebecca Farnell** will start with Australian Wool Innovation as part of her PhD program. Furthermore, **Elouise Bliss** has recently returned from maternity leave to continue her honours project that explores the potential uses of bracken as a natural source of anthelmintics!

ASP Fellows Lisa Jones and Kathy Andrews bumped into each other at the Canberra airport late in 2024!

State News continued

ACT

National Science Week 2025

Members of the **Maier lab (Alex Maier, Cecilia Nie and Lizzy Durban**) from the Australian National University (ANU) in collaboration with the ASP (**Lisa Jones**), have been awarded a National Science Week 2025 grant for their outreach program Parasite Pandemic: Unlocking Science Through Immersive Experience.

Participants embarked on A Race for the Antidote, an immersive Escape Room where they had to save humanity from a parasite pandemic. Explored a Parasite Zoo filled with live and preserved specimens, cured parasitic infections through Virtual Reality, and Worked with Real Scientists to explore manga characters with parasitic mutations and debunk viral parasite misconceptions on social media.

The Parasite Pandemic program took place at the ANU campus in Canberra (Sat and Sun, 9-10th August) before heading to ANU's Kioloa Campus in New South Wales (Thurs to Sat,14-16th August). This event integrated science into missionary quests to spark curiosity about parasites and how scientists combat global health threats! It was open to the public and we saw many ASP members enjoying this outreach with friends and families immersing themselves in the fascinating world of parasitology.

ANU

The **McMorran** group published a paper last month on their platelet protein-derived peptide, PDIP. The authors include PhD students from the group, **Sarah Woodcock and Bruce Munro**, past Honours students, and collaborators from ANU's Research School of Chemistry and University of Queensland's Institute for Molecular Bioscience.

ASP Archivist Haylee Weaver working with archive staff at the ASP Archives in the Australian Academy of Science, Canberra ACT

Melanie Rug has been elected President of the Australian Microscopy and Microanalysis Society (AMMS) and will take office from 1. August 2025, which provides an additional forum to spread fabulous Parasitology news.

Tasmania

University of Tasmania

We welcome new ASP member **Ivona Mladineo** who moved recently from the opposite end of the world (Institute of Parasitology in Ceske Budejovice) to work in aquatic animal health at the Institute for Marine and Antarctic Studies, University of Tasmania. Ivona is very excited for the opportunity to actively engage with the ASP. She is a veterinarian with passion for the host-parasite-microbiome triangle, especially when it involves zoonotic nematodes from the genus *Anisakis* (pictured). She has worked on anisakid phylogeny, anisakiasis pathogenesis and sero-epidemiology in humans, and her favourite achievement is the closing of anisakis life cycle in vitro, which is an essential tool to further study on nematode biology.

Crawthron Institute

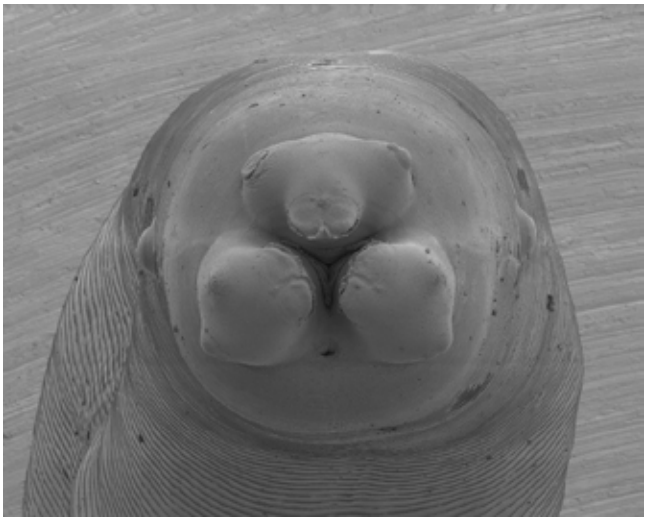
Welcome to **Lizenn Delisle** (Cawthron Institute) who joins the ASP from New Zealand and works in **Kate Hutson's** team in Aquatic Animal Health. Lizenn is a shellfish physiologist specialising in diseases in aquaculture and physiology of marine invertebrates. Currently, her research aims to identify pathogens associated with severe mortality episodes occurring in wild and farmed marine species in New Zealand and their mechanisms of infection through the analyses of field samples, experimental infection in laboratory and in vitro propagation. Her research focuses on mechanisms of host response to infection, by using large scale molecular approaches like transcriptomics, metabarcoding or proteomic and

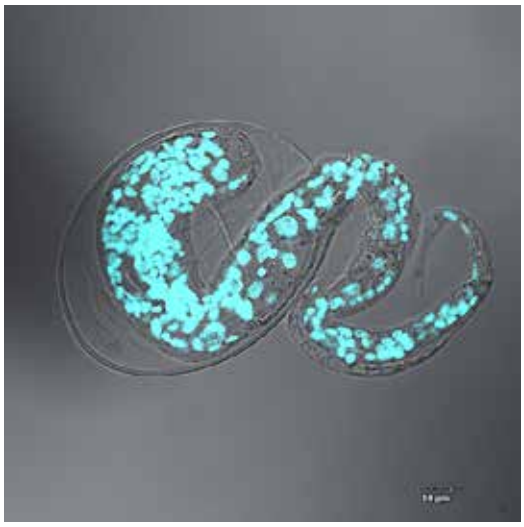
State News continued

targeted analyses to improve understanding of shellfish resilience to pathogens. Lizenn has successfully established and maintained an in vitro culture of the notifiable shellfish parasite, Perkinsus olseni, for over four years with novel insights into the parasite's biology and transmission.

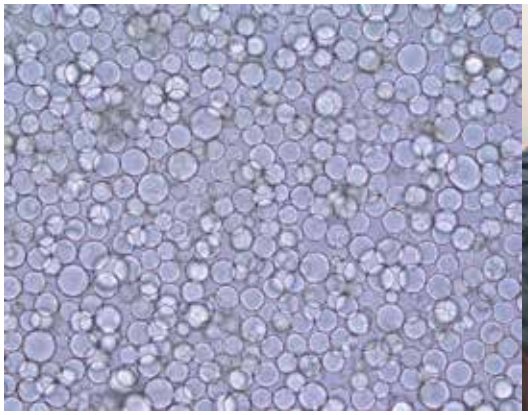
Tasmanian ASP members have been engaged with several outreach events provided as four separate articles in this newsletter. For all the details, please see reports on:

- Tasmanian and Antarctic One Health Conference in Hobart, Tasmania in State Outreach section and the following three in the Events section of the Newsletter
- Aotearoa Aquatic Diseases Symposium (AADS-2) in Dunedin, New Zealand
- Seabird dissection workshop (AADS-2) University of Otago, New Zealand
- International Symposium on Fish Parasites in Mérida, Mexico





Top: An adult Anisakis cultured in vitro taken under SEM; Left: Anisakis larva 2 hatching from the egg, stained with DAPI that shows the number of larval somatic cells (photos - Ivona Mladineo)



Left: Lizenn's Perkinsus olseni culture under the microscope. Middle: Lizenn maintaining shellfish in Cawthron's aquatic biosecure facility, Te Wero. Above: Lizenn recently contributed a presentation on Perkinsus as part of the ASP online webinar series.

State News continued

NSW

NSW State Outreach Events

Parasites in the Pub 27th February

Claire and Gracie hosted a Parasites in the Pub event at the Shakespeare Hotel in Sydney on 27th February. **Michelle Power** told us about the prevalence of *Cryptosporidium* in diverse Australian wildlife, **Peter Rolfe** shed some light on the R&D behind pet and livestock parasite control, and **Kurt Ward** shared his journey of editing a monkey malaria parasite genome for the first time! Big thanks to our wonderful speakers and to everyone who joined. It was great to meet new people and reconnect with friends.

Parasite Trivia Night on 13th November

Our Parasite Trivia Night at the Shakespeare Hotel was a fantastic success, bringing together our NSW community for a lively evening of parasite-themed fun, friendly competition, and lots of laughs. Teams from UNSW and USYD battled it out across different rounds including a parasite-themed music round and a parasite-host match the picture round! Congratulations to our winners and runners-up who took home some great prizes. Thanks to everyone who joined us and helped make the night such an enjoyable way to wrap up the year! Contact Claire if you want to use their parasitology trivia questions!

Images (top) Parasites in the Pub 27 Feb 2025 (bottom) Parasite Trivia Night 13 November 2025

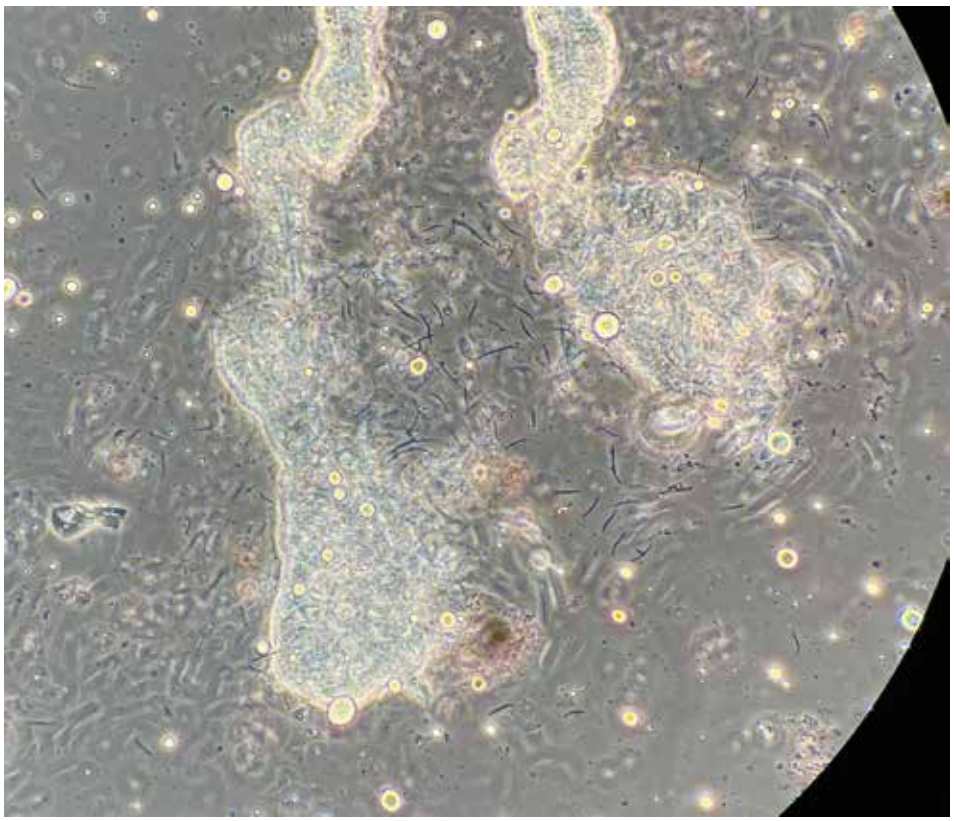
State News continued

Images Parasite Trivia Night 13 November 2025

State News continued

UNSW

Congratulations to Harry Pollard who has successfully established human malaria transmission in the Baum Lab! The entire team is extremely grateful for all of Harry's hard work and dedication.



Images (top) photo of Harry's mosquito salivary glands bursting with *Plasmodium falciparum* sporozoites

(below) David Jenkins (middle) visiting the University of Sydney .

University of Sydney

We were delighted to host David Jenkins for a day of dissections here at USyd.

Cross-institutional collaboration supports student research on hydatid disease and liver fluke

In April, **David Jenkins** (Charles Sturt University) visited the University of Sydney to support parasitology research projects led by DVM and AVBS Honours students through the SSVS Schnakenberg Bequest. Hosted by Nichola Calvani, the visit centred on macropod dissections to better understand the role of wildlife in the transmission of *Echinococcus granulosus* and *Fasciola hepatica i*n southeastern Australia.

DVM3 students **Zofia Rydzewska and Lynnette Leong** are leading projects on hydatid prevalence in farm dogs and macropods, paired with a Knowledge, Attitudes and Practices (KAP) survey targeting farmers in the NSW Southern Tablelands. Honours students **Chloe Burden and Priscilla Huynh** are focused on the epidemiology of *F. hepatica*; Chloe quantifying pasture contamination risk posed by macropods, and Priscilla investigating changes in snail host ecology and seasonality.

The hands-on necropsy sessions were supported by two undergraduate placement students, **Adina Van Rysewyk and Bailey Thompson,** and facilitated by the SSVS pathology team. The collaboration fostered technical skill development, scientific exchange, and mentorship, highlighting the value of multi-institutional engagement in student research.

Last month we took a break from studying for exams and writing up annual reports to meet up with colleagues from UNSW for some Parasite Trivia at the Shakespeare Hotel.

We were keen to defend our title from this year's Australian Society for Parasitology conference in Melbourne, however, instead of having a face-off "University Challenge" style, we decided to mix things up and get to know our fellow parasitologists better by creating three random teams.

State News continued

A huge shoutout to NSW ASP rep **Claire Sayers** for putting together four great rounds, including a music round dedicated to "infectious" songs, including Britney Spears' "Toxic", Ben Lee's "Catch My Disease" and Ed Sheeran's "Bloodstream". We can't wait for the next one!

Stay tuned for research updates and further news of cross-institutional collaborations supporting parasitology research excellence in Australia!

Macquarie University

June is Pride month and a time to recognise and celebrate the LGBTQ+ community. We would like to congratulate our very own **Michelle Power** who received a Pride in Diversity National Leadership award for her advocacy and support for the LGBTQ+ community through contributions to leading Macquarie University's LGBTQ+ Ally Network. Michelle has been a role model for LGBTQ+ people in STEM, both within the society and through Queers in Science, and is highly committed to Diversity and Inclusion in STEM.

https://www.pid-awei.com.au/2025-lgbtq-inclusion-awards-results/

https://queersinscience.org.au

CiP2025 participants

Congratulations to Larissa Pereira Rodrigues and Grace Reeves who were each selected for Australian Society of Parasitology-funded places on the 2025 Concepts in Parasitology course. This funding scheme is part of the Elsevier and IJP Disadvantaged Researcher Scheme.

Image (right) Michelle Power who received a Pride in Diversity National Leadership award for her advocacy and support for the LGBTQ+ community through contributions to leading Macquarie University's LGBTQ+ Ally Network.

International ASP Member news

Cristian Andres Alvarez Rojas, Assistant professor at the School of Veterinary Medicine, Pontificia Universidad Católica de Chile writes:

The XXX World Congress of Echinococcosis was held in Punta Arenas, Chile between the 30th of September and 2nd of October. **Marshall Lightowlers** was one of the keynote speakers at the event. Marshall has always been very active in these conferences and was a pleasure to have him in Chile.

Cristian has recently published 'Parasitology Got Talent': integrating creativity into parasitology education in Chile, Alvarez Rojas, Cristian A. et al. Trends in Parasitology, Volume 41, Issue 11, 941 - 949
Cristian says the article is based on the work by **Alexander Maier** (https://www.cell.com/trends/parasitology/fulltext/S1471-4922(24)00219-8)
Cristian says "For me as member of the ASP is a pleasure to be able to showcase what is being done in Chile teaching parasitology."

Thank you Cristian for your wonderful work for parasitology education in Chile! - ed

Marshall Lightowlers

State News continued

ASP Member Johann Schröder writes:

In August 2023, CABI published a literature review which I wrote at their request and suggestion, entitled **"Apicomplexa in Livestock".** The review cites more than 1000 references and could be a useful resource for anyone interested in the subject. My interest in this phylum was piqued by various issues:

- fascination with the apparently high prevalence of *Toxoplasma* infection in Australian livestock, but the apparent indifference to the possible public health implications;

- involvement in a number of research projects aimed at Oriental Theileriosis from 2009 onwards;

- past pharmaceutical industry engagement in the development of several anticoccidial remedies.

The book is available at https://www.cabidigitallibrary.org/doi/book/10.1079/9781800621985.0000 in hard or downloadable soft copy.

Livestock Immunity to Ticks by Johann Schröder

Livestock Immunity to Ticks provides a comprehensive and up-to-date resource for researchers and students of immunology, parasitology and entomology.

https://www.cabidigitallibrary.org/doi/book/10.1079/9781800625761.0000

Aquatic Parasitology: Ecological and Environmental Concepts and Implications of Marine and Freshwater Parasites—an open access volume

We are excited to share the publication of Aquatic Parasitology: Ecological and Environmental Concepts and Implications of Marine and Freshwater Parasites—an open access volume offering the first comprehensive overview of the ecological and environmental aspects of aquatic parasites.

This book features contributions from world-leading authors, showcasing the latest knowledge and future trends in aquatic parasitology. Each chapter is richly illustrated with original artwork and never-before-seen photographs, making this an invaluable resource for parasitologists and ecologists alike.

Best of all, as an open access publication, the entire book and individual chapters are available to download for free here:

https://link.springer.com/book/10.1007/978-3-031-83903-0

We hope you enjoy this valuable resource and find it useful in your work.

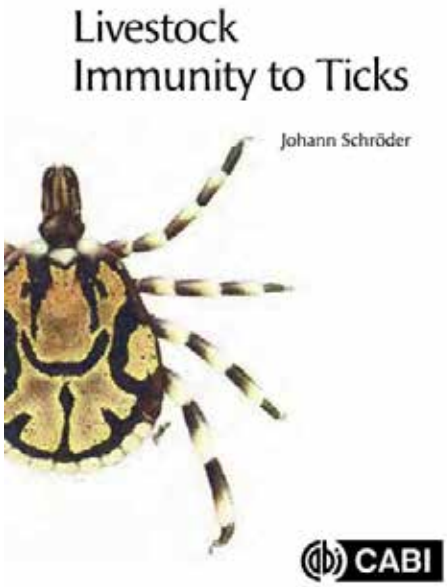
Happy reading!

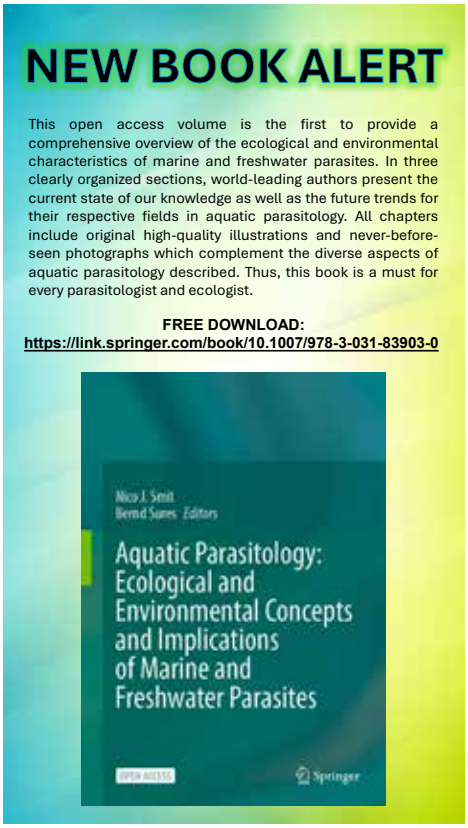
Kind regards,

Zamantungwa Mnisi

PARSA Website and Promotions Manager

and Nico J Smit, Professor of Ecology, North-West





Para-Site

Para-Site

Welcome to the most recent (2025) version of:

"PARA-SITE: an electronic guide to parasitology"

ISBN 978-1-74272-501-7

Produced as an educational initiative of the Australian Society of Parasitology (ASP), The University of Queensland (UQ), and the Australian Biological Resources Study (ABRS). Developed and written by Professor Peter O'Donoghue, Faculty of Science, The University of Queensland, Brisbane, Australia [p.odonoghue@uq.edu.au]

PARA-SITE provides basic information about parasites causing disease in animals and people. It covers information on:

parasite morphology (fundamental to taxonomy);

host range (species specificity);

site of infection (tissue/organ tropism);

parasite pathogenicity (disease potential);

modes of transmission (spread of infections);

differential diagnosis (detection of infections); and

treatment and control (cure and prevention).

The resource is currently available on-line as a monograph, but exercise caution as it is 3,060 pages long and the pdf file is 325 MB. The ASP is preparing a more user-friendly version to be made available as some 265 individual chapters as smaller pdf files to be accessed through the ASP website (scheduled for late 2025). As a teaser, the Table of Contents reads as follows:

To obtain a copy of the monograph:

Access TROVE [www.trove.nla.gov.au] using internet browser

Search Books and Libraries using search term PARA-SITE

Scroll down to PARA-SITE: an electronic guide to parasitology

Select Read which takes you to:

Free access National edeposit Book 2025

Click on National edeposit and wait for it to load onto their reader (approx 1 min)

To obtain your own copy of the monograph:

Scroll down left side of reader to: download symbol

click start and wait for download of zip file (approx 1 min)

Access downloads on your computer, select nla.obj-3633898248.zip

unzip to obtain pdf of monograph nla.obj-3633898248-1.pdf

The material contained in PARA-SITE is provided free of copyright to facilitate the broadest possible distribution amongst users.

Enjoy!

HERMINTHOLOGY

There is no science without Equity, Diversity and Inclusion

Nichola Eliza Davies Calvani
Lecturer in Parasitology, Sydney School of Veterinary Science, Faculty of Science, The University of Sydney
ARC-funded Discovery Early Career Researcher Award (DECRA) Fellow
Founder of *Herminthology*
Co-chair of the World Association for the Advancement of Veterinary Parasitology (WAAVP) EDI sub-committee
Sydney School of Veterinary Science EDI Champion

Recent US policy changes – sparked by a series of Executive Orders since Donald Trump's inauguration – are already causing severe setbacks for equity, diversity, and inclusion (EDI) with global consequences. The termination of USAid, withdrawal of federal support for EDI initiatives, and the review of thousands of NIH funded projects threaten disease prevention and public health efforts worldwide[1,2]. USAid is responsible for almost half of government foreign aid expenditure, and the 90-day funding freeze alone will deny 11.7 million women and girls access to contraceptive care, leading to an estimated 8,340 maternal deaths[3]. These cuts have already shuttered life-saving services, halted malaria programs, and left hundreds of thousands of children without food or medicine[4].

Simultaneously, a new CDC mandate removes gender-related terms from scientific papers co-authored by federally funded researchers, erasing queer, intersex, and transgender individuals from health research[5]. This threatens scientific integrity and undermines studies on sexually transmitted infections, such as HIV and female genital schistosomiasis, further marginalising vulnerable communities. On the other side of the world, politicians and media outlets in Australia are already echoing divisive rhetoric that threatens to further politicise science and public health[6]. For the parasitology community, these measures undermine vital health initiatives, especially those that combat neglected tropical diseases (NTDs), more than half of which are caused or vectored by parasites[7].

Consequences to the diversity of our workforce

In addition to the direct impacts on global health programs, these funding cuts and policy shifts disproportionately affect early career researchers, who are more likely to be on short-term contracts and navigating systemic barriers to career progression[8-10]. While these challenges impact individuals across all backgrounds, historically underrepresented groups - including women, people of colour, researchers from low socioeconomic backgrounds, and members of the LGBTQIA+ community - are at greater risk of being further disadvantaged. With fewer opportunities for secure funding, these researchers, who already face systemic challenges to career progression, become increasingly vulnerable. Reducing support in these areas not only stifles individual careers, but also impairs our collective ability to innovate, particularly in regions most affected by parasitic diseases.

EDI: Crucial for science that tackles the world's biggest problems

Research consistently demonstrates that diverse and inclusive teams drive innovation and effective problem-solving[11,12]. In parasitology, integrating varied cultural and scientific perspectives is critical. Although the field has made progress in recent years through an increase in the number of initiatives dedicated to promoting inclusion[13-15], its historical legacy – rooted in colonialism[16] – remains a stark reminder of the work that still lies ahead. Embracing EDI is not merely a progressive ideal; it is essential to addressing the unique challenges of global health and achieving scientific breakthroughs that benefit us all.

A call for unified voices against attacks on EDI

In light of these developments, we call on researchers, educators, funding bodies, and industry partners to champion EDI with unwavering resolve. Academic institutions and scientific journals must continue to advocate for inclusive initiatives, and industry partners should strengthen their resolve to support EDI programs through targeted funding. Such investments will help build a resilient, innovative, and socially responsible research environment – one that learns from past inequities while meeting present and future challenges. We urge our colleagues in parasitology, and the broader scientific community, to lend their voices to this critical call against continued efforts to undermine EDI.

A united stance will send a clear message: scientific progress is inseparable from the inclusion of diverse voices, particularly those from communities most affected by parasitic diseases and NTDs. Constructive dialogue and coordinated action across academia, government, and industry are essential to counteract policies that undermine the inclusiveness of our research.

Prospects for the future

Safeguarding EDI in science is both an ethical and a practical imperative. Policies and practices that promote inclusivity have been shown to enhance research outcomes, spark innovation, and foster public trust. Yet, the current policy shifts represent a significant escalation in long-brewing threats to EDI. If these changes go unchallenged, we risk not only stalling innovation but fundamentally undermining the global scientific enterprise. A future devoid of true inclusivity will leave early career researchers, scientists with diverse backgrounds, and communities most affected by parasitic diseases even more vulnerable, deepening global inequities. The erosion of dedicated EDI programs will stifle diverse perspectives essential for addressing complex public health challenges, ultimately corroding the integrity, relevance, and resilience of science itself. Now, more than ever, our unified commitment to EDI is crucial – not merely as a means of redressing historical wrongs, but as the only path toward a vibrant, innovative, and equitable global scientific community.

In conclusion, these attacks are a clarion call: without immediate and sustained action to defend EDI, the promise of science as a universal force for good is at risk. We stand together to assert that inclusive science is the only path forward: without EDI, there is no science.

#NoSciWithoutEDI

How can you help?

The attacks on EDI in science demand a unified response. Members of the parasitology community and the broader scientific field are encouraged to add their signatures to this statement. ***A strong collective voice will send a clear message: science cannot thrive without equity, diversity, and inclusion.*** Scan the QR code or visit www.herminthology.com to add your name to the letter and share messages of support. Signatures, along with key themes from the comments, will be submitted for publication alongside this letter at the end of the month, ensuring that the collective voices of the scientific community are heard. Together, it is possible to push back against policies that threaten the integrity of scientific progress and ensure that inclusivity remains at the core of global research.

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International Symposium on Fish Parasites 20-24 January, 2025

International Symposium on Fish Parasites 2025

XI International Symposium on Fish Parasites (ISFP) took place in Mérida, Mexico from 20 to 24 January 2025. The Symposium's theme was Fish health, parasites and biodiversity conservation and it was attended by 175 researchers from 33 countries.

The venue was the University building in the centre of Mérida, which opened in 1711 as Pontificia Universidad de San Francisco Javier. Since 1922 this building has been used by Universidad Autónoma de Yucatán, currently it is the University Cultural Centre. The building has a Spanish style facade with a beautiful courtyard, which added additional charm to the atmosphere of the meeting, including coffee breaks and the Conference reception, which were hosted in the courtyard.

The Symposium had an exciting scientific program with five keynote speakers including Victor M. Vidal-Martínez, Gabriela Jerônimo, Isabel Blasco-Costa, Anindo Choudhury and Chelsea Wood. Oral presentations were given in 6 thematic sessions and in 2 workshops. The themes were: Biodiversity and taxonomy, Ecology, life cycles and epidemiology, Fish disease and zoonoses, Parasite conservation, Aquaculture and parasites, Fisheries and parasites. The first workshop was Horizon scanning workshop organized by Nico Smit, which focused on future research needs and priorities in fish parasitology, attracted 54 participants who worked in four thematic groups on previously submitted 52 research questions. The second workshop was on Acanthocephala, 11th edition of Acanthocephalan Working Group.

Australian delegates contributed to the scientific program ten of the 130 oral presentations including three talks in Aquaculture and fisheries session, six in Biodiversity and taxonomy, and one in Fish disease and zoonosis. Australians won both first day prizes - for the first abstract received and the first person to register.

Conference dinner was held at Museum of Yucateca Gastronomy, which is a unique concept, showing the Mayan people's history through the flavours and scents of Yucatecan cuisine. The traditional column architecture and stunning pasta tile décor are complemented by traditional Mayan decorations. The dinner dishes and drinks included some traditional ingredients, for example chaya, often called tree spinach, which is a nutrient-rich plant native to the region, its cooked leaves were used in chayitas (green empanadas) or in a drink (chaya with lime). Guacamole was served with chicharra (an edible insect popular in local cuisine, dried and fried until crispy. Local pork based dishes: cochinita pibil and poc chuc were available as the mains. An open bar with a wide range of alcoholic (for example margarita and mescalita) and non-alcoholic drinks was available all evening. We were entertained by mariachi music during the conference dinner.

The closing session included the announcements of changes to the membership of ISFP International Committee and of the next ISFP venue. Nathan Bott was announced as one of the new ISFP International Committee members. Bologna, Italy is the next venue for ISFP which will take place in 2029. Further announcements for the XII ISFP will be included on ASP website.

Congratulations to Nathan Bott for becoming a member of ISFP International Committee and for winning the prize for the first abstract submitted to the conference.

XI ISFP was a great success and we would like to congratulate local organizers led by Gerardo Pérez-Ponce de León on this fantastic conference. Mérida, the conference location, was amazing and some of us were fortunate enough to stay longer and see more of Yucatan, including Mayan ruins, cenotes, beaches and mangroves. If you are interested please contact B.Nowak@utas.edu.au for conference abstracts, which have been published in The Biologist vol. 23, Jan-Jul 2025, special supplement 2. Summary of the conference will be published in one of the next issues of Trends in Parasitology as TrendsTalk.

International Symposium on Fish Parasites 20-24 January, 2025 - Photos

Previous page ISFP XI conference venue. This page, group photo of ISFP XI attendees (above); AProf Tom Cribb (below). More images on P 102 of this newsletter. Photos were taken by Bartek Ciba.

Aotearoa Aquatic Diseases Symposium (AADS) 2025

Photos left: Cawthron scientists Bailey Lovett (bottom) and Kate Hutson (top) gave presentations at AADS-2 on aquatic disease investigations and emerging aquatic diseases, respectively. (Right) Aotearoa Aquatic Diseases Symposium (AADS), Dunedin, New Zealand, February 2025

Aotearoa Aquatic Diseases Symposium (AADS), Dunedin, New Zealand, February 2025

Jerusha Bennett (University of Otago), Robert Poulin (ASP Fellow, University of Otago, NZ), Ian Davidson (Cawthron Institute) and Kate Hutson (ASP Tas State Rep/Cawthron Institute, NZ), convened the second Aotearoa Aquatic Diseases Symposium (AADS) in Dunedin, New Zealand 12-14th February. The symposium provided a forum for people from academia, research organisations, government, industry and communities to share insights into diagnostics, epidemiology and management of aquatic diseases. The symposium included broad perspectives including the role of Mātauranga Māori, the rapidly changing landscape of aquatic disease emergence, the challenges to our biosecurity, and the future safeguard of people, environment, wildlife and seafood industries.

The event was held with a generous subsidy from the MBIE Endeavour Emerging Aquatic Diseases programme led by Kate, with support from the Cawthron Institute and the University of Otago, and sponsorship from Awanui Veterinary, Nautilus Collaboration, New Zealand King Salmon, and Sealord Group Ltd. Guest speakers included Wendi Roe (Massey University) on toxoplasma, Andrea Barcelo (Animal Health Lab, Biosecurity NZ) on keeping NZ safe from unwanted organisms, Zac Waddington (New Zealand King Salmon) who spoke on early runting mortality; Janelle Wierenga (University of Otago) on infectious diseases of endangered yellow eyed penguins; Nigel French (Massey University) on waterborne pathogens and; Darren Parsons (National Institute of Water and Atmospheric Research/University of Auckland) on potential causes of milky-fleshed snapper.

There were numerous aquatic parasitology highlights at the symposium! Di Barton (ASP member, Charles Sturt University) warned us to never be sneezed on by a walrus because it could share its nasal mite infection with you! Di also presented work on larval and juvenile freshwater fish and their susceptibility to parasitism. Lizenn Delisle (ASP member, Cawthron) showed how Perkinsus olseni has a more severe impact on host green-lipped mussels as seawater temperature increases. Robert Poulin (University of Otago, ASP Fellow) showcased the benefits and limitations to parasites as model organisms in disease research. Jerusha Bennett (University of Otago) spoke about a range of avian parasite species new to science, and how a proactive approach has identified a range of species of potential disease concern. Anton van Heldon (Department of Conservation), Abigail Schoup (Massey University) and Katie Buschang (University of Otago) highlighted current research and management efforts on toxoplasmosis throughout Aotearoa. Henry Lane, Felix Vaux (NIWA) and Anjali Pande (Ministry for Primary Industries) highlighted the benefits of long-term data and evolutionary ecology for understanding Bonamia infection in oysters. Amandine Sabadel (University of Otago) showed how stable isotopes reveal non-feeding behaviour of Anisakis within host fish and Charles Caraguel (University of Sydney/University of Adelaide) highlighted the role of hookworms associated with sea lion pup mortality in South Australia.

Two conference satellite events were also held – A pre-symposium workshop on Next-generation Aquaculture Diagnostics led by Francisa Samsing (University of Sydney) and a post-symposium workshop on Seabird Necropsies led by Jerusha Bennett (University of Otago; see separate report in this newsletter).

Seabird Necropsy Workshop - Aotearoa Aquatic Diseases Symposium (AADS-2)






ASP members Di Barton (Charles Sturt University), Lizenn Deslisle and Kate Hutson (Cawthron Institute) joined the Aotearoa Aquatic Diseases Symposium post-symposium workshop on seabird necropsies led by Jerusha Bennett (University of Otago).

Jerusha had organized several species of birds for dissection with the aim of recovering their parasites. Deceased seabirds had been donated from wildlife hospitals for the purposes of University of Otago research.

Jerusha opened the workshop with a karakia (Māori blessing), to acknowledge that the birds were once living and that the group sought a positive and favourable outcome of the workshop. Jerusha and the Otago team collect Māori cultural materials from donated seabirds to distribute to mana whenua (Māori custodians) from the birds' origins. Jerusha's team, in collaboration with DOC, Tūhura Otago Museum, a network of weavers on the South Island and Komiti Taoka Tuku Iho (including members Te Rūnanga o Moeraki, Te Rūnanga o Ōtākou and Kāti Huirapa Rūnaka ki Puketeraki) are building relationships that ensure best practices for manu (bird) huruhuru (feathers) and pelts preservation for cultural use. Previously, weavers had to buy feathers or pick them up from the road to make traditional Māori clothing.

Photos Top left: Jerusha Bennett demonstrates dissection practices to enable preservation of feathers for traditional owners; Top right: Little penguin; Middle left: Dianne Barton and Lizenn Deslisle examining a little penguin for ectoparasites; Middle right: Kate Hutson removing ticks and mites from a little penguin; Bottom left: engorged tick removed from a little penguin; Bottom right: yellow eyed penguin, one of New Zealand's endangered species. (Photos by Jerusha Bennett and Kate Hutson)

Seabird Necropsy Workshop cont...

Using a little penguin to demonstrate, Jerusha showed the group the best approach for skinning the birds to minimise damage to the pelt so that it could then be subsequently used for cultural purposes. Following, she demonstrated how to remove the main organs and search for parasites before workshop participants had the opportunity to work on other available seabirds. Di, Lizenn and Kate worked on little penguin, yellow eyed penguin and crested penguin specimens, from which they recovered a variety of ectoparasites (ticks and lice), and later endoparasitic helminths using microscopy. The parasites recovered will be characterised using integrative taxonomy by Otago parasitologists, and contribute to a study regarding what drives parasite community structure in New Zealand aquatic birds.

Images of ISFP XI attendees; AProf Shokoofeh Shamsi; Prof Barbara Nowak, Dr Helen Armstrong and Arof Nathan Bott; Dr Storm Martin, Dr Helen Armstrong and Prof Barbara Nowak. Photos were taken by Bartek Ciba.

16th International Congress of Parasitology

On behalf of ICOPA 2026 – the 16th International Congress of Parasitology, taking place from 16–21 August 2026 in Montréal, Canada, we are excited to offer the global parasitology community the opportunity to exchange insights and communicate important updates.

With Program Proposals and Abstract Submissions for ICOPA 2026 now open, we are thrilled to invite all parasitology specialists to share their abstracts by 2 February 2026.

Under the theme "Parasites in a Changing World", this important event will once again bring together pioneer minds, researchers, and practitioners from across the globe to discuss and collaborate on the latest advancements in science, education, and clinical practice.

https://icopa2026.org/

PhD Student (Bioinformatician)— with 3.5 years stipend-equivalent

Position Available:

PhD with 3.5 years of stipend-equivalent living allowance at the Menzies School of Health Research (Darwin).

We are seeking a motivated student to join our zoonotic malaria genomics program, focusing on cutting-edge bioinformatics and genomic epidemiology of Plasmodium knowlesi—an emerging cause of severe malaria across Southeast Asia.

The successful applicant will work with the largest P. knowlesi genomic dataset to date, applying high-level computational and statistical approaches within an internationally collaborative research team. Applicants should hold an Honours degree (or equivalent) in a relevant field and meet CDU PhD entry requirements.

Location: Global & Tropical Health Division, Menzies School of Health Research, Darwin, Australia. Possibility of remote candidature following 6-month in-person requirement.

Ideal commencement: midyear intake, 2026.

For more details, please see the attached flyer or visit the Menzies School of Health Research website https://www.menzies.edu.au/page/Education_and_Training/

To apply, please email: jacob.westaway@menzies.edu.au

Postdoctoral Position in Tick-Borne Diseases

Title: Postdoctoral Position in Tick-Borne Diseases

Institution: University of Maryland School of Medicine

Location: Baltimore, Maryland

The Pedra Laboratory at the University of Maryland School of Medicine is recruiting a postdoctoral fellow to study tick-borne diseases. We use a variety of technologies coupling systems biology and reductionist approaches to understand fundamental interactions between the arthropod vector, the microbe (s) and the mammalian host. We have projects related to arthropod immunophysiology, skin immunology, systems biology and neuroimmunology.

The Pedra laboratory takes advantage of an academic/research environment where professional growth and distinct career choices are appreciated. Motivated and ingenious trainees are encouraged to pursue independent projects. The Baltimore-Washington Metropolitan area is well-placed geographically, famous for its rich history, elegant cities and beautiful natural scenery. The Metro Region is an especially attractive workplace due to its moderate cost of living and a nice blend between urban and suburban life.

To apply: Please submit a CV (3 pages or less), a letter summarizing research interests, experience and goals (1 page or less), and the names and phone numbers/e-mail of three references to: Dr. Joe Pedra, Ph.D., Professor, E-mail: jpedra@som.umaryland.edu (www.pedralab.com).

www.parasite.org.au/jobs/

ApicoWplexa 2026

ApicoWplexa 2026
Lodi, Italy
Date: Wednesday to Friday 16-18 September 2026
Venue: Department of Veterinary Medicine and Animal Sciences, Università degli Studi di Milano, Via dell'Università, 6 26900 Lodi (Italy)
https://www.apicowplexa.net/index.php/lodi-2026/

Dear Colleague,

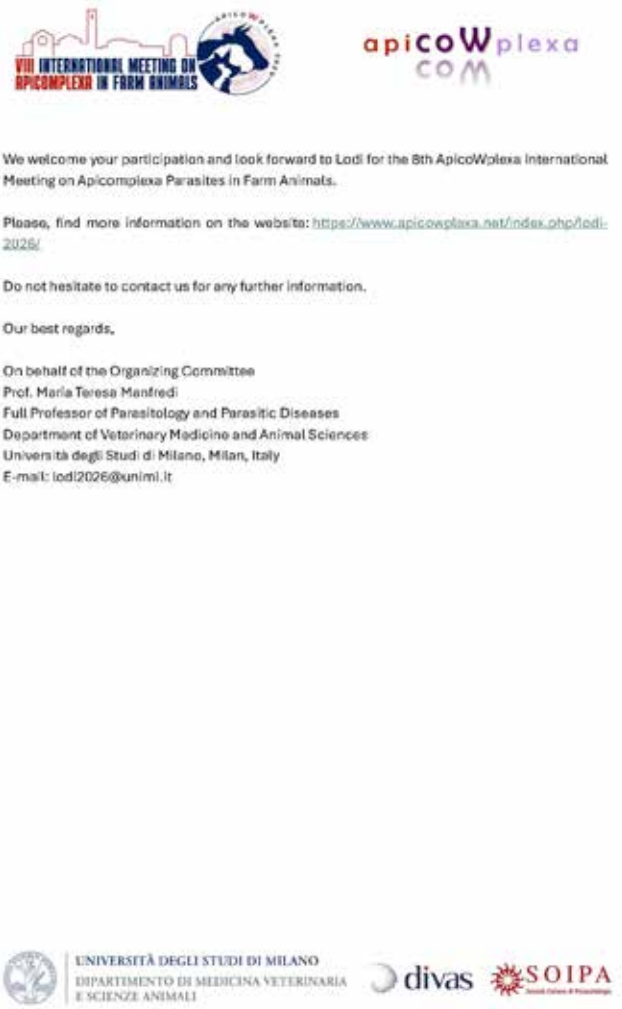
We are delighted to announce and warmly invite you to participate to the **8th International Meeting on Apicomplexa Parasites in Farm Animals** that will take place in **Lodi, Italy, in 16-18 of September 2026.** Organised by the Parasitology group of the Department of Veterinary Medicine and Animal Sciences, University of Milan, this biennial meeting has served as a highly active and influential forum for researchers worldwide working on Apicomplexa since 2012.

As apicomplexan parasites pose a critical challenge to the global livestock sector, we are pleased to invite you to Lodi, where the beauty of the **Italian countryside** meets a long-standing **zootechnical tradition.** This region is not only at the heart of Italian livestock production but also one of the most significant zootechnical hubs in Europe.

ApicoWplexa is known for fostering **intensive scientific exchanges** in a friendly atmosphere and has significantly contributed to the advancement of this dynamic research field. This enriching face-to-face event will once again provide a unique forum for researchers, scientists, students, and partners from academia, industry, and government organizations to explore the fascinating challenges apicomplexan parasites rise in livestock.

ApicoWplexa 2026 will offer an exceptional **opportunity for innovation and collaboration,** paving the way for future advancements in understanding and managing these parasites in farm animals. We believe that your expertise and passion in this field will greatly enrich the discussions and contribute to the success of this conference. The program will feature cutting-edge research on:

- **One-Health approaches to apicomplexan diseases**
- **Molecular and cellular biology of apicomplexan parasites**
- **Host-parasite interactions and immunology**
- **Advances in diagnosis, epidemiology, and drug development**
- **Strategies for vaccines and control of infections in livestock**



We welcome your participation and look forward to Lodi for the 8th ApicoWplexa International Meeting on Apicomplexa Parasites in Farm Animals.

Please, find more information on the website: https://www.apicowplexa.net/index.php/lodi-2026/

Do not hesitate to contact us for any further information.

Our best regards,

On behalf of the Organizing Committee
Prof. Maria Teresa Manfredi
Full Professor of Parasitology and Parasitic Diseases
Department of Veterinary Medicine and Animal Sciences
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E-mail: lodi2026@unimi.it

8th International Meeting on Apicomplexa in Farm Animals
Lodi, Italy
16-18 September 2026

www.apicowplexa.net

XII Parasitology Summer Course (ParSCo)

Residency Course on
PARASITES, ARTHROPOD VECTORS AND TRANSMITTED PATHOGENS IN THE MEDITERRANEAN AREA

27 June to 3 July 2026

12th edition of the Parasitology Summer Course (XII ParSCo) organized by the Parasitology Unit of the Department of Veterinary Medicine, University of Bari (Italy) course applicants should email the secretariat (parscobari@gmail.com) to request the registration form which is due along with a motivation letter (no more than 300 words) and a recent photo, and emailed to parscobari@gmail.com by January 15, 2026.

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