

# Kuan-Ling (Kelly) Liu

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## RESEARCH INTERESTS

Urban Entomology, Invasion Biology, Ant Biodiversity, Population Genetics, Molecular Ecology

## EDUCATION

- 2021-08 – present**    **PhD Candidate in Entomology**  
Texas A&M University, Texas, US
- 2018-09 – 2020-06**    **Master of Science in Entomology GPA:4.00**  
National Chung Hsing University, Taichung, Taiwan  
Thesis: *Population structure and colony organization of the invasive big-headed ant (Pheidole megacephala) in Taiwan*  
Thesis advisor: Kok-Boon Neoh, Ph.D., Chin-Cheng Scotty Yang, Ph.D.
- 2014-09 – 2018-06**    **Bachelor of Science in Entomology GPA:3.59**  
National Chung Hsing University, Taichung, Taiwan

## RESEARCH EXPERIENCE

- 2021-08 – present**    **Research Assistant in The Rollins Urban & Structural Entomology Facility**  
Invasive Ant Research and Management Project FY22 & FY23  
Title: Genetic, chemical, and behavioral characterization of colony and population structure of the newly invasive white footed ant, *Technomyrmex difficilis* (Forel) in South-Western U.S.  
PhD project  
Title: Determinants of social transition in the odorous house ant (*Tapinoma sessile*) between natural and urban environments
- 2016-07 – 2021-08**    **Research Assistant in Insect Ecology and Pest Management Laboratory**  
Focus on two projects supported by Ministry of Science and Technology (MOST), Taiwan:  
  1. Using landscape and species traits levels to unravel the ant assemblages in urban ecosystem in Taiwan (Bachelor's project)
  2. Using ecological and genetic approaches to unravel local urban adaption and invasiveness of longtime established yet neglected African big-headed ant (Master's project)German cockroach insecticide testing for Chung Hsi Chemical Plant Ltd, Taiwan
- 2019-10 – 2019-11**    **Internship in Laboratory of Pestology, Research Institute for Sustainable**
- 2019-02 – 2019-03**    **Humanosphere, Kyoto University**  
Research on morphological differences and migration pattern of *Pheidole megacephala* (For the separate 2 months)

## PUBLICATIONS

1. Ming-Hsiao Peng, **Kuan-Ling Liu**, Chieh-Yen Tsai, Satomi Shiodera, Takashi F. Haraguchi, Masayuki Itoh, Shu-Ping Tseng, Chin-Cheng Scotty Yang, G. Veera Singham, Jia-Wei Tay, Kok-Boon Neoh. (2023) Urbanization influences the trophic position, morphology, and colony structure of invasive African big-headed ants (Hymenoptera: Formicidae) in Taiwan. *Myrmecological News*, 33, 197-209, [https://doi.org/10.25849/myrmecol.news\\_033:197](https://doi.org/10.25849/myrmecol.news_033:197)
2. Pierre Andre Eyer, Megan N Moran, Steven Richardson, Phillip T Shults, **Kuan-Ling Kelly Liu**, Alexander J Blumenfeld, Robert Davis, Edward L Vargo. (2023) Comparative genetic study of the colony structure and colony spatial distribution between the higher termite *Amitermes parvulus* and the lower, subterranean termite *Reticulitermes flavipes* in an urban environment. *Insectes Sociaux* <https://doi.org/10.1007/s00040-023-00919-2>
3. **Kuan-Ling Liu**, Shu-Ping Tseng, Haruki Tatsuta, Kazuki Tsuji, Jia-Wei Tay, Chin-Cheng Scotty Yang, Kok-Boon Neoh. (2022). Population genetic structure of the globally introduced big-headed ant in Taiwan. *Ecology and Evolution*, 12, e9660. <https://doi.org/10.1002/ece3.9660>
4. Hooi-Kang Chong, Ming-Hsiao Peng, **Kuan-Ling Liu**, G. Veera Singham, Kok-Boon Neoh. (2022). Role of social aggregation in the fitness cost of pyrethroid-resistant German cockroaches. *Journal of Applied Entomology*, 146, 1320– 1332. <https://doi.org/10.1111/jen.13070>
5. Ming-Hsiao Peng, Yuan-Chen Hung, **Kuan-Ling Liu**, Kok-Boon Neoh. (2020) Landscape configuration, habitat complexity, and prey–predator numerical responses shape arthropod assemblage in urban parks. *Scientific Reports*: <https://doi.org/10.1038/s41598-020-73121-0>
6. **Kuan-Ling Liu**, Ming-Xiao Peng, Yuan-Chen Hung, Kok-Boon Neoh. (2019). Effects of park size, forest boundary spillover and environmental filtering on diversity, structure and morphology of ant assemblages in urban greenery. *Urban Ecosystems*: <https://doi.org/10.1007/s11252-019-00851-z>

## GRANTS, FELLOWSHIP, AND AWARDS

|      |  |
|------|--|
| 2024 | International Congress of Entomology in Kyoto, Japan- Presentation Awards for Women Scientists (PAWS)  |
| 2024 | Graduate Student Research and Presentation Travel Award, Graduate and Professional School, Texas A&M University (USD 750)                        |
| 2024 | Dr. Roger E. Gold Endowed Graduate Scholarship, Department of Entomology, Texas A&M University (USD 2000)  |
| 2023 | NATEA-Dallas Scholarship- honorable mentions, North America Taiwanese Engineering & Science Association (NATEA) Dallas Chapter (USD 300)         |
| 2023 | Travel Grant to attend ESA Annual Meeting in National Harbor, Department of Entomology, Texas A&M University (USD 700)                           |
| 2023 | Dr. Roger E. Gold Endowed Graduate Scholarship, Department of Entomology, Texas A&M University (USD 2000)  |
| 2022 | ESA Taiwanese Entomologist Association Meeting in Vancouver Student Competition- 2 <sup>nd</sup> place, Taiwanese Entomologists Around the World |
| 2022 | Travel Grant to attend ESA Annual Meeting in Vancouver, Department of Entomology, Texas A&M University (USD 600)                                 |
| 2022 | Government Scholarship to Study Abroad /GSSA, ROC Ministry of Education (USD 16,000 per year for 2 years)  |

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| 2022 | Lewis and Clark travel Fund, American Philosophical Society (USD 4900)   |
| 2020 | Elite Scholarship, Chia Mei Food Industrial Corporation (TWD 5000)   |
| 2020 | Jian-cheng Science, Technology, Engineering and Mathematics Scholarship, Alumni center, National Chung-Hsing University (TWD 10,000) |
| 2019 | Higher Education Sprout Project Scholarship, National Chung-Hsing University (TWD 60,000)  |

#### INVITED TALKS

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|------|---|
| 2023 | <b>The importance of genetic studies on the understanding and management of ant invasions.</b> Entomological of Society America Annual Meeting, Students and Early Career Professionals Going Beyond the Lab to Advance Entomology's Impact symposium, National Harbor, MD, United States, 5 <sup>th</sup> -8 <sup>th</sup> Nov, 2023 |
| 2022 | <b>How to apply for graduate programs in the United States related to Entomology, biology, and agriculture.</b> Taiwanese Entomologists Around the World, 20 <sup>th</sup> Aug, 2022 (virtual presentation)   |

#### ORAL PRESENTATION

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|------|--|
| 2024 | <b>Adaptation through Thermal Tolerance in the Urban Invader <i>Tapinoma sessile</i></b> XXVII International Congress of Entomology, Kyoto, Japan, 25 <sup>th</sup> -30 <sup>th</sup> Aug, 2024  |
| 2023 | <b>Colony and population genetic structure of the newly invasive white-footed ant (<i>Technomyrmex difficilis</i>) in the U.S.</b> 77th Annual Texas A&M University Urban Pest Management Conference and Workshop, Texas, United States, 11 <sup>th</sup> -13 <sup>th</sup> Jan, 2023                |
| 2022 | <b>Colony and population genetic structure of the newly invasive white-footed ant (<i>Technomyrmex difficilis</i>) in the U.S.</b> Entomological of Society America Annual Meeting, Vancouver, BC, Canada, 12 <sup>th</sup> -16 <sup>th</sup> Nov, 2022  |
| 2022 | <b>Unraveling the population genetic structure of the big-headed ant in the Asia-Pacific region</b> Entomological of Society America Annual Meeting, Taiwanese branch meeting, Vancouver, BC, Canada, 12 <sup>th</sup> -16 <sup>th</sup> Nov, 2022 (virtual presentation)                            |
| 2022 | <b>Unraveling the population genetic structure of the big-headed ant in the Asia-Pacific region</b> 2022 International Union for the Study of Social Insects (IUSSI), San Diego, CA, United States, 3 <sup>th</sup> -7 <sup>th</sup> Jul, 2022 (virtual presentation)                                |
| 2022 | <b>Population structure and colony organization of the invasive big-headed ant (<i>Pheidole megacephala</i>) in Taiwan</b> 76th Annual Texas A&M University Urban Pest Management Conference and Workshop, Texas, United States, 5 <sup>th</sup> -7 <sup>th</sup> Apr, 2022                          |
| 2019 | <b>Effect of park size, peri-urban forest spillover, and environmental filtering on diversity, structure, and morphology of ant assemblages in urban park.</b> The 2nd Multi-Institutional Invasive Ant Management Intervention (MIAMI) Consortium Meeting, Kyoto, Japan, 24 <sup>th</sup> Oct, 2019 |
| 2018 | <b>The effects of habitat complexity and forest boundary spillover on diversity, structure, and ant assemblages in urban greenery.</b> Biological Sciences Graduate 23 <sup>rd</sup> Congress, Bangkok, Thailand. 18 <sup>th</sup> -20 <sup>th</sup> Dec, 2018                                       |

## TEACHING EXPERIENCE

**2020-03 – 2020-06 Teaching Assistant- General Entomology (60 people)**

Assisted and instructed students in insect dissection

**2018-09 – 2019-01 Teaching Assistant- Urban Entomology (20 people)**

Prepared urban pest specimen for student to do identification

## SKILLS

- Microsatellite and phylogenetic analysis.
- Scanning Electron Microscope.
- Stable isotope.
- Gas chromatography mass spectrometry.

## SERVICES

*Professional/ Society Memberships*

- International Union for the Study of Social Insects
- Entomological Society of America
- Taiwan Entomological Society
- NCHU Entomology Student Association
- NCHU Student Government

*Committees*

- Taiwanese Student Association: Treasurer (2022-2024)
- Aggie Women in Entomology: Director of Finance (2022-2023)
- NCHU Insect Exhibition: Director of Finance (2016-2017)