KELLY J. WALLACE, PH.D

National Science Foundation Postdoctoral Fellow
Department of Psychology, Emory University
kelly.wallace@emory.edu • kellyjwallace.github.io

EDUCATION & PROFESSIONAL APPOINTMENTS

2021— Postdoctoral Fellow, NSF Postdoctoral Research Fellowship in Biology
Emory University
Sponsor: Dr. Aubrey Kelly (*thekellylab.org*)

2021 Doctor of Philosophy in Ecology, Evolution, and Behavior
University of Texas at Austin
PhD Advisors: Dr. Hans Hofmann (*cichlid.biosci.utexas.edu*) & Dr. Michael Ryan

2015 Bachelor of Science in Biological Sciences, Minor in Music
Cornell University
Undergraduate Research Advisor (2013-2015): Dr. Alex Ophir (*ophirlab.com*)

RESEARCH INTERESTS

My research investigates how the social environment influences individual behavior and cognition. I integrate ecological, behavioral, physiological, and neuromolecular perspectives.

Keywords: cognitive ecology, social neuroscience, neural gene expression, cortisol, testosterone, dopamine, vasopressin, oxytocin, *Microtus ochrogaster, Gambusia affinis, Astatotilapia burtoni, Acomys cahirinus, Betta splendens*

MAJOR AWARDS

Postdoctoral Research Fellowship in Biology, 2020
The National Science Foundation, $138,000

Ford Foundation Predoctoral Fellowship, 2017
The National Academies of Sciences, Engineering, and Medicine $72,000

ADDITIONAL AWARDS

Postdoctoral Poster Award (Society for Behavioral Neuroendocrinology, $250) 2021

Travel Award (Society of Behavioral Neuroendocrinology) 2020

University Graduate Continuing Fellowship (University of Texas at Austin, $44,000) 2020

Broadening Participation Award (Society for Integrative & Comparative Biology, $500) 2020

Junior Scientist Workshop Award (Howard Hughes Medical Institute) 2019

BEACON Student Travel Fund Award (BEACON Center for Evolution in Action, $500) 2019

First Place Student Poster Award (Ecological Integration Symposium, Texas A&M, $100) 2019

IB Doctoral Dissertation Improvement Grant (University of Texas at Austin, $8,000) 2019

IB Joint Graduate Program Travel Award (University of Texas at Austin, $580) 2018

Best Student Presentation Award (7^{th} Meeting of Poeciliid Biologists) 2017

EcoLabs Research Grant (Texas EcoLabs, $2,100) 2017

Graduate School Continuing Fellowship (University of Texas at Austin, $8,000) 2017

Diversity Travel Award (Animal Behavior Society, $300) 2016

EEB Startup Fellowship (University of Texas at Austin, $2,000) 2016

Graduate School Mentoring Fellowship (University of Texas at Austin, $36,000) 2015

Charles H. Turner Award (Animal Behavior Society) 2014

PUBLICATIONS

KJ Wallace*, EK Chun*, JR Manns, AG Ophir[†], AM Kelly[†]. A test of the Social Behavior Network reveals differential patterns of neural responses to social novelty in bonded, but not non-bonded, male prairie voles. *Horm Behav* **152:** 105362. (*doi.org/10.1016/j.yhbeh.2023.105362*) (*,[†]*authors contributed equally*)

PK Monari, ER Hammond, CL Malone, A Cuarenta, LC Hiura, **KJ Wallace**, L Taylor, DS Pradhan (2023) Leveraging individual power to improve racial equity in academia. *Horm Behav* **152:** 105358. (*doi.org/10.1016/j.yhbeh.2023.105358*)

PS Queller, Y Shirali, **KJ Wallace,** RS DeAngelis, V Yurt, LP Reding, ME Cummings (2022) Complex sexual-social environments produce high boldness and low aggression behavioral syndromes. *Front Ecol Evol* **10**:1050569. (*doi.org/10.3389/fevo.2022.1050569*)

JM Powell, K Inoue, **KJ Wallace,** AW Seifert, LJ Young, AM Kelly (2022) Distribution of vasopressin 1a and oxytocin receptor protein and mRNA in the basal forebrain and midbrain of the spiny mouse (*Acomys cahirinus*). *Brain Struct Funct* (*doi.org/10.1007/s00429-022-02581-z*)

AM Kelly, BA Fricker, **KJ Wallace** (2022) Protocol for multiplex fluorescent immunohistochemistry in free-floating rodent brain tissues. *STAR Protocols* 4:101672. (*doi.org/10.1016/j.xpro.2022.101672*)

JA Gonzalez Abreu, A Rosenberg, BA Fricker, **KJ Wallace**, AW Seifert, AM Kelly (2022) Species-typical group size differentially influences reward, but not social, neural circuitry during nonreproductive social interactions. *iScience* **25**(5): 104230 (*doi.org/10.1016/j.isci.2022.104230*)

KJ Wallace, KD Choudhary, LA Kutty, DH Le, MT Lee, K Wu, HA Hofmann (2021) Social ascent changes cognition, behavior, and physiology in a highly social cichlid fish. *Phil Trans R Soc B* **377**: 20200448 (*doi.org/10.1098/rstb.2020.0448*)

KJ Wallace & HA Hofmann (2021) Decision-making in a social world: integrating cognitive ecology and social neuroscience. *Curr Opin Neuro* **68**:152-158 (*doi.org/10.1016 j.conb.2021.03.009)*

KJ Wallace & HA Hofmann (2021) Equal performance but distinct behaviors: Astatotilapia burtoni sex differences in a novel object recognition task and spatial maze. *Anim Cogn* **24**: 1057–1073 (*doi.org/10.1007/s10071-021-01498-0*)

KJ Wallace* & JM York* (2020) A systems change framework for evaluating academic equity and inclusion in an Ecology and Evolution Graduate Program. *Ecol Evol* **10**(20):10922-10929 (*doi.org/10.1002/ece3.6817) (*authors contributed equally to this work)*

KJ Wallace, RT Rausch, ME Ramsey, ME Cummings (2020) Sex differences in cognitive performance and style across domains in mosquitofish (*Gambusia affinis*). *Anim Cogn* **23**: 655–669 (*doi.org/10.1007/s10071-020-01367-2*)

MA Rice, LE Hobbs, **KJ Wallace,** AG Ophir (2017) Cryptic sexual dimorphism in spatial memory and hippocampal oxytocin receptors in prairie voles (*Microtus ochrogaster*). *Horm Behav* **95**: 94–102 (*doi.org/10.1016/j.yhbeh.2017.08.003*)

MANUSCRIPTS

S Dupeyron & **KJ Wallace**. Quantifying the neural and behavioral correlates of repeated social competition in the fighting fish *Betta splendens* (*in revision at Fishes*)

KJ Wallace, S Dupeyron, M Li, AM Kelly. Long-term effects of early life social complexity on neural gene expression and behavior in the spiny mouse *Acomys cahirinus* (*in prep*)

SOFTWARE

KJ Wallace (2020) Cowlogdata: an R package to analyze and visualize observations generated by the event logging software CowLog (*github.com/kellyjwallace/cowlogdata*)

MENTORSHIP

I have mentored 38 undergraduate students and three high school students on topics including experimental design, behavioral data collection, computer coding, animal husbandry, brain tissue processing, electronic circuitry, and statistical analysis in R.

Undergraduate Trainees Supervised

** denotes supervision at Emory, all other students were supervised at UT Austin*
‡ denotes co-author on a published or in prep peer-reviewed manuscript
§ denotes honors thesis mentee
¶ denotes trainee poster presenter for which I was the primary supervisor

Camille Akin	Matt Armstrong	Jeffrey Alliston	Lauren Borland
Connor Bianchi	Kavyaa Choudhary‡	Rahi Dakwala	Solanch Dupeyron*§‡¶
Rachel Ellerd	Marisa Farjado	Caleb Fleischer	Lily Guevara
Daniel Hauser	Randa Kabbani	Sam Kagel	Kathryn Kaihlanen
Amogh Kashyap	Rachel Koeter	Layla Kutty‡¶	Don Le‡¶
Matthew Lee‡¶	Mark Li*‡¶	Presley Mackey	Claire Mayorga
Jessika McFarland	An Nguyen	Lily Parsi	Huynh Pham
Adam Redmer	Albert Reyes	Remedy Rule	Vishaal Sakthivelnathan
Eduardo Saucedo	Madison Schumm	Jennifer Schlauch	Benjamin Whelan
Anirudh Yerrapragada	Karleen Wu‡¶		

High School Students Supervised (Crockett High School Mentorship Program)
Isaac Carroll, Gabe Rocha, Isaac Munoz

Navigating the Academic Mentor-Mentee Relationship, 2020
Talk, University of Texas at Austin Department of Integrative Biology

Passport to UT Mentorship Program, 2017-2019
I have mentored three international students (China, Ghana) during their transition to the United States and to the University of Texas at Austin.

Judging: Capital of Texas Undergraduate Research Conference Judge andUniversity of Texas at Austin CNS Undergraduate Research Forum Judge (2016-2018)

TEACHING EXPERIENCE & CERTIFICATION

Emory PSYC 385: Think Like an Animal– Decision-Making in the Wild! Fall 2022
As instructor of record I taught this 30-student course. I independently designed the entirely new syllabus and am assessing student performance via online polling, a creative written paper (where they "discover a new animal"), and collaborative oral presentations.

Emory FIRST IRACDA Program Associate, 2021
As an IRACDA Associate I participated in pedagogical coursework where I co- designed and co-taught a course titled "Death and Biology." In Spring 2022 am partnering with a faculty mentor at Agnes Scott College to teach a Neuroscience Lab course. Agnes Scott College is a traditionally women's college and emerging minority-serving institute.

R Mini-Analysis Workshop of Behavioral and Neural Gene Expression Data, 2023
(Guest Lecture, Loyola Chicago) Students used Posit Cloud to interact with a prepared R script by importing data, filling in placeholder variable names, and generating p-values and boxplots.

UT Austin Teaching Assistant: *Bio370 Evolution* (H. Ochman & T. Juenger, UT Austin)
I led weekly discussion sections (~30 students) on readings and material to supplement lectures.

UT Austin Teaching Assistant: *Bio 359K Animal Behavior* (M. Cummings, UT Austin)
I organized semester-long group research projects in which students attended weekly sections to collect behavioral data, perform statistical analyses, write a final report, incorporate feedback I provided, and present their work orally.

R Analysis for Behavioral Data, 2019
I developed a tutorial on R for behavioral data which was presented to 92 students in *Bio359K*.

Grading Assistant: *Bio 373 Ecology* (L. Gonzalez, UT Austin)

Emory CFDE Inclusive Assessment Workshop, 2022
Emory CIMER Entering Mentoring Certificate (10-workshop series), 2021
UT Austin Advanced Teaching Preparation Series Certificate, 2019

INVITED TALKS

Genomics Guest Speaker, Loyola University Chicago, 2023 (Invitation by Dr. Sara Lipshutz)
Social Development in Spiny Mice with R data analysis workshop

Biology Seminar, Amherst College, 2022 (Dr. Ethan Clotfelter)
Decision-making in a social world

EEBOB Bio Seminar, Kennesaw State, 2022 (Dr. Sarah Guindre-Parker)
Cognition and behavior in the social world of cichlid fish

Frontiers in Biology Seminar Series, Duke University, 2022 (Dr. Steve Nowicki)
Cognition in a social world: integrating cognitive ecology and social neuroscience

Biopsychology Colloquium Series, University of Michigan, 2022 (Dr. Jill Becker)
Cognition in a social world: integrating cognitive ecology and social neuroscience

EEB Seminar Series, Texas A&M University, 2021 (Dr. Gil Rosenthal)
A systems change framework for evaluating academic equity and inclusion in an EEB Program

Neuro II: Systems Course, Claremont McKenna College, 2020 (Dr. Tessa Solomon-Lane)
Learning in a dynamic social world

Animal Cognition Graduate Course, University of Cincinnati, 2020 (Dr. Elizabeth Hobson)
Equal performance but distinct behaviors: Astatotilapia burtoni sex differences in a novel object recognition task and spatial maze

Animal Behavior Course, University of Texas at Austin, 2020 (Dr. Felicity Muth)
Fish are smarter than we think!

Osher Lifelong Learning Institute, University of Texas at Austin, 2020 (Dr. Larry Gilbert)
Fish are smarter than we think!

ORAL PRESENTATIONS

Emory FIRST IRACDA Seminar, Emory University, 2023
Characterizing the impact of early life social complexity in spiny mice

Annual Meeting of the Animal Behavior Society, Costa Rica (Virtual), 2022
Cognition in the social world of cichlid fish

Research Across Psychology, Emory University 2021
The influence of the early life social environment on cognitive style

Society for Integrative & Comparative Biology, Virtual Meeting 2021
Decision-making in a social world: sex and status differences in cognition in A. burtoni

Brain Behavior, and Evolution Seminar, University of Texas at Austin, 2020
Cognition in a dynamic social world

Annual Meeting of the Animal Behavior Society, Virtual Meeting, 2020
Sex differences in cognition in the highly social cichlid fish Astatotilapia burtoni

Brain Behavior, and Evolution Seminar, University of Texas at Austin, 2020
Neuroendocrine basis of social competence & cognition in a highly social cichlid fish

Janelia Junior Scientist Workshop on Mechanistic Cognitive Neuroscience, HHMI, 2019
Neuroendocrine basis of social competence & cognition in a highly social cichlid fish

Brain Behavior, and Evolution Seminar, University of Texas at Austin, 2018
Sex differences in Cognitive Style and Domain Relationships in Mosquitofish (G. affinis)

Conference of Ford Fellows, National Academy of Sciences, 2018
Sex differences in cognitive style across domains in mosquitofish (Gambusia affinis)

Annual Meeting of the Animal Behavior Society, University of Wisconsin, 2018
Sex differences in cognitive style across domains in mosquitofish (Gambusia affinis)

Brain Behavior, and Evolution Seminar, University of Texas at Austin, 2018
Comparative cognition in Gambusia affinis

7th Meeting of Poeciliid Biologists, Oklahoma University, 2017 **award winner*
Investigating individual variation in cognition and behavior in Gambusia affinis

Brain Behavior, and Evolution Seminar, University of Texas at Austin, 2017
Investigating individual variation in cognition

POSTER PRESENTATIONS

Society for Behavioral Neuroendocrinology, Tours France, 2023
Early life social complexity shapes adult social processing in the communal spiny mouse

Society for Behavioral Neuroendocrinology, Atlanta GA, 2022
The influence of early life social complexity on adult behavior in the Spiny Mouse (A. cahirinus)

Society for Integrative & Comparative Biology, Virtual Meeting 2022
A novel method for examining neural responses at two timepoints within an individual

Society for Behavioral Neuroendocrinology, Virtual Meeting 2021 **award winner*
Cognition in a social world: assessing cognitive variation by sex and dominance status in the social cichlid fish Astatotilapia burtoni

Society for Integrative & Comparative Biology, Virtual Meeting 2021
A systems change framework for evaluating academic equity and inclusion in an ecology and evolution graduate program

Society for Integrative & Comparative Biology, Austin TX, 2020
Neuroendocrine basis of social competence & cognition in a highly social cichlid fish

Janelia Junior Scientist Workshop on Mechanistic Cognitive Neuroscience, HHMI, 2019
Neuroendocrine basis of social competence & cognition in a highly social cichlid fish

Society for Behavioral Neuroendocrinology, Indiana University, 2019
Neuroendocrine basis of social competence & cognition in a highly social cichlid fish

Spring Symposium in Behavioral Epigenetics, University of Texas at Austin, 2019
Social Competence & Cognition in Dynamic Communities of a Highly Social Cichlid Fish

Ecological Integration Symposium, Texas A&M University, 2019 **award winner*
Social Competence & Cognition in Dynamic Communities of a Highly Social Cichlid Fish

Conference of Ford Fellows, National Academy of Sciences, 2018
Comparative Cognition in Gambusia affinis

Spring Symposium in Behavioral Epigenetics, University of Texas at Austin, 2018
Comparative Cognition in Gambusia affinis

BEACON Congress, Michigan State University, 2016
Stress and cognition: an improvement on a numerosity learning assay

Annual Meeting of the Animal Behavior Society, University of Missouri, 2016
Stress and cognition: an improvement on a numerosity learning assay

Evolution Meeting, University of Texas at Austin, 2016
Stress and cognition: an improvement on a numerosity learning assay

Cornell Undergraduate Research Board Fall Forum, Cornell University, 2014
Sex differences in spatial memory, hippocampal volume, and OTR Expression

Annual Meeting of the Animal Behavior Society, Princeton University, 2014
Sex differences in spatial memory, hippocampal volume, and OTR Expression

MENTEE POSTER PRESENTATIONS
(ONLY THE PRESENTING MENTEE IS LISTED)

S Dupeyron. Emory Student Research Symposium, 2022
Comparing effects of early life social complexity in spiny mice

M Li. Society for Behavior Neuroendocrinology, 2022
Parental care and juvenile development under two social conditions in spiny mice

MT Lee & K Wu. UT Austin Undergraduate Research Forum, 2020
Color discrimination learning in the highly social cichlid fish Astatotilapia burtoni

LA Kutty & DH Le. UT Austin Undergraduate Research Forum, 2020
Sex difference in color discrimination learning in a highly social cichlid fish

REVIEWED WORKS & PROPOSALS

NSF Ad-Hoc Reviewer (IOS BSC), Hormones & Behavior, Behavioral Ecology, Scientific Reports, Trends in Cognitive Sciences, International Journal of Avian Science, Marine & Freshwater Behaviour and Physiology, Animal Behavior & Cognition

AFFILIATIONS

Society for Advancement of Chicanos/Hispanics and Native Americans in Science,
Society for Integrative & Comparative Biology, Animal Behavior Society,
Society for Behavioral Neuroendocrinology, BEACON Center for Evolution in Action
Ford Fellows Foundation, American Society of Naturalists

SKILLS

Computer Programming
R/RStudio, Python, SPSS, ffmpeg, HTML, Command Line, Jenkins, ImageJ/FIJI, basic electronic circuitry, Github, BORIS, CowLog, CellProfiler, QuantStudio, Unity

Laboratory Techniques
Immunohistochemistry, Tissue microdissection, IP injections, animal perfusion, blood hormone collection, ELISA, RNA extraction (Maxwell), qPCR, light & fluorescence microscopy

Behavioral Procedures
VIE & Bead Tagging, husbandry and facility care (fish, rodents), mate choice, scototaxis, sociality task, Morris water maze, detour reaching task, shuttlebox, novel object recognition task, open field task, color discrimination task, simple spatial maze

Statistical Analyses
linear modeling, hierarchical clustering analysis with bootstrapping, t-tests, analysis of variance, heatmap visualization, covariance matrices, model-averaged importance of terms analysis, principal component analysis, discriminant function analysis, model selection, permutation tests

DIVERSITY & INCLUSION

"Leveraging individual power to improve racial equity in academia" Discussion, 2023
I led a paper discussion on how we (as postdoctoral researchers at Emory University from varying backgrounds) can use our positions and identities to improve DEI in academia. This discussion inspired a manuscript on neurodivergent inclusivity in STEM academia.

Spelman Research Day & Agnes Scott "Scotties with Nerves" Symposium Judge, 2023
I evaluated poster and oral presentations in April 2023 for two women's colleges in Atlanta.

SBN Professional Development Panelist, 2022
Hosted by the Society for Behavioral Neuroendocrinology, I spoke on a panel titled "*Leveraging privilege to improve racial equity in academia: examples and insights from the SBN community*" which then was published in *Hormones & Behavior*

CNS Action Team on Racial Justice, 2020
I was invited by the College of Natural Sciences Dean Goldbart to join a 15-member action team that assessed needs and priorities in response to a college-wide request for action.

UT College of Natural Sciences Diversity and Inclusion Committee, 2019-2020
I was selected to serve on the college's D&I committee (*https://cns.utexas.edu/diversity/d-i-committee)* which has organized initiatives such as the "You Belong Here" Campaign.

Integrative Biology Diversity and Inclusivity Committee, 2017-2020
I am one of three founding student representatives of the Integrative Biology Department Diversity and Inclusivity Committee.

Natural Sciences Council Scholarship Committee Reviewer, 2020
I was recruited as an outside reviewer to help assess ~40 student applications to the Scholarship Committee's Diversity and Inclusion Award (award value of $5,000)

Equitable and Inclusive Recruitment Practices/ Sexual Harassment in Field Research 2019
I co-developed and led two seminars and discussions (~40 attendees)

Article Contributor– Chronicle of Higher Education, 2018
In 2018 I was interviewed by the Chronicle of Higher Education for a piece on efforts by the graduate students at UT to improve issues with racism and sexism in the department.

African American Pioneers in Evolutionary Science: The Untold Story, 2017
I participated in an NSF BEACON-funded project to develop scholarly publications on the history/sociology of African American scientists in evolution.

PROGRAM DEVELOPEPMENT & SCIENCE POLICY

EEB Graduate Student Representative, 2018-2019
As the student representative, I attended faculty meetings and disseminated information. I organized town hall events, designed and administered a survey on the graduate student curriculum, developed a student writing group, and advocated for student concerns.

EEB Program Mentorship Plan, 2019
As the EEB Graduate Student Representative I implemented a Mentoring Plan designed to clarify expectations/responsibilities between incoming students and their advisors. The Mentoring Plan is a survey-like document that the student and advisor complete together soon after the student arrives. This plan is also being used as a template for the UT CMB (Cell & Molecular Biology) Graduate Program.

Course Offering Survey, 2019
I developed and administered a survey taken by students across six cohorts of EEB Graduate Students that provided insight on which topics students feel need to be taught, are currently being taught, number and types of courses required for graduation, and prior training undertaken.

Graduate Student Panelist– First Year Subject and Skills Course, 2019 & 2020
I presented with three other senior graduate students on topics including how to begin research projects, TA responsibilities, mentorship, and on-campus resources for graduate students.

Graduate Student Writing Group, 2019
I organized a weekly writing group for students in the EEB graduate program.

Austin Science Advocates, 2017-2020 *(https://austinscienceadvocates.wordpress.com/)*
Austin Science Advocates promotes science communication and science policy awareness. I am on the planning team which organizes guest speaker events, skills workshops, and "contact your local representative" sessions.

MEDIA & COMMUNICA-TION

UT "Choose Texas" Promotional Video, 2019 (*https://vimeo.com/343679289*)
I was one of three graduate students across the University interviewed in a promotional video for the Graduate School at the University of Texas at Austin.

Science Under the Stars, 2018 *(https://scienceunderthestars.org/)*
Science Under the Stars is an organization run by graduate students in the Integrative Biology Department at UT that hosts monthly outdoor talks with children's activities, tours, and local wildlife displays. I presented an outdoor talk designed for the general public titled "*Fish are smarter than we think!*"

They Blinded Me With Science Radio Presentation, 2017
I presented my research and background on fish cognition and behavior on the weekly radio show (KVRX 91.7), hosted by UT graduate students.

LANGUAGES

English *(native),* Spanish *(basic competency)*

REFERENCES

Available upon request