

Keng-Lou James Hung, PhD

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Education

- 2017 **PhD, Biology.** University of California, San Diego, La Jolla, CA, USA.
Advisor: Dr. David A. Holway
Thesis: *Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions.*
- 2010 **BA, Biology with High Honors, Summa cum Laude.** Dartmouth College, Hanover, NH, USA.
Advisors: Dr. Rebecca E. Irwin and Dr. Douglas T. Bolger
Thesis: *The effects of habitat fragmentation on bee diversity in southern California.*

Professional appointments

- 2021-Present Assistant Professor, Oklahoma Biological Survey, University of Oklahoma, Norman, OK, USA.
- 2019-2021 NSERC Postdoctoral Fellow. University of Toronto, Toronto, ON, Canada.
Supervisor: Dr. James D. Thomson
- 2017-2019 Postdoctoral Researcher. The Ohio State University, Columbus, OH, USA.
Supervisor: Dr. Karen Goodell

Peer-reviewed publications (6 lead-author publications of 15 total)

(Asterisks* indicate undergraduate or Master's degree students mentored)

15. Vizza, K.M., D.V. Beresford, **K.-L.J. Hung**, J.A. Schaefer & J.S. MacIvor. 2021. Wild bees (Hymenoptera: Anthophila) from remote surveys in northern Ontario and Akimiski Island, Nunavut including four new records. Accepted, *Journal of the Entomological Society of Ontario*: JESO-6501.
14. Lybbert, A.H., S.J. Cusser, **K.-L.J. Hung** & K. Goodell. 2021. 10-year trends reveal declining quality of seeded pollinator habitat on reclaimed mines regardless of seed mix diversity. Accepted, *Ecological Applications*: EAP20-0560.
13. Bloom, E.H., T.J. Wood, **K.-L.J. Hung**, J.J. Ternest, L. Ingwell, K. Goodell, I. Kaplan & Z. Szendrei. 2021. Synergism between local- and landscape-level pesticides reduces wild bee floral visitation in pollinator-dependent crops. *Journal of Applied Ecology*, 58:1187–1198.
12. **Hung, K.-L.J.**, S.S. Sandoval*, J.S. Ascher & D.A. Holway. 2021. Joint impacts of drought and habitat fragmentation on native bee assemblages in a California biodiversity hotspot. *Insects* 12:135.
11. **Hung, K.-L.J.**, J.S. Ascher, J.A. Davids* & D.A. Holway. 2019. Ecological filtering in scrub fragments restructures the taxonomic and functional composition of native bee assemblages. *Ecology* 100:e02654.
10. **Hung, K.-L.J.**[†], J.M. Kingston*[†], A. Lee*, D.A. Holway & J.R. Kohn. 2019. Non-native honey bees numerically dominate abundant floral resources in a global hotspot of pollinator diversity. *Proceedings of the Royal Society B* 286:20182901. [[†] **Equal-contribution authors**]
9. **Hung, K.-L.J.**, J.M. Kingston*, M. Albrecht, D.A. Holway & J.R. Kohn. 2018. The worldwide importance of honey bees as pollinators in natural habitats. *Proceedings of the Royal Society B* 285:20172140.
8. Nabors, A.J.* , H.J. Cen*, **K.-L.J. Hung**, J.R. Kohn & D.A. Holway. 2018. The effect of removing numerically dominant, non-native honey bees on seed set of a native plant. *Oecologia* 186:281–289.
7. **Hung, K.-L.J.**, J.S. Ascher & D.A. Holway. 2017. Urbanization-induced habitat fragmentation erodes multiple components of temporal diversity in a Southern California native bee assemblage. *PLOS ONE* 12: e0184136.
6. Schochet, A.B.*, **K.-L.J. Hung** & D.A. Holway. 2016. Bumble bee species exhibit divergent responses to urbanization in a Southern California landscape. *Ecological Entomology* 41:685–692.
5. **Hung, K.-L.J.**, J.S. Ascher, J. Gibbs, R.E. Irwin & D.T. Bolger. 2015. Effects of fragmentation on a distinctive coastal sage scrub bee fauna revealed through incidental captures by pitfall traps. *Journal of Insect Conservation* 19:175–179.
4. Hanna, C, I. Naughton, C. Boser, R. Alarcón, **K.-L.J. Hung** & D.A. Holway. 2015. Floral visitation by the Argentine ant reduces bee visitation and plant seed set. *Ecology* 96:222–230.

3. Rightmyer, M.G., Y. Kono, J.R. Kohn & **K.-L.J. Hung**. 2014. A new species of *Tripeolus* (Hymenoptera: Apidae), with comments on *T. utahensis* (Cockerell) and *T. melanarius* Rightmyer. *Zootaxa* 3872:048-056.
2. LeVan, K.E., **K.-L.J. Hung**, K.R. McCann, J. Ludka & D.A. Holway. 2014. Floral visitation by the Argentine ant reduces pollinator visitation and seed set in the coast barrel cactus, *Ferocactus viridescens*. *Oecologia* 174:163–171.
1. Siepielski, A.M., **K.-L.J. Hung**, E.E.B. Bein & M.A. McPeck. 2010. Experimental evidence for neutral community dynamics governing an insect assemblage. *Ecology* 91:847–857.

Manuscripts in review and in preparation

(Asterisks* indicate undergraduate or Master's degree students mentored)

1. Etter, K.J., G. Junquera, J. Horvet, R.A. Alarcón, **K.-L.J. Hung** & D.A. Holway. Interspecific pollen transport between non-native fennel and an island endemic buckwheat: assessment of the magnet effect. In revision at *Biological Invasions*: BINV-S-20-00554.
2. Orr, M.C., **K.-L.J. Hung**, E.E. Wilson-Rankin, P.M. Simpson, D. Yanega & J.S. Ascher. First mainland records of an unusual island bee (*Anthophora urbana clementina*) highlight the value of community science for adventive species monitoring. In review at *Biological Invasions*: BINV-D-21-00294.
3. Nabors, A.J., **K.-L.J. Hung**, L. Corkidi & J. Bethke. California native perennials support greater pollinator diversity in both abundance and foraging behavior than non-native, commercially available ornamentals in Southern California. In preparation. Target journal: *Environmental Entomology*.
4. **Hung, K.-L.J.**, J. Ternest, T.J. Wood, E.H. Bloom, L. Ingwell, Z. Szendrei, I. Kaplan & K. Goodell. The relative effectiveness and risks of systemic versus foliar pesticides for pest control and pollinator protection in three cucurbit systems in Midwestern USA. In preparation. Target journal: *PLOS ONE*.
5. **Hung, K.-L.J.**, S.L. Fan*, C.G. Strang, M.G. Park & J.D. Thomson. Influence of pollen carryover, pollinator behavior, and orchard layout on the delivery of pollination services in apple orchards. In preparation. Target journal: *Journal of Applied Ecology*.
6. **Hung, K.-L.J.**, A. Lee*, H.J. Cen*, R. Alarcón & D.A. Holway. The structure of plant-pollinator interaction networks is robust to pollinator species loss in a fragmented pollinator diversity hotspot. In preparation. Target journal: *Journal of Pollination Ecology*.
7. **Hung, K.-L.J.**, A. Lee*, H.J. Cen* & D.A. Holway. Joint effects of habitat fragmentation, non-native species, and pollination network structure on community-level pollination service quality. In preparation. Target journal: *Ecology*.
8. **Hung, K.-L.J.**, L. Ingwell, I. Kaplan & K. Goodell. Response of wolf spiders (Araneae: Lycosidae) to systemic neonicotinoid insecticides and broad-spectrum foliar pesticides in pumpkin fields. In preparation. Target journal: *Ecotoxicology*.

Other academic products

3. **Hung, K.-L.J.**, M.G. Rightmyer, M. Wall, J. Berrian, J.S. Ascher, D. Yanega, J.A. Davids & D.A. Holway. 2015. An annotated checklist of the bees (Hymenoptera: Anthophila) of San Diego County, California. UC San Diego Library Digital Collections. URL: <http://dx.doi.org/10.6075/JOPN93HK>
2. **Hung, K.-L.J.**, J. Wade-Robinson, D.A. Holway & S. Glenn Lee. 2012. The Urban Pollinator Diversity Project: a hands-on ecological research learning module. High Tech High School, San Diego, CA, USA.
1. Dartmouth Studies in Tropical Ecology 2009-2010. Dartmouth College Press, Hanover, NH, USA.

Research grants (total: \$35,090 USD)

2021	Grant in Aid of Research, Southern California Learning Center, National Park Services. \$5,000.
2015	Doctoral Dissertation Improvement Grant, National Science Foundation (DEB-1501566). \$18,092.
2014	Bloom-Hays Ecological Research Grant, Sea and Sage Audubon. \$500.
2014	Grant in Aid of Research, Anza-Borrego Desert Natural History Association. \$2,200.
2013	Educational Grant, California Native Plant Society. \$600.
2013	Mildred E. Mathias Graduate Student Research Grant, University of California. \$2014.
2011	Young Explorers Grant, National Geographic Society. \$4884.
2011	Grant In Aid of Research, Sigma Xi Society. \$400.
2011	Jeanne Marie Messier Memorial Fund Award, University of California, San Diego. \$1000.
2009	Honors Thesis Grant, Dartmouth College. \$400.

Research and academic fellowships (total: \$144,375 USD)

2019	Postdoctoral Fellowship, Natural Sciences and Engineering Research Council of Canada. \$67,800.
2016	Institute for the Study of Ecological and Evolutionary Climate Impacts Graduate Fellowship, University of California. \$13,175.
2016	Frontiers of Innovation Scholar Fellowship, University of California, San Diego. \$25,000.
2015	McElroy Fellowship, University of California San Diego. \$12,000.
2011	UC Academic Senate Bridge Fund Grant, University of California, San Diego. \$25,000.
2008	James O. Freedman Presidential Scholarship, Dartmouth College. \$1400.

Honors and awards

2016	Excellence in Teaching Award, UC San Diego: Top 8 graduate instructional assistants each academic year in the Division of Biological Sciences.
2015	Best Graduate Student Talk Award, UC San Diego and Salk Institute: Best graduate student dissertation research presentation at annual research retreat of the Division of Biological Sciences and Salk Institute for Biological Studies.
2015	Excellence in Teaching Award, UC San Diego: Top 8 graduate instructional assistants each academic year in the Division of Biological Sciences.
2013	Excellence in Teaching Award, UC San Diego: Top 8 graduate instructional assistants each academic year in the Division of Biological Sciences.
2008-10	Rufus Choate Scholar, Dartmouth College: Top 5% of class year.
2008	Francis L. Town Scientific Prize, Dartmouth College: Top second-year student in the Division of Biological Sciences.

Teaching

University of California, San Diego

2016 Winter	Head Instructional Assistant: Organismic and Evolutionary Biology (BILD 3)
2015 Fall	Head Instructional Assistant: Plant Ecology (BIEB 126)
2015 Summer	Head Instructional Assistant: Evolution (BIEB 150)
2015 Summer	Head Instructional Assistant: Introductory Ecology - Organisms and Habitat (BIEB 102)
2015 Winter	Instructional Assistant: Animal Behavior and Communication (BIEB 166)
2014 Fall	Head Instructional Assistant: Plant Ecology (BIEB 126)
2013 Fall	Instructional Assistant: Ecology Laboratory (BIEB 121)
2012 Fall	Head Instructional Assistant: Insect Ecology (BIEB 128)
2011 Fall	Instructional Assistant: Plant Ecology (BIEB 126)

Master's degree students mentored

(Asterisks* indicate underrepresented minority students)

University of California, San Diego (8 students total)

2016-2017	Sara Sandoval* (UC San Diego McNair Scholar): <i>Exploring interactions between Apis mellifera and Peponapis pruinosa on Cucurbita pepo.</i>
2014-2017	Jessica Davids*: <i>Pollination biology of native and cultivated Cucurbita species.</i>
2014-2017	Jennifer Kingston: <i>Response of honey bees and native pollinators to variation in floral abundances in a San Diego coastal scrub system.</i>
2012-2016	Adrienne Lee: <i>Complex effects of habitat fragmentation on the quantity and quality of pollination services within a scrub plant community.</i>
2013-2015	Annika Nabors: <i>Experimental removal of an introduced pollinator reduces reproductive success of California native clustered tarweed.</i>
2013-2015	Henry Cen: <i>Does pollinator diversity loss affect pollination? A test with the California poppy and clustered tarweed.</i>
2011-2014	Justin Scioli: <i>Pollination biology of the endangered Pogogyne abramsii.</i>
2011-2014	Amanda Schochet: <i>Bumble bee species exhibit divergent responses to urbanization in a Southern California landscape.</i>

Undergraduate students mentored

(Asterisk* indicates underrepresented minority students; lozenge[◊] indicate students now pursuing STEM careers)

University of Toronto (2 students total)

- 2020-Present Sydney Gram: *Evolution of tradeoffs between pollen and nectar rewards.*
2019-Present Sophia Fan: *Pollen carryover of apple orchard pollinators.*

The Ohio State University (7 students total)

- 2018 Elliot O'Flynn: *Role of pollen-producing weeds in pumpkin fields.*
2018 Hannah Van Zant[◊]: *Impact of foliar pesticides on major pumpkin pollinator species.*
2017-2018 Taryn Cheney, David Chu[◊], Kendra Harder[◊]: *Variation in wolf spiders and crop pests in Ohio's pumpkin fields.*
2017-2018 Amber Fredenburg[◊], Erin Custer: *Pollinator communities in ruderal habitats near pumpkin crops.*

University of California, San Diego (48 students total)

- 2017 Blaine Novack-Pilch[◊]: *Bee range and body size in response to habitat fragmentation.*
2016-17 Victoria Apaldetti*[◊], Pablo Arroyo*[◊]: *Effects of plant density on pollination network structure.*
2016 Danila Souza de Barros*[◊]: *Using alarm pheromone to disrupt honey bee foraging.*
2015-2017 Anthony Alonso, Evelyn Brady, Ben Chong, Allison Deogaygay, Stephanie Hadimulia, Aleksandr Harutyunyan[◊], Renz Ignacio, Stephanie Le, Joshua Mihalik, Brianne Nguyen, Kara Powell, Victoria Shi, Danielle Stearns, Kristin Varner, Ziyi Wang[◊], Zhe Wei, Yutong Wu, Emma Zelus: *Linking pollination networks to patterns of conspecific and heterospecific pollen deposition.*
2015-2017 Lindsay Rowe*, Brandy White[◊], Yifei Wang[◊]: *Effect of severe drought on native bee diversity.*
2013-2017 Robin Fong, Breana Garcia*[◊], Kirk Hutchison[◊], Jessica May, Michael McMahon, Elizabeth Moller, Yebin Park, Richard Samakapiruk: *Linking patterns of pollinator diversity and pollen deposition to plant reproductive output.*
2013-2014 Kevin Borchers[◊]: *Patterns of pollinator visitation on experimental plants in fragmented landscapes.*
2012 David Dannecker[◊], Alast Eisa, Ama Eisa: *Variation in bee eye color across phylogeny and ecology.*
2011-2017 Jordan Arce*[◊], Anna Dipaola[◊], Claire Johnson, Haebin Liew, Constance Lin[◊], Stephanie Tsoi, Winny Wen: *Diversity of native bees in San Diego County.*
2011-2016 Sunny Fung[◊], Alexander Sinclair[◊]: *Phenology of native bees and plants in San Diego.*
2011-2013 Spencer Huey[◊]: *Response of pollinators to predators on flowers.*
2011-2012 Rachel Graham[◊]: *San Diego Native Bee Barcoding Project (BOLD Systems).*

Invited academic seminar presentations

- Hung, K.-L.J.**, S.L. Fan, C.G. Strang, M.G. Park & J.D. Thomson April 2021. "Achieving more realistic assessments of pollination service delivery by integrating pollinator movement, ecological context, and pollen carryover." Departmental Seminar, Entomology Department, National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.
Hung, K.-L.J. January 2020. "Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions." Departmental Seminar, Department of Ecology and Evolution Biology, University of Toronto – St. George Campus, Toronto, ON, Canada.
Hung, K.-L.J. January 2020. "Native pollinator diversity, conservation, and ecological function in a human-modified world." Departmental Seminar, Oklahoma Biological Survey, University of Oklahoma, OK, USA.
Hung, K.-L.J. December 2019. "Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions." Departmental Seminar, Department of Biology, University of Ottawa, Ottawa, ON, Canada.
Hung, K.-L.J. October 2019. "Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions." Departmental Seminar, Department of Biological Sciences, University of Toronto – Scarborough Campus, Scarborough, ON, Canada.
Hung, K.-L.J. May 2018. "Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions." Departmental Seminar, Department of Wildlife, Sustainability, and Ecosystem Sciences, Tarleton State University, TX, USA.
Hung, K.-L.J. April 2018. "Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions." Departmental Seminar, Department of Entomology, The Ohio State University – Wooster Campus, Wooster, OH, USA.

- Hung, K.-L.J.** February 2018. “Native bee biodiversity in a landscape fragmented by urbanization.” State of Biodiversity Symposium 2018, San Diego Natural History Museum, San Diego, CA, USA.
- Hung, K.-L.J.** October 2017. “Effects of habitat fragmentation and introduced species on the structure and function of plant-pollinator interactions.” Departmental Seminar, Department of Evolution, Ecology, and Organismal Biology, The Ohio State University – Columbus Campus, Columbus, OH, USA.
- Hung, K.-L.J.** May 2014. “Native Bees of San Diego: biology and conservation status.” Geisel Library Lecture Series, University of California San Diego, La Jolla, CA, USA.

Academic conference presentations

- Hung, K.-L.J.,** S.L. Fan, C.G. Strang, M.G. Park & J.D. Thomson. April 2021. “Influence of pollen carryover, pollinator behavior, and orchard layout on the delivery of pollination services in apple orchards.” Contributed Oral Presentation, Atwood Colloquium 2021, University of Toronto, Toronto, ON, Canada.
- Hung, K.-L.J.,** S.L. Fan, C.G. Strang & J.D. Thomson. October 2020. “Modeling pollinator foraging behavior and pollen carryover causes rank inversions in estimated pollinator importance.” Contributed Oral Presentation, BeeCon 2020, Toronto, ON, Canada.
- Hung, K.-L.J.,** L. Ingwell, I. Kaplan & K. Goodell. November 2019. “Response of wolf spiders (Araneae: Lycosidae) to systemic neonicotinoid insecticides and broad-spectrum foliar pesticides in pumpkin fields.” Contributed Oral Presentation, Entomological Society of America 2019, St. Louise, MO, USA.
- Bloom, E.H., T.J. Wood, **K.-L.J. Hung**, J.J. Ternest, L. Ingwell, K. Goodell, I. Kaplan & Z. Szendrei. November 2019. “Do pesticides disrupt pollination by wild and managed bees?” Contributed Oral Presentation, Entomological Society of America 2019, St. Louise, MO, USA.
- Nabors, A.J., L. Corkidi, **K.-L.J. Hung** & J.A. Bethke. October 2019. “Pollinator attractiveness of native and non-native ornamental plants of southern California.” Contributed Poster Presentation, Protecting Pollinators in Urban Landscapes 2019, Cincinnati, OH, USA. **[Presented by L. Corkidi]**
- Hung, K.-L.J.,** J.M. Kingston, A. Lee, M. Albrecht, D.A. Holway & J.R. Kohn. August 2019. “Global- and local-scale impacts of the western honey bee (*Apis mellifera*) on plant-pollinator mutualisms in natural habitats.” Contributed Oral Presentation, BeeCon 2019, Toronto, ON, Canada.
- Hung, K.-L.J.,** L. Ingwell, I. Kaplan & K. Goodell. November 2018. “Relative roles of pesticide management and landscape context in determining pest pressure, predator abundance, and pollinator visitation in pumpkin fields.” Member Symposium Oral Presentation, Entomological Society of America 2018, Vancouver, BC, Canada.
- Hung, K.-L.J.,** J.M. Kingston, D.A. Holway & J.R. Kohn. August 2018. “Dynamics of honey bee use of native floral resources in San Diego County, CA, USA.” Contributed Oral Presentation, Ecological Society of America 2018, New Orleans, LA, USA. **[Presented by J.R. Kohn]**
- Hung, K.-L.J.,** J.S. Ascher, J.A. Davids & D.A. Holway. August 2018. “Ecological filtering in scrub fragments reduces taxonomic and functional diversity of native bees, but does not homogenize bee assemblages.” Contributed Oral Presentation, Ecological Society of America 2018, New Orleans, LA, USA.
- Hung, K.-L.J.,** H.J. Cen, A. Lee & D.A. Holway. August 2017. “Plant-pollinator interaction networks in fragmented habitats retain structural robustness in spite of pollinator diversity loss.” Contributed Oral Presentation, Ecological Society of America 2017, Portland, OR, USA.
- Nabors, A.J., H.J. Cen, **K.-L.J. Hung**, J.R. Kohn & D.A. Holway. August 2017. “The effect of removing numerically dominant, non-native honey bees on seed set of a native plant.” Contributed Oral Presentation, Ecological Society of America 2017, Portland, OR, USA. **[Presented by D.A. Holway]**
- Sandoval, S.S., **K.-L.J. Hung** & D.A. Holway. November 2016. “Impact of drought and habitat fragmentation on native bee assemblages.” Contributed Poster Presentation, Southern California Conferences for Undergraduate Research, University of California, Riverside, CA, USA. **[Presented by S.S. Sandoval]**
- Davids, J.A., **K.-L.J. Hung** & D.A. Holway. November 2016. “The San Diego Bee Diversity Project.” Contributed Poster Presentation, Colorado Desert Natural History Research Symposium, Borrego Springs, CA, USA. **[Presented by J.A. Davids]**
- Hung, K.-L.J.,** J.M. Kingston, M. Albrecht, D.A. Holway & J.R. Kohn. October 2016. “A meta-analysis of the role of the western honey bee (*Apis mellifera*) in plant-pollinator interaction networks worldwide.” Contributed Oral Presentation, International Congress of Entomology 2016, Orlando, FL, USA.
- Hung, K.-L.J.,** J.M. Kingston, M. Albrecht, D.A. Holway & J.R. Kohn. August 2016. “A meta-analysis of the role of the western honey bee (*Apis mellifera*) in plant-pollinator interaction networks worldwide.” Contributed Oral Presentation, Ecological Society of America 2016, Fort Lauderdale, FL, USA.

- Schochet, A.B., **K.-L.J. Hung**, C.J. Fariss & D.A. Holway. August 2014. “Correlates of bumble bee persistence in an urbanized Southern California landscape.” Contributed Poster Presentation, Ecological Society of America 2014, Sacramento, CA, USA. **[Presented by A.B. Schochet]**
- Hung, K.-L.J.** & D.A. Holway. March 2014. “Effects of habitat fragmentation on native bee assemblages and pollination services in a Southern California scrub ecosystem.” Contributed Oral Presentation, Mathias Scholars Symposium 2014, University of California Natural Reserves System, Bodega Bay, CA, USA.
- Hung, K.-L.J.** & D.A. Holway. August 2013. “Habitat fragmentation reduces bee taxon richness and temporal beta-diversity in a hotspot of bee biodiversity.” Contributed Poster Presentation, Ecological Society of America 2013, Minneapolis, MN, USA.
- Hung, K.-L.J.**, J.S. Ascher, J. Gibbs, R.E. Irwin, D.T. Bolger & D.A. Holway. August 2012. “Examining the effects of habitat fragmentation on a southern California native bee assemblage.” Contributed Poster Presentation, Ecological Society of America 2012, Portland, OR, USA.

Invited educational seminar presentations

- Hung, K.-L.J.** May 2021. “Fantastic Bees and How to Save Them.” NAT Talk Series, San Diego Natural History Museum, San Diego, CA, USA. **[Webinar presentation]**
- Hung, K.-L.J.** April 2021. “Diversity, natural history, and conservation of San Diego's native bees.” Naturally Speaking Virtual Talk, Cabrillo National Monument Foundation, San Diego, CA, USA. **[Webinar presentation]**
- Hung, K.-L.J.** October 2020. “Effects of habitat fragmentation, climate change, and introduced species on native pollinators in a biodiversity hotspot.” Staff and Volunteers Brown Bag Lunch-And-Learn, San Diego Natural History Museum, San Diego, CA, USA. **[Webinar presentation]**
- Hung, K.-L.J.** January 2020. “Know your bees: an introduction to the ecology of honey bees and native bees.” Ecology and Activism: We Speak for the Bees, University of Toronto, Toronto, ON, Canada.
- Hung, K.-L.J.** March 2018. “Natural history and conservation of native bees.” Wildlife Symposium 2018, Muskingum Soil and Water Conservation District, Zanesville, OH, USA.
- Hung, K.-L.J.** November 2016. “Patterns and consequences of pollinator diversity loss in San Diego's scrub ecosystems.” Ecology, Behavior, and Evolution Club Monthly Meeting, UC San Diego, La Jolla, CA, USA.
- Hung, K.-L.J.** August 2016. “Diversity and conservation needs of bees in San Diego County.” Summer Seminar Series, San Diego Zoo Institute for Conservation Research, Escondido, CA, USA.
- Hung, K.-L.J.** May 2016. “Diversity and natural history of San Diego's native bees.” Cabrillo BioBlitz and Biodiversity Festival, Cabrillo National Monument, San Diego, CA, USA.
- Hung, K.-L.J.** August 2015. “The not-so-secret life of bees: ecology and conservation of San Diego's native bees.” Special Lecture Series, Cabrillo National Monument, San Diego, CA, USA.
- Hung, K.-L.J.** March 2015. “Native bees of San Diego County: biology, diversity, and conservation.” 43rd Desert Lecture Series, The Anza-Borrego Desert Natural History Association, Borrego Springs, CA, USA.
- Hung, K.-L.J.** November 2014. “Pollen, pollination, and pollinators: a look at San Diego's native bees.” Educational Lecture, The Anza-Borrego Desert Natural History Association, Borrego Springs, CA, USA.
- Hung, K.-L.J.** November 2014. “Native bee diversity and conservation in San Diego community gardens.” Roger's Community Garden, La Jolla, CA, USA.
- Hung, K.-L.J.** August 2014. “The life of pollinating insects.” Faith Community Church, Annual Children's Science Camp, San Diego, CA, USA.
- Hung, K.-L.J.** July 2014. “Native bee research in San Diego: rationale, progress, and frontiers.” Inaugural Monthly Meeting, San Diego Arthropod Scientists Group, San Diego, CA, USA.
- Hung, K.-L.J.** June 2014. “Biology of native bees of San Diego.” Elfin Forest Reserve Educational Lectures, Escondido, CA, USA.
- Hung, K.-L.J.** March 2014. “Ecological importance and conservation of native bees in Southern California.” Monthly Meeting, San Diego Chapter of the California Native Plant Society, San Diego, CA, USA.
- Hung, K.-L.J.** March 2014. “Pollen, pollination, and pollinators: an introduction to plant reproduction and the important ecological role of bees.” Educational Lecture, Torrey Pines State Reserve Docents Society, Del Mar, CA, USA.
- Hung, K.-L.J.** October 2013. “Diversity, biology, and conservation of native bees in San Diego.” Educational Lecture, San Diego Natural History Museum Canyoneers, San Diego, CA, USA.
- Hung, K.-L.J.** September 2013. “Diversity, biology, and conservation of native bees in San Diego.” Educational Lecture, Mission Trails Regional Park Trail Guides, San Diego, CA, USA.

- Hung, K.-L.J.** October 2013. “Pollen, pollination, and pollinators: an introduction to plant reproduction and the important ecological role of bees.” Annual Botany Festival Natural History Lecture, The Anza-Borrego Foundation, Borrego Springs, CA, USA.
- Hung, K.-L.J.** August 2013. “Introduction to the insects.” Boys’ Club: Faith Community Church, San Diego, CA, USA.
- Hung, K.-L.J.** June 2013. “Diversity and natural history of San Diego bee species.” National Pollinator Week hike at San Diego National Wildlife Refuge, Otay-Sweetwater Unit, Spring Valley, CA, USA.
- Hung, K.-L.J.** May 2013. “Diversity and natural history of bee species with a focus on San Diego.” Saturday Speaker Series, Tijuana River National Estuarine Research Reserve, Imperial Beach, CA, USA.

Invited extension presentations

- Hung, K.-L.J.** May 2019. “Global and local ecology of honey bees” California Master Beekeepers Program, University of California Cooperative Extensions, Davis, CA, USA. [Webinar presentation]
- Hung, K.-L.J.** March 2019. “Ecology of honey bees and native bees in San Diego.” San Diego Chapter of the California Master Beekeepers Program, University of California Cooperative Extensions, San Diego, CA, USA.
- Hung, K.-L.J.** & K. Goodell. January 2019. “Ohio pumpkins: cucumber beetle control and pollinator management.” The Ohio Produce Network, the Ohio Produce Growers & Marketers Association, Dublin, OH, USA.
- Bergeford, B. & **K.-L.J. Hung**. January 2018. “Pumpkin production and cultivar evaluations, and updates from the Ohio SCRI pumpkin project.” The Ohio Produce Network, the Ohio Produce Growers & Marketers Association, San Dusky, OH, USA.
- Hung, K.-L.J.**, J.S. Ascher & D.A. Holway. October 2015. “Habitat fragmentation erodes multiple components of diversity in a Southern California native bee assemblage.” Monthly Coordination Meeting and Seminar, San Diego Management and Monitoring Program, San Diego, CA, USA.
- Hung, K.-L.J.** November 2014. “Native bee in San Diego: natural history and conservation research.” Educational Seminar, Helix Environmental Planning Inc., La Mesa, CA, USA.
- Hung, K.-L.J.** July 2014. “Connectivity strategic plan: native bees of San Diego.” US Geological Survey, Connectivity Strategic Plan for Western San Diego County. San Diego, CA, USA.
- Hung, K.-L.J.** June 2012. “Diversity, importance, and conservation of native bee species.” San Diego Beekeeping Society, San Diego, CA, USA.

Extension workshops led

- Hung, K.-L.J.**, A.J. Nabors, L.M. Taylor & L. Corkidi. February 2018. “Pollinator ecology and identification.” University of California Cooperative Extensions, San Marcos, CA, USA.

Invited guest lectures for undergraduate courses

- Hung, K.-L.J.** December 2018. “Global and community-level impacts of non-native western honey bees on plant-pollinator mutualisms.” Biology: Plant Evolution and Reproduction (BIOL 326): Denison University, Granville, OH, USA.
- Hung, K.-L.J.** November 2017. “How genes work.” Biological Sciences: Energy Transfer and Development (BIO 1113): The Ohio State University, Columbus, OH, USA.
- Hung, K.-L.J.** November 2012. “Plant-insect interactions: mutualisms.” Insect Ecology (BIEB 128): University of California, San Diego, CA, USA.
- Hung, K.-L.J.** & B.R. Park. November 2011. “Pollination ecology: bees.” Plant Ecology (BIEB 126): University of California, San Diego, CA, USA.

Invited guest lectures for primary and secondary school courses

- Hung, K.-L.J.** May 2021. “World Bee Day: let’s learn about bees together.” Churchill Public School, North York, ON, Canada. [Webinar presentation]
- Hung, K.-L.J.** May 2020. “Insect vision: how insects see the world.” Churchill Public School, North York, ON, Canada. [Webinar presentation]
- Hung, K.-L.J.** May 2020. “World Bee Day: let’s learn about bees together.” Churchill Public School, North York, ON, Canada. [Webinar presentation]
- Hung, K.-L.J.** February 2016. “Native bees of San Diego and the Urban Pollinator Diversity Project.” High Tech Middle School, Chula Vista, CA, USA.

- Hung, K.-L.J.** February 2016. “Native bees of San Diego and the Urban Pollinator Diversity Project.” High Tech Elementary School, San Marcos, CA, USA.
- Hung, K.-L.J.** & C. Eutizi. July 2015. “The Living Lab: plot study.” Eutizi Homeschool Group, San Diego, CA, USA.
- Hung, K.-L.J.** June 2015. “Native bees: ecology, diversity, and conservation.” University City High School, San Diego, CA, USA.
- Hung, K.-L.J.** and S. Glenn Lee. May 2014. “Science, bees, and the Schoolyard Biodiversity Project.” Rincon Middle School, Escondido, CA, USA.
- Hung, K.-L.J.,** J. Wade-Robinson, M. Schultz & S. Glenn Lee. January 2013. “Pollinator declines and the Urban Pollinator Diversity Project.” High Tech High School, San Diego, CA, USA.
- Hung, K.-L.J.** May 2012. “Diversity, life cycle, and importance of native bee species.” Faith Community Elementary School, San Diego, CA, USA.
- Hung, K.-L.J.** October 2011. “Diversity, importance, and conservation of native bee species.” Serra High School, San Diego, CA, USA.

Other academic presentations

- Hung, K.-L.J.,** A.T. Suresh, D.A. Holway & A. Orlitsky. October 2016. “Elucidating patterns of biodiversity using information theory: Getting the most out of finite ecological data.” Frontiers of Innovation Scholars Program 2nd Annual Research Symposium, UC San Diego, La Jolla, CA, USA.
- Kingston, J.M., **K.-L.J. Hung**, D.A. Holway & J.R. Kohn. June 2016. “How important are honey bees as pollinators to natural plants?” UC San Diego Division of Biological Sciences Student Research Symposium, La Jolla, CA, USA. [Presented by J.M. Kingston]
- Sandoval, S.S., **K.-L.J. Hung** & D.A. Holway. May 2016. “Impact of drought and habitat fragmentation on native bee assemblages.” UC San Diego Faculty Mentorship Program Research Symposium, La Jolla, CA, USA. [Presented by S.S. Sandoval]
- Hung, K.-L.J.,** J.S. Ascher & D.A. Holway. September 2015. “Habitat fragmentation erodes multiple components of diversity in a Southern California native bee assemblage.” UC San Diego Division of Biological Sciences and Salk Institute Retreat, Lake Arrowhead, CA, USA. [Winner of Best Graduate Student Talk Award]
- Hung, K.-L.J.** & D.A. Holway. May 2015. “Effects of habitat fragmentation on a diverse coastal sage scrub bee assemblage.” UCSD Natural Reserves System 50th Anniversary Research Symposium, La Jolla, CA, USA.

Journal review panels served (Publons profile at <https://publons.com/author/1085601>)

79 reviews for 36 journals: *Agriculture (MDPI); Alimteri Journal of Agricultural Sciences; American Journal of Botany; Apidologie; Australian Journal of Botany; Behavioral Ecology and Sociobiology, Biological Invasions; Biology Letters; Cogent Environmental Science; Diversity and Distributions; Ecological Entomology; Ecological Monographs; Ecology; Ecology and Evolution; Ecosphere; European Journal of Entomology; Frontiers in Ecology and Evolution; Functional Ecology; Global Change Biology; Insect Conservation and Diversity; Insects (MDPI); International Journal of Biodiversity and Conservation; Journal of Applied Ecology; Journal of Ecology; Journal of Insect Conservation; Journal of Pollination Ecology; Oecologia; Plant Ecology and Diversity; Plants (MDPI); PLOS ONE; Proceedings of the Royal Society B; Scientific Reports; Sustainability (MDPI); The Journal of the Kansas Entomological Society; The Open Agriculture Journal; Western North American Naturalist.*

Broader impacts and professional service

2021-Present	Senior Investigator, Cabrillo National Monument Native Bee Inventory Project
2021	Scientific Consultant, San Diego Zoo
2018-2019	Scientific Consultant, San Diego Pollinator Alliance
2017-Present	Team Member, San Diego Team of Nationwide Collaborative Research Project: Protecting Pollinators with Economically Feasible and Environmentally Sound Ornamental Horticulture
2017	Student Research Competition Judge, The Ohio Valley Entomological Association
2017	Professional Scientist, Wittenburg University Bioblitz at George Rogers Clark Park
2016-2017	Scientific Consultant, Bee Habitat Restoration Project, The Species Restoration Project, San Diego
2016	Team Leader, National Parks BioBlitz at Cabrillo National Monument
2015-Present	Project Co-Manager, Bees of San Diego County Project, iNaturalist.org
2014-2017	Contributor, San Diego Management and Monitoring Program
2014-2016	Scientific Consultant, Anza-Borrego Desert Natural History Association
2014	Team Leader, San Diego BioBlitz at Lake Hodges

2012-Present	Contributing Editor, Bugguide.net
2011-2017	Contributor and Volunteer Entomologist, San Diego Natural History Museum
2011-2017	Educator and Project Coordinator, UCSD Educational Outreach Program at High Tech High School
2011-2016	Scientific Consultant, San Diego County Department of Agriculture, Weights & Measures
2010-2017	Contributor, American Museum of Natural History

Departmental service

2020	Student Grant Proposal Reviewer, EEB Department, University of Toronto
2017-2018	Student Grant Proposal Reviewer, Sigma-Xi Society, Ohio State University
2015-2017	Research Mentor, McNair Scholars Program, UC San Diego
2015	Guest Lab Instructor, Summer STEM Academy, UC San Diego
2014-2015	EBE Section Coordinator, Graduate Student Seminar Series, UC San Diego
2014	Research Competition Judge, Student Symposium of Environmental Systems Major, UC San Diego
2012-2015	EBE Section Representative Graduate Teaching Assistant Assignment Committee, UC San Diego
2012-2013	EBE Section Representative, Graduate Admissions Committee, UC San Diego
2012	Student representative, EBE Section Faculty Search Committee, UC San Diego
2011-2014	Peer Mentor, Biology Graduate Students Peer Mentorship Program, UC San Diego
2011-2012	Host, EBE Section Weekly Breakfast Discussion, UC San Diego
2010-2012	Section Representative, Graduate Recruitment Committee, UC San Diego

Thesis committees served

Lakehead University, ON, Canada

Amber Fredenburg (MSc 2020, external examiner)

Professional and academic affiliations

2018-2019	Member, The Ohio Produce Network
2017-2018	Member, The Ohio Valley Entomological Association
2015-Present	Member, Entomological Society of America
2014-2017	Founding Member, San Diego Arthropod Society
2014-2017	Member, Sea and Sage Audubon Society Chapter
2014-2017	Member, Anza-Borrego Desert Natural History Association
2014-2017	Member, California Native Plant Society
2013-2016	Senior Coordinator, Community Gardens at Mesa Student Housing Complex, UC San Diego
2012	Contributor, Barcode of Life Data Systems
2011-Present	Member, Ecological Society of America
2010-Present	Member, Phi Beta Kappa Society

Media appearances and features

Aguilera, M. 20 February 2019. "Foreign bees monopolize prize resources in biodiversity hotspot." Article, *UC San Diego News Center*.

URL: <https://ucsdnews.ucsd.edu/pressrelease/foreign-bees-monopolize-prize-resources-in-biodiversity-hotspot>

Salerno, H. September 2018. "Buzzworthy: one-of-a-kind expert is king of the bees." Article, Pursuit column, *Dartmouth Alumni Magazine*. URL: <https://dartmouthalumnimagazine.com/articles/buzzworthy-0>

Margetta, R. & T.C. Bracken. 5 July 2018. "Pollinator biodiversity: what's all the buzz about?" Article, Discovery column, *National Science Foundation News*.

URL: https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=295868

DeBoer, A., L. Haig, U. Wright, I. Messer & A. Melathopoulos. 26 February 2018. Episode 42: "Research retinue – honey bees and conservation." Podcast, *PolliNation*.

URL: <http://blogs.oregonstate.edu/pollinationpodcast/2018/02/26/research-retinue/>

John, J. 2 February 2018. "Honey bees pollinate a lot more than just crops." Article, *The Wildlife Society*.

URL: <http://wildlife.org/honey-bees-pollinate-a-lot-more-than-just-crops/>

Lengyel, K. 23 January 2018. "Honey bees: world's most important species of pollinator." Article, *American Veterinarian*.

URL: <http://www.americanveterinarian.com/news/honey-bees-worlds-most-important-species-of-pollinator>

- Berezow, A. 16 January 2018. “Honey bees: the #1 pollinator of both crops and wild plants.” Article, *American Council on Science and Health*.
URL: <https://www.acsh.org/news/2018/01/16/honey-bees-1-pollinator-both-crops-and-wild-plants-12426>
- Aguilera, M. 10 January 2018. “Worldwide importance of honey bees for natural habitats captured in new report.” Article, *UC San Diego News Center*.
URL: https://ucsdnews.ucsd.edu/pressrelease/worldwide_importance_of_honey_bees_for_natural_habitats_captured_in_new_report
- Sterman, N. et al. 26 May 2017. Episode 506: “Wild and woolly – native bee pollinators.” Television program, *A Growing Passion*. URL: <http://agrowingpassion.com/episode-506-wild-wooly-native-bee-pollinators/>
- Brennan, D.S. 08 June 2014. “A bee of a different color.” Article, Environment column, *San Diego Union Tribune*.
URL: <http://www.sandiegouniontribune.com/news/2014/jun/08/environment-bee-diversity-james-hung/>
- McDonald, K. 20 March 2014. “Lord of the bees.” *UC San Diego News Center*.
URL: https://ucsdnews.ucsd.edu/feature/lord_of_the_bees

Relevant skills

Sampling, curation, and species-level identification of arthropods, especially bees (Hymenoptera: Anthophila)
Manipulating plant floral structures for estimating plant reproductive fitness
Designing and optimizing of research equipment and methodology
Collaborating with farmers to perform basic and applied ecological research on commercial farms
Constructing analytical and simulation models using program R
Manipulating, managing, and extracting data using Excel, VBA, and ArcGIS
Mentoring and supervising students pursuing undergraduate- and graduate-level research
Experience with basic molecular biology and biochemistry methods (e.g., PCR, gel electrophoresis, QuEChERS)

Academic and Professional References

Prof. James Thomson; University of Toronto

Address: 419 Ramsay Wright Building, 25 Harbord Street, Toronto, ON M5S 3G5, Canada.

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Prof. Karen Goodell; The Ohio State University

Address: 140 Adena Hall, 1179 University Drive, Newark, OH 43055, USA.

Email: goodell.18@osu.edu Phone: 1-740-366-9101

Prof. David Holway; University of California, San Diego

Address: MC 0116, 9500 Gilman Drive, La Jolla CA 92093, USA.

Email: dholway@ucsd.edu Phone: 1-858-822-5206

Prof. Joshua Kohn; University of California, San Diego

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