

# Ian Will

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My research centers host-parasite interactions, focused on mechanisms, disease outcomes, and ecology. I am especially interested in perspectives that integrate community dynamics within and between hosts, disruptions due to environmental shifts, and symbioses along the mutualist-parasite continuum. [scholar.google.com/citations?user=XmDE2V0AAAAJ&hl](https://scholar.google.com/citations?user=XmDE2V0AAAAJ&hl)

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## Current Position

2025 – present **Postdoctoral Fellow, University of British Columbia (UBC)**, Dr. Kayla C. King,  
Feb – present Vancouver, Canada.

*Host-parasite evo-ecology: Coinfecting parasite interactions in a warming world*

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## Education & Academic Positions

2023 – 2025 **Postdoctoral Researcher**, University of Oxford, Dr. K. C. King, UK.

*Coinfecting parasite interactions in a warming world, continuous with current position*

2022 – 2023 **Postdoctoral Researcher**, University of Central Florida (UCF), Dr. C. de Bekker, USA.

*Molecular mechanisms of parasitic manipulation, continuous with PhD*

2017 – 2022 **Doctor of Philosophy – Conservation & Integrative Biology**, UCF, Orlando.

Dissertation under Prof. C. de Bekker:

*Multiomic hypotheses of behavioral manipulation by Ophiocordyceps (zombie ant fungus) infecting Camponotus (carpenter ant)*

2013 – 2015 **Master of Science – Biology**, Ludwig-Maximilians-Universität (LMU), Munich.

Thesis under Prof. M. Götz & Dr. F. Calzolari:

*The neural stem cell response to challenge by injury and mitotic spindle dysregulation*

2006 – 2009 **Bachelor of Arts – Integrative Biology**, University of California, Berkeley.

Student research course publication:

*Host preference, detection, and dependence: the ectoparasitic gastropods Melanella acicula and Peasistilifer nitidula (Eulimidae) on holothurian hosts*

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## Publications

2026 Higgins C.M., Hector T.E., & Will I. **Recent advances in understanding the impact of climate change on insects and their parasites across multiple scales.** *Under Review*

2025 Will I., Smith C.A., Hector T.E., & King K.C. **Coinfections dampen the effects of temperature on host-parasite interactions.** *bioRxiv PREPRINT.* [doi.org/10.64898/2025.12.10.693475](https://doi.org/10.64898/2025.12.10.693475)

- 2025 Li J., [Will I.](#), Silva, L.M., Travers-Cook, T.J., Blackwood, P.E., King, K.C. **Integrating the microbiome into infection ecology and evolution in wild animals** *Molecular Ecology*. vol 35(5). doi.org/10.1111/mec.70281
- 2025 [Will I.](#), Stevens E.J., King K.C., & Bates K.A. **Host Transcriptomics Reveal Reduction in Defence-Reproduction Trade-Offs During Coinfection** *Molecular Ecology*. vol 34(21). doi.org/10.1111/mec.70124
- 2024 Edwards S., Knud N.N., [Will I.](#), de Bekker C., Kotta-Loizou I., & de Fine Licht H. **Pathogenic fungus expresses effector proteins in combination with a symbiotic virus to behaviourally manipulate housefly hosts.** *bioRxiv PREPRINT*. doi.org/10.1101/2024.08.20.608796
- 2024 [Will I.](#), Stevens E.J., Belcher T., & King K.C. **'Re-wilding' an animal model with microbiota shifts immunity and stress gene expression during infection** *Molecular Ecology*. vol 34(1). Co-first with Stevens. doi.org/10.1111/mec.17586
- 2023 [Will I.](#), Attardo G.M., & de Bekker C. **Multioomic interpretation of fungus-infected ant metabolomes during manipulated summit disease** *Scientific Reports*. vol 13(14363). doi.org/10.1038/s41598-023-40065-0
- 2023 [Will I.](#), Beckerson W.C., & de Bekker C. **Using machine learning to predict protein-protein interactions between a zombie ant fungus and its carpenter ant host.** *Scientific Reports*. vol 13(13821). doi.org/10.1038/s41598-023-40764-8
- 2023 Das B., [Will I.](#), Brouns R., Brachmann, A. , & de Bekker C. **Using RNASeq to investigate the involvement of the *Ophiocordyceps* clock in ant host infection and behavioral manipulation.** *bioRxiv PREPRINT*. doi.org/10.1101/2023.01.20.524843
- 2022 [Will I.](#), Linehan S., Jenkins D.G., & de Bekker C. **Natural history trends and environmental effects on the fate of Florida carpenter ant cadavers manipulated by the parasitic manipulator *Ophiocordyceps camponoti-floridani*.** *Functional Ecology*. vol 37. Co-first with Linehan. doi.org/10.1111/1365-2435.14224
- 2020 [Will I.](#), Das B., Trinh T., Brachmann A., Ohm R.A., & de Bekker C. **Genetic underpinnings of host manipulation by *Ophiocordyceps* as revealed by comparative transcriptomics.** *G3*. vol 10(7). doi.org/10.1534/g3.120.401290
- 2018 de Bekker C., [Will I.](#), Das B., & Adams R.M.M. **The Formicidae and their parasites: effects of parasitic manipulations and host responses on ant behavioral ecology.** *Myrmecological News*. vol 28. doi.org/10.25849/myrmecol.news\_028:001  
\* "Best publication of 2019", *Myrmecological News*.
- 2017 de Bekker C., [Will I.](#), Hughes D., Brachmann A., & Merrow M. **Daily rhythm and enrichment patterns in the transcriptome of the behavior-manipulating parasite *Ophiocordyceps kimflemingiae*.** *PLOS One*. vol 12(11). doi.org/10.1371/journal.pone.0187170

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## Awards & Funding

- 2026 **Nominee: Harry Smith Prize**, *Molecular Ecology*.

- 2023 **Best Poster Award**, European Conference on Fungal Genetics.
- 2019 **Byrd-Dunn Graduate Student Research Award**, SE Society of Parasitologists.
- 2019 **Robert Lichtwardt Research Award**, Mycological Society of America (MSA).
- 2019 **Graduate Research Forum Poster Award**, UCF.
- 2019 **Fungal Conference Poster Award**, Genetics Society of America (GSA).
- 2019 **Student Mentor Travel Award**, MSA.
- 2019 **Best Publication of 2018**, Myrmecological News.
- 2018 **Biology Graduate Student Association Speaker Invitation Grant**, UCF.
- 2018 **Professional Development Mock Proposal**, UCF.
- 2017 **ORC Doctoral Fellowship**, UCF.
- Semi-competitive funding awards:*
- 2025 **Postdoctoral Travel Award**, Canadian Society for Ecology and Evolution.
- 2022 **Fungal Conference Travel Award**, GSA.
- 2022 **Department of Biology Travel Award**, UCF.
- 2022 **College of Graduate Studies Travel Award**, UCF.
- 2022 **Student Government Association Conference Travel Award**, UCF.
- 2022 **Open Access Publishing Fund**, UCF.
- 2020 **Open Access Publishing Fund**, UCF.
- 2019 **Student Government Association Conference Travel Award**, UCF.
- 2018 **Department of Biology Travel Award**, UCF.
- 2018 **College of Graduate Studies Travel Award**, UCF.
- 2018 **Fungal Conference Travel Award**, GSA.

## Research Presentations

- 2025 **UBC BLISS seminar series**, *Oral*, Vancouver, Canada.  
Coinfecting parasites in a warming world: temperature dependent virulence and microbial competition in nematode hosts
- 2025 **Eco-Evo Retreat**, *Oral*, Maple Ridge, Canada.  
Coinfecting parasites in a warming world: temperature dependent virulence and microbial competition in nematode hosts
- 2024 **British Ecological Society Annual Meeting**, *Oral*, Liverpool, UK.  
Coinfecting parasites in a warming world: temperature dependent virulence and microbial competition in nematode hosts
- 2024 **Theoretical and Experimental Evolutionary Biology Seminar**, *Oral*, Oxford, UK.  
Coinfecting parasites and shifting virulence by environmental temperature
- 2024 **British Society for Parasitology Spring Meeting**, *Poster*, Liverpool, UK.  
Native microbiota-mediated changes of host immunity and condition correlate to enhanced virulence when challenged by a novel pathogen

- 2023 **Guest seminar, University of Oxford**, *Oral*, Oxford, UK.  
Multiomic hypotheses of behavioral manipulation by *Ophiocordyceps* (zombie ant fungus)
- 2023 **Guest seminar, University of Utrecht**, *Oral*, Utrecht, NL.  
Machine learning predictions of protein-protein interactions between a zombie ant fungus and its carpenter ant host
- 2023 **16<sup>th</sup> European Conference on Fungal Genetics**, *Poster*, Innsbruck, Austria.  
Using machine learning to predict protein-protein interactions between a zombie ant fungus and its carpenter ant host  
\* Awarded
- 2022 **Student Scholar Symposium - UCF**, *Poster*, Orlando, USA.  
Chemical profiling of behaviorally manipulated ants infected by “zombie ant fungus”
- 2022 **31<sup>st</sup> Fungal Genetics Meeting - GSA**, *Oral & Poster*, Pacific Grove, USA.  
Metabolomic profiling of behaviorally manipulated ants infected by “zombie ant fungus” (*Ophiocordyceps*).
- 2021 **Annual Conference of the Animal Behavior Society**, *Oral*, Orlando, USA.  
Genetic and molecular underpinnings of host manipulation by zombie ant fungi
- 2020 **Genomics & Bioinformatics Cluster Mixer - UCF**, *Oral*, Orlando, USA.  
Genetic underpinnings of host manipulation by zombie ant fungus (*Ophiocordyceps*)
- 2020 **3-Minute Thesis - UCF**, *Oral*, Orlando, USA.  
Behavioral control by parasitic “Zombie Ant Fungus”
- 2019 **87<sup>th</sup> Mycological Society of America Annual Meeting**, *Poster*, Minneapolis, USA.  
Discovery of candidate manipulation genes in zombie ant fungus (*Ophiocordyceps*) using mixed transcriptomics and hybrid genome assembly
- 2019 **Southeastern Society of Parasitologists Annual Meeting**, *Oral*, Athens, USA.  
Hybrid genome assembly and discovery of candidate manipulation genes in *Ophiocordyceps* zombie ant fungus  
\* Awarded
- 2019 **Graduate Research Forum - UCF**, *Poster*, Orlando, USA.  
Hybrid assembly of a novel Zombie Ant Fungus (*Ophiocordyceps*) genome and discovery of candidate manipulation genes using mixed transcriptomics  
\* Awarded
- 2019 **30<sup>th</sup> Fungal Genetics Meeting - GSA**, *Poster*, Pacific Grove, USA.  
Hybrid assembly of a novel Zombie Ant Fungus (*Ophiocordyceps*) genome and discovery of candidate manipulation genes using mixed transcriptomics  
\* Awarded
- 2018 **Genomics & Bioinformatics Cluster Open House - UCF**, *Poster*, Orlando, USA.  
Nanopore—Illumina Hybrid Genome Assembly of the Behavior Manipulating Parasite *Ophiocordyceps*

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## Employment & Research Experiences

- 2024 **XPRIZE Rainforest Finals**, XPRIZE, *K. Marriott*, Brazil.  
Jul *Environmental DNA and Field Biology Consultant: Rapid biodiversity assessment competition*

- 2017 **Evolution of Gene Regulation Laboratory**, LMU, *Dr. N. Gompel*, Germany.  
Mar – Jul *Laboratory Assistant*
- 2016 – 2017 **Circadian Rhythm Laboratory**, LMU, *Dr. M. Meroz & A. Brachmann*, Germany.  
Apr – Jan *Laboratory Assistant*
- Feb'16 – Jan'17 **Epigenetics and Development Laboratory**, LMU, *Dr. A. Classen*, Germany.  
Sept'14 – Jan'15 *Laboratory Assistant*
- 2012 **Ground Tit Breeding Behavior Project**, Wuhan Univ, *Dr. X. Lu*, China.  
May – Jun *Field Assistant*
- 2012 **Cuckoo-Host Behavior Project**, Hainan Normal Univ., *Dr. W. Liang*, China.  
Apr – May *Field Assistant*
- 2011 – 2012 **Guppy Evolution Project**, U.C. Riverside, *Dr. D. Reznick*, Trinidad and Tobago.  
Nov – Mar *Field Technician*
- 2011 **Ein Qashish Excavation**, Hebrew Univ. of Jerusalem, *Dr. E. Hovers*, Israel.  
Aug – Sep *Field Assistant*
- 2011 **CalCOFI Research Cruise**, Scripps, NOAA, CA DFG, USA.  
Apr *Field Assistant*
- 2010 **Ant-Plant Symbiosis Project**, Stanford Univ., *Dr. E. Pringle*, Costa Rica.  
May - Jun *Field Assistant*
- 2009 **Biological Control Laboratory**, U.C. Berkeley, *Dr. K. Daane*, USA.  
Jul – Sep *Laboratory Assistant*
- 2008 **Terrestrial Arthropod Survey**, U.C. Berkeley, *Dr. E. Arias*, Chile.  
Jan *Field Assistant*
- 2007 **Museum of Vertebrate Zoology**, U.C. Berkeley, USA.  
May – Sep *Curatorial Assistant (Herpetology)*
- 2006 **Aquatic Ecosystem Laboratory**, U.C. Berkeley, *Dr. V. Resh*, USA.  
May – Dec *Laboratory Assistant*

## Leadership Activities & Academic Service

- 2025 – present **King Lab EDI action plan**, Vancouver, Canada.  
*Lead on developing metrics collection and EDI data analysis for Dr. King's CERC EDI initiative; Supporting training: "Equity, Diversity & Inclusion in Teaching and Learning"*
- 2018 – present **Manuscript peer review**.  
*Molecular Ecology (4), Journal of Experimental Biology, The Science of Nature, mSystems (2), Journal of Invertebrate Pathology, Proceedings B, Reinvention, UCF Pegasus Review*
- 2021 **TAMBL award reviewer**, Orlando, FL.  
*UCF Biology Graduate Student Association travel award judging*

- 2020 **Redesign of the UCF-COS Distinguished Speakers Seminar**, Orlando, FL.  
*Developed an interdisciplinary seminar series adopted and funded (\$16,000/year) by UCF College of Sciences to host scholars underrepresented in our department faculties, in collaboration with a fellow UCF graduate student, ended in 2023 due to FL Senate Bill 266 defunding DEI initiatives*
- 2019 **Graduate School Q&A Panel**, Orlando, FL.  
*Panel member for UCF biology undergraduates, hosted by UCF Entomological Society*
- 2018 - 2019 **BGSA Vice-president**, Orlando, FL.  
*Leadership position with the UCF Biology Graduate Student Association*

## Teaching

- 2026 **Training: Developing Your Teaching Philosophy Statement – Guided Writing and Discussion**, Vancouver, Canada.  
*Professional development workshop participant*
- 2025 **Guest lecture at the University of British Columbia**, Vancouver, Canada.  
*Invited guest lecturer for BIOL 302: Biodiversity, Human and Planetary Health*
- 2020 **Guest lecture at the University of California, Berkeley**, Berkeley, CA.  
*Invited guest lecturer for ESPM 42: Insects and Human Society*
- 2020 **UCF Course: Biology of Fungi**, Orlando, FL.  
 Fall *Graduate Teaching Assistant, research intensive course*
- 2020 **UCF Course: Genomics**, Orlando, FL.  
 Spring *Graduate Teaching Assistant, research intensive course*
- 2019 **UCF Course: Genetics Lab**, Orlando, FL.  
 Fall *Graduate Teaching Assistant*
- 2019 **Course revision: UCF Genetics Lab**, Orlando, FL.  
*Course content update and restructuring*
- 2019 **UCF Course: Genetics Lab**, Orlando, FL.  
 Spring *Graduate Teaching Assistant*
- 2018 **UCF Course: Genomics**, Orlando, FL.  
 Fall *Graduate Teaching Assistant, research intensive course*
- 2010 – 2013 **Pittsburg Unified School District**, Pittsburg, CA.  
 Oct – Sept *Substitute Teacher*
- 2007 **Undergraduate Student Instructor - Bio1B**, U.C. Berkeley, Berkeley, CA.  
 Jan – May *Student Teaching Assistant*

## Mentorship

- 2025 – present **Experimental assay training**, UBC, Vancouver, Canada.  
*Training graduate students, postdocs, and technical staff on core experimental methods*

- 2024 – present **Graduate student, Serena Johnson, UBC, Vancouver, Canada.**  
*Genotypic variation and disease outcomes across sympatric and allopatric host-parasite interactions*
- 2024 – present **Graduate student, Dominik Vinopal, UBC, Vancouver, Canada.**  
*Density dependent transmission and virulence in *C. elegans**
- 2025 **Undergraduate Directed Studies, Phae Elton, UBC, Vancouver, Canada.**  
*Defining parasitism in *Leucobacter*; Student continuing with another Directed Studies in biology*
- 2025 **Undergraduate Directed Studies, May Fujiwara-Forster, UBC, Vancouver, Canada.**  
*Siderophores and iron-mediated competition in *Leucobacter*; Student now working as a reserach technician at UBC*
- 2020 – 2022 **Bachelor's Honors Thesis, Devin M. Burris, UCF, Orlando, FL.**  
*Exploration "zombie ant fungus" enterotoxin in carpenter ant behavioral manipulation; Student continued to PhD program at University of Pennsylvania (USA)*

## Outreach

- 2022 – present **Expert commentary for science journalism.**  
*National Geographic, Newsweek, The New York Times, Global News*
- 2023 **Curiosity Stream video interview, Orlando, FL.**  
*Interview and field visit discussing parasitic behavioral manipulation*
- 2023 **Research in 60 Seconds video, Orlando, FL.**  
*UCF Communications STEM outreach video*
- 2023 **UCF Subject Matter Expert, Orlando, FL.**  
*UCF Communications & Marketing listed expert for outreach and commentary*
- 2022 **Otronicon Interactive Technology Expo, Orlando, FL.**  
*Multi-day outreach event in partnership with the Orlando Science Center*
- 2021, 2020 **Seminole County Science Fair, Sanford, FL.**  
*Judging student science projects*
- 2020 **Interview on Naturistic, Orlando, FL.**  
*Natural history short film series*
- 2019 **Spooky Science Month, Orlando, FL.**  
*Multi-day outreach event in partnership with the Orlando Science Center*
- 2019 **Metro Journalism Practice Interview.**  
*Research interview for a UCF student journalism project*
- 2018 **BIOTEC Instructor, Orlando, FL.**  
*Project-based science camp for high-school students*
- 2017 **UCF Arboretum Day, Orlando, FL.**  
*Material preparation for an outreach booth*
- 2017 **UCF News & Information Press Release, Orlando, FL.**  
*Featured in a publication spotlight*

2017 **UCF Faculty Family Fun Day**, Orlando, FL.

*Outreach booth*

2017 **UCF STEM Day**, Orlando, FL.

*Program development and lead presenter for K-12 outreach sessions*