

# DR MARK WONG

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Born 1990, Singapore citizen

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## Education

- 2017– **University of Oxford**  
2020 DPhil (Zoology), Clarendon Scholarship  
*Among the world's most prestigious and competitive scholarships, awarded to <0.05% of all accepted postgraduate students at the University of Oxford*  
Advisors: Prof Owen Lewis, Assoc Prof Benoit Guénard  
Examiners: Prof Catherine Parr, Assoc Prof Michelle Jackson  
Thesis chapters published in *Biological Reviews*, *Proceedings of the Royal Society B*, *Methods in Ecology and Evolution*, *Ecography*, and *Oikos*
- 2014 **Australian National University**  
BSc Hons (Biology), 1st Class  
Advisors: Prof David Rowell, Dr James Woodman  
Examiners: Prof Craig Moritz, Prof Owen Atkin, Prof Scott Keogh
- 2013 **Australian National University**  
BSc (Forest Sciences), Top Graduate
- 2008 **Raffles Junior College Singapore**  
GCE A-Levels, 5As

## Employment

- 2022– **Forrest Fellow, The University of Western Australia**  
2025 Independent research fellowship
- 2020– **Postdoctoral Researcher, Swiss Federal Institute for Forest, Snow and  
2021 Landscape Research (WSL)**
- 2015– **Manager, National Parks Board, Singapore Government**  
2017 Citizen science, biodiversity conservation, urban landscaping

## Selected Honours and Recognitions

- 2021 **Forrest Fellow**  
Forrest Research Foundation
- 2019 **Varley Gradwell Fellow**  
University of Oxford

- 2017 **Clarendon Scholar**  
University of Oxford
- 2017 **Explorer**  
National Geographic
- 2015 **Distinguished Scholar**  
Burton & Garran College, Australian National University
- 2014 **Young Explorer**  
National Geographic
- 2013 **Schlich Medal for Forest Sciences**  
Australian National University
- 2012 **Book Prize for Invertebrate Zoology**  
Australian National University
- 2011 **Undergraduate Overseas Scholar**  
National Parks Board Singapore

## Publications

### *Peer-Reviewed Journal Articles*

- 2023 **Wong MKL**, Economo EP & Guénard B. The global spread and invasion capacities of alien ants. **Current Biology** 33, 566-571.
- 2023 McFadden I & 32 co-authors incl. **Wong MKL**. Linking human impacts to community processes in terrestrial and freshwater ecosystems. **Ecology Letters** 26, 203-218.
- 2022 Schultheiss P, Nooten SS, Wang R, **Wong MKL**, Brassard F & Guénard B. The abundance, biomass and distribution of ants on Earth. **Proceedings of the National Academy of Sciences** 119, e2201550119.
- 2022 Wang WY, Soh EJY, Yong GWJ, **Wong MKL**, Guénard B, Economo EP & Yamane S. Remarkable diversity in a little red dot: a comprehensive checklist of known ant species in Singapore (Hymenoptera: Formicidae) with notes on ecology and taxonomy. **Asian Myrmecology** 15, e015006.
- 2022 **Wong MKL**, Lee RH, Leong CM, Lewis OT & Guénard B. Trait-mediated competition drives an ant invasion and alters functional diversity. **Proceedings of the Royal Society B: Biological Sciences** 289, 20220504.
- 2021 Graham EB & 46 co-authors incl. **Wong MKL**. Toward a generalized framework of disturbance ecology through crowdsourced science. **Frontiers in Ecology and Evolution** 9, 588940.
- 2021 **Wong MKL** & Carmona CP. Including intraspecific trait variability to avoid distortion of functional diversity and ecological inference: lessons from natural assemblages. **Methods in Ecology and Evolution** 12, 946-957.

- 2021 **Wong MKL\***, Tsang TPN\*, Guénard B & Lewis OT. Trait-similarity and trait-hierarchy jointly determine fine-scale spatial associations co- of resident and invasive ant species. **Ecography** 44, 589-601.  
\*Joint first authors.
- 2020 **Wong MKL**, Guénard B & Lewis OT. The cryptic impacts of invasion: Functional homogenization of tropical ant communities by invasive fire ants. **Oikos** 129, 585-597.
- 2019 **Wong MKL**, Guénard B & Lewis OT. Trait-based ecology of terrestrial arthropods. **Biological Reviews** 94: 999-1022.
- 2017 **Wong MKL**, Woodman JD & Rowell DM. Short-range phenotypic divergence among genetically distinct populations of an Australian funnel-web spider. **Ecology and Evolution** 7: 5094-5102.
- 2017 **Wong MKL** & Guénard B. Subterranean ants: summary and perspectives on field sampling methods, with notes on diversity and ecology (Hymenoptera, Formicidae). **Myrmecological News** 25: 1-16.
- 2017 Yong GWJ, **Wong MKL** & Soh EJY. Surprising offshore diversity: A preliminary checklist for the ant genera of Pulau Ubin island from rapid opportunistic sampling (Hymenoptera: Formicidae). **Nature in Singapore** 10: 55-66.
- 2017 **Wong MKL** & Yong GWJ. Notes on the habitat and biology of the rare ant genus *Tyrannomyrmex* (Fernández, 2003). **Asian Myrmecology** 9: 1-4.
- 2016 **Wong MKL** & Guénard B. First confirmed record of the ant genus *Myrmecina* (Hymenoptera, Formicidae) from the Malay Peninsula: description of a new species and a key to *Myrmecina* species from Sundaland. **Journal of Hymenoptera Research** 50: 129-140.
- 2016 **Wong MKL** & Guénard B. *Aenictus seletarius*, a new species of hypogaecic army ant from Singapore, with an updated key to the *Aenictus minutulus* species group (Hymenoptera: Formicidae: Dorylinae) from Southeast Asia. **Annales Zoologici** 66: 35-42.
- 2016 **Wong MKL** & Guénard B. *Leptanilla hypodracos*, a new species of the cryptic ant genus *Leptanilla* (Hymenoptera: Formicidae) from Singapore, with new distribution data and an updated key to Oriental *Leptanilla* species. **ZooKeys** 551: 129-144.
- 2016 **Wong MKL**, Woodman JD & Rowell DM. Temporal variation in venom yield of the Australian funnel-web spider *Atrax sutherlandi* (Hexathelidae: Atracinae). **Arachnology** 17: 7-9.

#### *Book Chapters*

- 2020 **Wong MKL** & Guénard B. Subterranean ants. In: Starr C (Ed.). **Encyclopedia of Social Insects**. Cham, Switzerland: Springer.

*Academic Theses*

- 2020 **Wong MKL**. Trait-based community and invasion ecology of terrestrial arthropods. **Doctor of Philosophy Thesis, University of Oxford, Oxford**.
- 2014 **Wong MKL**. Phenotypic variation among genetically distinct populations of the funnel-web spider *Atrax sutherlandi* (Hexathelidae: Atracinae). **Honours Thesis, Australian National University, Canberra**.

*Selected Popular Science Writing*

- 2022 **Wong MKL**, Guénard B, Brassard F, Schultheiss P, Wang R & Nooten SS. Earth harbours 20,000,000,000,000,000 ants – and they weigh more than wild birds and mammals combined. **The Conversation**, 20<sup>th</sup> September 2022.
- 2021 **Wong MKL**. What happens to our understanding of functional diversity when we ignore intraspecific trait variability? **Methods in Ecology and Evolution Journal Blog**, 1<sup>st</sup> March 2021.
- 2020 **Wong MKL**. The cryptic impacts of an ant invasion. **Oikos Journal Blog**, 11<sup>th</sup> February 2020.
- 2018 **Wong MKL** & Hoenle P. Photoblog: Ant Course. **Myrmecological News Journal Blog**, 16<sup>th</sup> October 2018.
- 2018 **Wong MKL**. The Giant Forest Ant: Jewel of Southeast Asia. **Entomological Network of Singapore Blog**, 3<sup>rd</sup> March 2018.
- 2017 **Wong MKL**. Illuminating the deep, dark world of subterranean ants. **Asian Scientist**, 14<sup>th</sup> July 2017.

*Other Publications*

- 2017 **Wong MKL** & Yong GWJ. Velvet worm (Onychophora) on Pulau Ubin. **Singapore Biodiversity Records** 2017: 125–126.
- 2015 **Wong MKL**. Investigating fine-scale geographic variation in a newly described Australian funnel-web spider (*Atrax sutherlandi*). **Australian Wildlife** 1: 43–44.
- 2015 **Wong MKL**. Investigating fine-scale geographic variation in the Australian funnel-web spider (*Atrax sutherlandi*) – brief introduction and

current progress. **Newsletter of the Australasian Wildlife Management Society** 29: 8–9.

## Grants, Awards and Fellowships

- 2022 **General Research Fund: A stage- and trait-based approach to understand global ant invasions patterns and invasion mechanisms (212,261 AUD)**  
Hong Kong Research Grants Council  
Co-Investigator of Project (PI: Assoc Prof Benoit Guénard)
- 2021 **Forrest Postdoctoral Fellowship (398,499 AUD)**  
Forrest Research Foundation  
\*Extremely competitive; one of 3 awardees from 411 applicants across all disciplines and nationalities in 2020 (0.7% success rate).
- 2020 **Vice Chancellors' Fund Award (5,940 AUD)**  
Vice Chancellors' Fund, University of Oxford
- 2019 **Varley Gradwell Travelling Fellowship in Insect Ecology (4,950 AUD)**  
Varley Gradwell Fund, University of Oxford  
\*Awarded in 2<sup>nd</sup> year of DPhil; applicant pool included postdocs and fellows
- 2019 **Grant from Dean of Graduates Fund (792 AUD)**  
Pembroke College, University of Oxford
- 2018 **Training and Travel Grant (990 AUD)**  
British Ecological Society
- 2017 **Grant from Dean of Graduates Fund (990AUD)**  
Pembroke College, University of Oxford
- 2017 **Clarendon Scholarship (213,181 AUD)**  
University of Oxford  
\*Extremely competitive; awarded to ~0.02% of postgraduates accepted to study across all disciplines at University of Oxford (137 out of 5,872 in 2017 cohort)
- 2017 **Hong Kong PhD Fellowship (146,558 AUD; declined)**  
Hong Kong Research Grants Council  
\*Awarded to 250 candidates across all academic disciplines in eight universities in Hong Kong
- 2017 **Asian Scientist Writing Prize (2,094 AUD)**  
Asian Scientist
- 2016 **Explorers Grant 60-16 (7,341 AUD)**  
National Geographic Society
- 2016 **Conservation Fund Research Grant (5,237 AUD)**  
Wildlife Reserves Singapore

- 2016 **Discovering the Ants of Singapore (3,400 AUD pledged)**  
Experiment.com public crowdsourcing for science
- 2014 **Young Explorers Grant CRE 9633-14 (7,341 AUD)**  
National Geographic Society
- 2014 **Student Travelling Grant (2,500 AUD)**  
Australasian Wildlife Management Society
- 2014 **University Research Grant (1,000 AUD)**  
Australian Wildlife Preservation Society
- 2011 **Full Undergraduate Overseas Scholarship (274,523 AUD)**  
National Parks Board Singapore

## Scientific Meetings

- 2022 **World Biodiversity Forum, Davos, Switzerland**  
Wong MKL, Graco-Roza C, Altermatt F, Brodersen J, Graham C, Moretti M, Wohlgemuth T, Zimmermann N & Gossner M. Human pressures drive multifaceted homogenization of blue-green biodiversity. (Oral. Pres.)
- 2019 **British Ecological Society Annual Meeting, Belfast, Northern Ireland**  
Wong MKL, Tsang TPN, Lewis OT & Guénard B. Trait-similarity and trait-hierarchy jointly determine co-occurrences of resident and invasive ant species. (Oral Pres.)
- 2019 **Insect Diversity: Current and Future Perspectives Symposium, The University of Hong Kong, Hong Kong**  
Wong MKL, Guénard B & Lewis OT. The cryptic impacts of invasion: Functional homogenization of tropical ant communities by invasive fire ants. (Oral Pres.)
- 2015 **Invertebrate Biodiversity and Conservation Conference by the Society of Australian Systematic Biologists, Fremantle, Australia**  
Rowell DM, Wong MKL & Woodman JD. Independent morphological evolution among genetically distinct parapatric populations of the Australian funnel-web spider *Atrax sutherlandi*. (Oral Pres.)
- 2014 **Annual Conference of the Australian Entomological Society, Canberra, Australia**  
Wong MKL, Woodman JD & Rowell DM. Exploring phenotypic variation in populations of the funnel-web spider *Atrax sutherlandi*. (Oral Pres.)

## Editorial Roles

- 2023– Review Editor, *Frontiers in Ecology and Evolution*
- 2022– Associate Editor, *Insect Conservation and Diversity*
- 2020– Editor, *Asian Myrmecology*

## Manuscript Reviews

Ecology Letters, Functional Ecology, Journal of Animal Ecology, Oikos, Science of the Total Environment, Biological Invasions, Ecosphere, Ecological Entomology, Biodiversity and Conservation, Biota Neotropica, Proceedings of the Entomological Society of Washington, Asian Myrmecology

## Funding Reviews

- 2022 **US National Science Foundation**  
Division of Environmental Biology – Population & Community Ecology  
Amount requested: ~ 750,000 USD

## Mentorship

- 2020– **Choi Yuet Him, University of Hong Kong**  
2021 The effect of thermal tolerance and temperature on the foraging distance of ants, and their relationship to body size difference between closed-canopy and open habitat ants. Undergraduate Final Year Research Project
- 2019– **Kaya Jumbe, University of Oxford**  
2020 The invasive Red Imported Fire Ant *Solenopsis invicta* hijacks dominance hierarchies and restructures a tropical ant community. Undergraduate Final Year Research Project
- 2019 **Dexter Cheng, University of Hong Kong**  
Discovery-dominance trade-off in local ant assemblages and the foraging performance of invasive ants. Undergraduate Final Year Research Project

## Teaching

- 2020– **Tutor, Ecology of Terrestrial Ecosystems: Past, present and future**  
2021 **C6400 (3<sup>rd</sup> year course)**  
University of Oxford
- 2020 **Tutor, Ecology C8783 (2<sup>nd</sup> year course)**  
University of Oxford
- 2019 **Demonstrator, Ecology and Evolution Field Course BIOL2306 (2<sup>nd</sup> year course)**  
University of Hong Kong
- 2018 **Demonstrator, Biodiversity Survey and Analysis C5118 (2<sup>nd</sup> year course)**  
University of Oxford
- 2014 **Tutor, Invertebrate Zoology BIOL2113 (2<sup>nd</sup> year course)**

Australian National University

- 2014 **Demonstrator, Ecology BIOL2131 (1<sup>st</sup> year course)**  
Australian National University

## Invited Seminars and Presentations

- 2021 **Impacts of an ant invasion on functional diversity**  
Bertelsmeier Group, Department of Ecology and Evolution, University of Lausanne
- 2020 **Testing the generality of biotic homogenization by human impact in aquatic and terrestrial ecosystems**  
Blue-Green Biodiversity Workshop, ETH Domain Swiss Federal Institutes Forest, Snow and Landscape Research (WSL) and Aquatic Science and Technology (Eawag)
- 2019 **What can traits tell us about the structure of biodiversity?**  
Division of Ecology and Biodiversity, University of Hong Kong
- 2019 **Trait-based ecology of terrestrial arthropods**  
Unpicking the Big Questions in Functional Trait Ecology Workshop, Departments of Zoology, Plant Sciences and Geography, University of Oxford
- 2018 **Ant diversity through form and function**  
National Geographic Explorers Festival, Asia Society, Hong Kong
- 2018 **Functional insights to species coexistence from ant community invasions**  
DPhil transfer seminar, Department of Zoology, University of Oxford
- 2018 **Subterranean ants: the final frontier**  
Student presentation, Ant Course 2018, Nouragues Research Station, French Guiana
- 2016 **The trilobite beetle from Singapore**  
Studio interview for BBC Newsday, broadcast live to global audiences of BBC Television
- 2016 **Ants of Singapore: Diversity in an urban metropolis**  
Parks Festival, Singapore
- 2016 **Feared and Ignored: Studying deadly spiders Down Under**  
National Geographic Explorers Workshops at National University of Singapore and Nanyang Technological University
- 2016 **Exploring uncharismatic creatures**  
National Geographic Young Explorers Meetup at National Geographic Headquarters, Washington DC

## Science Outreach and Initiatives



- 2022– **Seminar Committee, Forrest Research Foundation**  
Organized series of science seminars for Forrest Research Foundation
- 2016 **Founding Member, Entomological Network of Singapore**  
Founded the first society in Singapore dedicated to the promotion of entomology
- 2016 **Entomological Consultant, Hideaways – Creating with Nature**  
Art installation at Playeum Children’s Centre for Creativity, Singapore
- 2016 **Survey Leader, BioBlitz**  
Led citizen science surveys for National Parks Board Singapore
- 2016 **Demonstrator (Invertebrates)**  
Regional Outreach and Open Day programs by Australian National University

## Community Service

- 2019 **Voluntary Special Needs Teacher**  
Kimuchu Primary School, Thika Town, Kenya
- 2016 **Voluntary English Teacher and Builder**  
Saviour Children’s Foundation, Kasoa Town, Ghana
- 2015 **Voluntary English Teacher**  
Madagascar Research and Conservation Institute, Nosy Komba, Madagascar
- 2014 **Sailing Partner for Adults with Special Needs**  
Sailability, Hong Kong
- 2014 **Vocational Trainer for Adults with Special Needs**  
The Nesbitt Centre, Hong Kong

## Selected Media Cover

*Profiles for Universities, Employers and Funding Institutions*

- 2022 **Tiny ants collectively leave a big impression**  
UWA News  
<https://www.uwa.edu.au/news/Article/2022/September/Tiny-ants-collectively-leave-a-big-impression>
- 2018 **Explorer Mark K. L. Wong**  
National Geographic  
<https://explorer-directory.nationalgeographic.org/mark-wong>
- 2018 **Explore Life, Be A Biochemist**  
Biochemical Society UK  
[https://twitter.com/The\\_Biochemist/status/1073511702161973248/photo/1](https://twitter.com/The_Biochemist/status/1073511702161973248/photo/1)
- 2016 **Ant-man shares love for ants on Instagram**

The Straits Times  
<http://www.straitstimes.com/singapore/ant-man-shares-love-for-ants-on-instagram>

2016 **Bonded by a love of green spaces**

The Straits Times

[https://drive.google.com/open?id=16VaUrcHfPOgaeyeOYtW\\_gpUiRey8LOBo](https://drive.google.com/open?id=16VaUrcHfPOgaeyeOYtW_gpUiRey8LOBo)

*Ecology*

2023 **Invasive ants are a bigger threat than we thought**

National Geographic

<https://www.nationalgeographic.com/animals/article/alien-ants-worldwide-threat>

2022 **How many ants are there on Earth?**

ABC Radio: Weekends with Andrea Gibbs

*Radio interview for national broadcaster in Australia*

2022 **20 Quadrillion Ants Inhabit Earth, Scientists Estimate**

CNET

<https://www.cnet.com/science/biology/20-quadrillion-ants-inhabit-the-earth-scientists-estimate/>

2020 **The cryptic impacts of an invasion**

Oikos Journal Blog

<http://www.oikosjournal.org/blog/cryptic-impacts-ant-invasion>

*Ants*

2017 **Extremely Rare ‘T. rex’ Ant Found Alive for First Time**

National Geographic

<http://news.nationalgeographic.com/2017/05/ants-trex-alive-rare-species-animals/>

2016 **100 Best Science Photos of the Year: *Myrmecina magnificens***

Live Science

<http://www.livescience.com/57301-best-science-photos-of-the-year.html>

2016 **‘Fearsome Raisin’ Ant Sports Striking Fingerprint Pattern**

Live Science

<http://www.livescience.com/55263-fearsome-raisin-ant-has-fingerprint-whorls.html>

2016 **Itching to discover new species**

The Straits Times

<http://www.straitstimes.com/singapore/itching-to-discover-new-species>

*Funnel-web Spiders*

- 2015 **An Arachnid Dracula? Rare, Red-Fanged Spider Is Uncovered**  
Live Science  
<http://www.livescience.com/52101-rare-red-fanged-spider-found.html>
- 2015 **Mysterious Spider with Blood-Red Fangs Found in Australia**  
National Geographic  
<http://news.nationalgeographic.com/2015/09/150902-spiders-animals-australia-science-world/>
- 2015 **Explorer Moment of the Day: Taking venom from spiders**  
National Geographic  
<http://www.nationalgeographic.com/explorers/explorers-week/explorer-moment-mark-wong-spider/>

*Natural History*

- 2016 **The trilobite beetle from Singapore**  
BBC Newsday  
*Live studio interview broadcast live to global audiences of BBC Television*
- 2016 **Meet a bizarre and rare beetle you've never seen before (>15 million views)**  
National Geographic  
<https://www.facebook.com/natgeo/videos/10154087820318951/>
- 2016 **Bizarre-Looking Beetle Has an Even Weirder Sex Life**  
National Geographic  
<http://news.nationalgeographic.com/2016/10/rare-weird-insect-trilobite-beetle/>

## Professional References

**Prof Raphael Didham**

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**Prof Owen Lewis**

Department of Zoology, University of Oxford  
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**Assoc Prof Benoit Guénard**

School of Biological Sciences, The University of Hong Kong  
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**Assoc Prof Rob Salguero-Gómez**

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