Wytamma Wirth

Doctor of Philosophy student at James Cook University studying viral pathology and epidemiology.

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EDUCATION

Doctor of Philosophy (Health)

James Cook University - 2016 to Current

During my PhD project I studied the pathology and epidemiology of ranaviral infection in Australian freshwater turtles. My project focused on determining factors that influence ranaviral pathogenesis and describing the distribution of ranaviral infection in wild Australian freshwater turtle populations.

Bachelor of Biomedical Science (Honours)

James Cook University - 2015

During my honours project I studied the link between the immune system and behaviour in reptiles with viral infections.

Bachelor of Science (Biochemistry/Molecular Biology)

James Cook University - 2010 to 2014

During my undergraduate degree I found an appreciation for the complexity of biology and developed an interest in microbiology.

EXPERIENCE

Laboratory Assistant

The National Avian Influenza Wild Bird (NAIWB) Surveillance Program - 2013 to Current

As a part of the NAIWB network we monitored wild birds in the local area for avian influenza and Newcastle Disease virus. My role was primarily independent and involved: sample collection, RNA extraction, RT-qPCR, and reporting. In 2019-20 I trained another person to take over my role as laboratory assistant.

Casual academic

James Cook University - 2015 to 2020

I was a demonstrator for Introductory Biochemistry and Microbiology (BM1000), and presented guest lectures in the subjects Ecological Research Methods (BZ3230), Herpetology (BZ3725), and Microbial Diversity (MI2011).

SKILLS

Academic writing.

Public speaking.

Experimental design.

Animal husbandry.

Histology.

Immunohistochemistry.

Digital pathology.

Diagnostic development.

3D printing / modeling.

Conventional PCR, qPCR, and RT-qPCR.

Data science and analysis.

Data visualisation.

Bioinformatics.

Genomic sequence and gene expression data analysis.

Microbiome analysis (QIIME).

Reproducible analysis workflows.

Containerisation (Docker and Singularity).

Python programming.

Javascript programming.

R programming.

Bash programming.

High performance computing.

Full stack web development.

SQL and NoSQL database systems.

Student supervisor

James Cook University - 2015 to Current

While at JCU I was involved in the supervision of two masters students and several undergraduate projects (through an internship program with the National Veterinary School of Toulouse, France). I assisted students with practical components and academic writing.

Higher Degree by Research Student Representative

College of Public Health Medical and Veterinary Sciences, James Cook University - 2018

I was the College of Public Health Medical and Veterinary Sciences student representative. I helped to organise talks and meetings, provided guidance to other students and brought issues to the Dean as a representative of the community.

Organising committee member

CodeR Townsville - 2019 to Current

I am one of the founding members of CodeR and currently serve on the organising committee. CodeR is a group of scientists who use R to solve a diverse set of problems in their respective fields. My role in CodeR has been to organise and give talks, lead tutorials, and promote collaboration.

Bioinformatics training

Pawsey Supercomputing Centre and Australian BioCommons - 2020

I was a facilitator for the workshop *Using Containers in Bioinformatics*. During this workshop I helped to train bioinformaticians from around Australia and New Zealand how to use containers in their research.

The 2020 Bioinformatics Community Conference - 2020

I was a demonstrator for the session *Command Line Essentials for Bioinformaticians* at BCC2020. I helped participants work through problems in the tutorial.

PUBLICATIONS

Ten years of ranavirus research (2010-2019): An analysis of global research trends.

W Wirth, D Lesbarrères, E Ariel. FACETS - 2020 (Accepted)

I designed the project, performed the data collection, analysed the results, prepared the figures and tables, and drafted the manuscript.

Temperature-dependent infection of freshwater turtle hatchlings, *Emydura macquarii krefftii*, inoculated with a ranavirus isolate (Bohle iridovirus, *Iridoviridae*).

W Wirth, E Ariel. FACETS - 2020 (Accepted)

I designed the experiments, obtained and reared the animals subjects,

GRANTS AND AWARDS

Australian Wildlife Society's University Research Grant - 2018

College of Public Health, Medical and Veterinary Sciences Higher Degree by Research Enhancement Scheme -2018

Mackay Conservation Group Scientific Research Grant -2016

Australian Postgraduate Award - 2016

POSTERS AND TALKS

Pathogenesis of a Ranaviral Infection in an Australian Freshwater Turtle Species (*Emydura macquarii krefftii*). W Wirth, et al. *Wildlife Disease Association Australasian Section Conference* - 2019

Pathogenesis of Bohle Iridovirus (Genus *Ranavirus*) in an Australian Freshwater Turtle Species (*Emydura macquarii krefftii*). W Wirth, et al. *5th International Symposium on Ranaviruses* - 2019

Auto-scope: a cheap optical microscope modification for whole slide scanning. W Wirth and E Steinig. *JCU Research Festival* - 2018

Dose dependent morbidity of freshwater turtle hatchlings, *Emydura macquarii krefftii*, inoculated with Bohle iridovirus

performed the husbandry, inoculated the animals subjects, collected data, performed post mortems, performed the molecular analysis (qPCR), analysed the data, prepared the figures, and drafted the manuscript.

Cutaneous Lesions in Freshwater Turtles (*Emydura macquarii krefftii* and *Myuchelys latisternum*) in a Rainforest Creek in North Queensland, Australia.

W Wirth, E Elliott, D Rudd, L Hayes, A Maclaine, N Mashkour, S Ahasan, J Dahl, K Drane, E Ariel. *Frontiers in Veterinary Science* - 2020

I helped to design the study, organize the field trips, performed the majority of sample and data collection, organised the database and photos, analysed the results, produced the figures, and helped to write the manuscript.

Dose-dependent morbidity of freshwater turtle hatchlings, *Emydura macquarii krefftii*, inoculated with a Ranavirus isolate (Bohle iridovirus, *Iridoviridae*).

W Wirth, L Schwarzkopf, LF Skerratt, A Tzamouzaki, E Ariel. *Journal of General Virology* - 2019

I designed the experiments, obtained and reared the animals subjects, performed the husbandry, inoculated the animals subjects, collected data, performed postmortems, performed the histological analysis, performed the molecular analysis, analysed the data, prepared figures and tables, and drafted the manuscript.

Ranaviruses and reptiles.

W Wirth, L Schwarzkopf, LF Skerratt, E Ariel. *PeerJ* - 2018

I conceived and designed the review, performed the data collection, analysed the data, prepared figures and tables, and drafted the manuscript.

An unusual mortality event in Johnstone River snapping turtles *Elseya irwini (Johnstone)* in Far North Queensland.

Australia. E Ariel, AB Freeman, E Elliott, **W Wirth**, N Mashkour, J Scott. *Australian veterinary journal* - 2017

I performed molecular screening (PCR) of samples for virological agents, and assisted in writing the manuscript and interpreting the results.

Pathogenicity in six Australian reptile species following experimental inoculation with Bohle iridovirus.

E Ariel, **W Wirth**, G Burgess, J Scott, L Owens. *Diseases of aquatic organisms* - 2015

I performed the immunohistochemical staining, and assisted in writing the manuscript and interpreting the results

(Ranavirus sp, *Iridoviridae*). W Wirth, et al. *4th International Symposium on Ranaviruses* - 2017

Clinical signs and their time to development vary with infection route in Australian freshwater turtle species: *Emydura macquarii krefftii*. W Wirth and A Ariel. *10th international Symposium on Viruses of Lower Vertebrates* - 2017

Visualising the Ranavirus scientific landscape. W Wirth and E Ariel. *3rd International Symposium on Ranaviruses* - 2015

PROFESSIONAL REFERENCES

Associate Professor Ellen Ariel
(Primary PhD Advisor)
College of Public Health, Medical and Veterinary Sciences
James Cook University,
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Phone: +61 747 81 4123
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Professor Lin Schwarzkopf
(Secondary PhD Advisor)
College of Science & Engineering
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Associate Professor Lee Skerratt
(Secondary PhD Advisor)
Faculty of Veterinary and Agricultural Sciences, Melbourne Veterinary School, Werribee 3030, VIC Australia
Phone: +61 477455463
l.skerratt@unimelb.edu.au

Dr Graham Burgess
(Employer and mentor)
College of Public Health, Medical and Veterinary Sciences
James Cook University
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graham.burgess@jcu.edu.au

Clinical signs, pathology and dose-dependent survival of adult wood frogs, *Rana sylvatica*, inoculated orally with *frog virus 3* (*Ranavirus sp.*, *Iridoviridae*).

María J Forzán, Kathleen M Jones, Raphael V Vanderstichel, John Wood, Frederick SB Kibenge, Thijs Kuiken, **W Wirth**, Ellen Ariel, Pierre-Yves Daoust. *Journal of General Virology* - 2015

I helped to perform the immunohistochemical staining, and assisted in writing the manuscript and interpreting the results.