

Department of Biology
University of Virginia
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RESEARCH INTERESTS

Sexual selection, sexual conflict, population genomics, experimental evolution, fertility biology

ACADEMIC POSITIONS

2024 – Assistant Professor, University of Virginia
Department of Biology
Charlottesville, VA

EDUCATION AND RESEARCH EXPERIENCE

2019 – 2023 Postdoctoral Fellow, University of Toronto (UofT) Toronto, ON
Department of Ecology and Evolutionary Biology
Research topic: Genomic resolution of sexual conflict and the evolution of sex-specific expression.

2014 – 2019 University of Oregon (UO) Eugene, OR
Ph.D. program, Institute of Ecology and Evolution
Research topic: The influence of sexual selection and sexual conflict on the evolution of post-insemination dynamics.

2009 – 2013 University of California, Santa Cruz (UCSC) Santa Cruz, CA
B.S. Marine Biology with Honors

2012 University of Queensland (UQ) Brisbane, Australia
University of California Education Abroad Program

HONORS AND AWARDS

2021 Theodosius Dobzhansky Prize, Society for the Study of Evolution

2020 – 2022 Banting Postdoctoral Fellow. Natural Sciences and Engineering Research Council of Canada

2020 University of Toronto Faculty of Arts and Sciences Postdoctoral Fellowship (*declined*)

2019 (Spring) Genetics Society of America DeLill Nasser Award

2018 (Summer) University of Oregon Special “OPPS” Travel and Research Award

2015 – 2018 ARCS (Achievement Rewards for College Scientists) Scholar

2014 – 2015 Hill Fund Outstanding Graduate Teaching Fellow Award in Biology

2014 – 2015 University of Oregon Dan Kimble First Year Teaching Award

PREPRINTS AND IN PREPARATION (*These authors contributed equally; ‡Mentee)

Schalkowski R, **Kasimatis KR**, Greischar MA & Cutter AD (2024) Reproductive interference alters species coexistence in nematodes due to asymmetric sperm-induced harm. *Authorea Preprints*. DOI: 10.22541/au.172114701.15112603/v1

Kasimatis KR, Willis JH & Phillips PC (2024) Transcriptomic sexual conflict at two evolutionary timescales revealed by experimental evolution in *Caenorhabditis elegans*. *bioRxiv* <https://doi.org/10.1101/2023.08.09.552689>

Kasimatis KR, Rehaluk C‡, Rowe L & Cutter AD (2023) No evidence of sexual conflict for a novel sperm-derived seminal fluid protein in *Caenorhabditis* nematodes. *bioRxiv* <https://doi.org/10.1101/2022.09.22.509081>

PUBLICATIONS

Grieshop K, Ho EKH, & **Kasimatis KR** (2024) Dominance reversals: the resolution of genetic conflict and maintenance of genetic variation. *Proceedings of the Royal Society B*. 291: 20232816.

Kasimatis KR, Moerdyk-Schauwecker MJ, Lancaster R‡, Smith A‡, Willis JH & Phillips PC (2022) Post-insemination selection dominates pre-insemination selection in driving rapid evolution of male competitive ability. *PLoS Genetics* 18(2): e1010063.

Kasimatis, KR*, Abraham A*, Ralph PL, Kern AD, Capra JA & Phillips PC (2021) Evaluating human autosomal loci for sexually antagonistic viability selection in two large biobanks. *Genetics* 217:1-10.

Kasimatis KR, Sanchez-Ramirez S, & Stevenson ZC (2021) Sexual dimorphism through the lens of genome manipulation, forward genetics, and spatio-temporal sequencing. *Genome Biology and Evolution* 13:1-13.

Kasimatis KR, Ralph PL & Phillips PC (2019) Limits to genomic divergence under sexually antagonistic selection. *G3* 9:3813-3824.

Kasimatis KR, Moerdyk-Schauwecker MJ, Timmermeyer N & Phillips PC (2018) Proteomic and evolutionary analyses of sperm activation identify uncharacterized genes in *Caenorhabditis* nematodes. *BMC Genomics* 19:1-13.

Kasimatis KR*, Moerdyk-Schauwecker MJ* & Phillips PC (2018) Auxin-mediated sterility induction system for longevity and mating studies in *Caenorhabditis elegans*. *G3* 8:2655-2662.

Kasimatis KR & Phillips PC (2018) Rapid gene family evolution of a nematode sperm protein despite sequence hyper-conservation. *G3* 8:353-362.

Borne F*‡, **Kasimatis KR*** & Phillips PC (2017) Quantifying male and female pheromone-based mate choice in *Caenorhabditis* nematodes using a novel microfluidic technique. *PLoS ONE* 12:e0189679.

Kasimatis KR, Nelson TC & Phillips PC (2017) The genomic signatures of sexual conflict. *J. Heredity* 108:780-790.

Kasimatis K & Riginos C (2016) No simple trade-offs: relationships between egg size, clutch size, spawning mode, adult body size, and latitude in reef fishes. *Coral Reefs*. 35:387-397.

PRESENTATIONS

Invited Presentations

- 2024 Differences Derived from the Same Genome: Connecting Cryptic Signatures of Sex-Specific Selection Across the Lifecycle. Mountain Lake Biological Station, VA. 11 July.
- 2023 Differences Derived from the Same Genome: Connecting Cryptic Signatures of Sex-Specific Selection Across the Lifecycle. University of Oregon, OR. 15 November.
- 2023 Differences Derived from the Same Genome: Connecting Cryptic Signatures of Sex-Specific Selection Across the Lifecycle.
Départ. de Sciences Biologiques. Université de Montréal, QC, CAN. 8 March.
Depart. Biology, Indiana University, IN. 27 February.
Depart. Biology, University of San Francisco, CA. 21 February.
Depart. Evolution, Ecology & Organismal Biology, UC Riverside, CA. 16 February.
Depart. Molecular Biosciences, Northwestern, IL. 14 February.
Depart. Ecology & Evolutionary Biology, University of Kansas, KS. 8 February.
Depart. Ecology & Evolutionary Biology, University of Connecticut, CT. 30 January.
Depart. Biology, University of Massachusetts Amherst, MA. 26 January.
Depart. Biology, University of Virginia, VA. 23 January.
- 2021 Connecting Sex-Specific Selection and Sexual Conflict Across the Lifecycle. Division of Biological Sciences Seminar, University of Monash, Vic, AUS. 12 August.
- 2021 The Story of Separate Sexes: The Search for Cryptic Signatures of Sexual Conflict and Sex-Specific Selection. Dobzhansky Prize Talk *at* Society for the Study of Evolution Joint Virtual Meetings. 25 June.
- 2020 Connecting Sex-Specific Selection Across the Genotype-Phenotype-Fitness Map. Department of Biology Seminar, Emory University, GA. 17 September.
- 2020 Connecting Sex-Specific Selection and Sexual Conflict Across the Lifecycle. Division of Biological Sciences Seminar, University of Missouri, MO. 3 March.
- 2019 Partitioning Reproductive Success: Empirical Tests in a Nematode Model System. *as part of* “SteveFest: A Celebration of Steve Arnold’s Career and Contributions”. Oregon State University, OR. 27 July.

Contributed Presentations

- 2024 Post-Insemination Sexual Selection in Males Indirectly Masculinizes the Female Transcriptome. Worm Evolution. Vienna, Austria.
- 2024 Post-Insemination Sexual Selection in Males Indirectly Masculinizes the Female Transcriptome. The Allied Genetics Conference. National Harbor, Maryland.
- 2023 No evidence of sexual conflict for a novel sperm-derived seminal fluid protein in *Caenorhabditis* nematodes. Evolution. Albuquerque, New Mexico.
- 2022 Deconstructing male fertility: Quantifying fitness and function of the NSPF gene family during *Caenorhabditis* fertilization. EvoWorm Meeting. Hamilton, Ontario.
- 2021 Post-Insemination Selection Dominates Pre-Insemination Selection in Driving Rapid Evolution of Male Competitive Ability. Society for Molecular Biology and Evolution. Virtual Meeting.
- 2019 Limits to Detecting Genomic Divergence Between the Sexes: Theory and Empirical Tests. Society for the Study of Evolution Joint Meetings. Providence, Rhode Island.

- 2018 Clarifying the population genetics and empirical predictions for sex-specific genomic differentiation under antagonistic selection. II Joint Congress on Evolutionary Biology. Montpellier, France.
- 2017 Molecular Evolution of the *Caenorhabditis* Nematode Sperm Proteome. Society for the Study of Evolution Joint Meetings. Portland, Oregon.
- 2016 Hyper-Conservation of a Unique Sperm Protein Across *Caenorhabditis* Nematodes. American Genetics Association Special Symposium: Evolutionary Genomics of Sex. Tempe, Arizona.

Posters

- 2021 Deconstructing Male Fertility: Functional and Evolutionary Characterization of the NSPF Gene Family. International *C. elegans* Conference. Virtual Meeting.
- 2021 The Role of Sex-Specific Selection in Maintaining Genetic Diversity and Contributing to Adaptation. Commonwealth Science Conference. Virtual Meeting.
- 2020 Partitioning Reproductive Success: Experimental Evolution of Male Fertility. The Allied Genetics Conference. Virtual Meeting.
- 2018 Novel Proteomic Analysis and Molecular Evolution of *Caenorhabditis* Subcellular Sperm Proteins. Evolutionary Biology of *Caenorhabditis* and Other Nematodes. Hinxton, Cambridge.
- 2016 Evolutionary Analysis of the *Caenorhabditis* Nematode Sperm Proteome through Microfluidic Isolation. Society for the Study of Evolution Joint Meetings. Austin, Texas.
Microfluidic Isolation and Evolutionary Analysis of the Nematode Sperm Proteome. Evolutionary Biology of *Caenorhabditis* and Other Nematodes. Cold Spring Harbor Laboratory, New York.

MENTORSHIP

- 2024 – Andrew Grieve. Graduate Student. University of Virginia.
- 2024 – Lynsey Blevins. Technician. University of Virginia.
- 2024 – Maham Malik. Undergraduate research assistant. University of Virginia.
- 2024 – Joanne Yang. Undergraduate research assistant. University of Virginia.
- 2021 – 2023 Christine Rehaluk. Technician. University of Toronto.
- 2018 – 2019 Ruben Lancaster. Undergraduate Honor’s Thesis student. University of Oregon.
- 2018 – 2019 Alex Smith. Undergraduate research assistant. University of Oregon.
- 2016 – 2017 Flora Borne. Master’s exchange student. Ecolé Normale Supérieure Paris-Saclay, Cachan, France.
- 2016 (Summer) Janice Hodges. Summer Program for Undergraduate Research (SPUR). University of Mississippi.
- 2015 – 2016 John Johnson. Undergraduate research assistant. University of Oregon.

TEACHING EXPERIENCE

- 2022 (Fall) UofT Department of Ecology and Evolutionary Biology, Faculty of Arts and Sciences

Co-instructor: Philosophy and Methods (EEB 1310; graduate course)

2014 – 2015 UO Biology Department, College of Arts and Sciences
Course assistant: General Biology III: Populations (BI 213) lab sections;
General Biology I: Cells (BI 211) lab sections; Honors Biology III:
Evolution, Diversity, and Ecology (BI 283H) lab sections

EQUITY, DIVERSITY, AND INCLUSION SERVICE

2022 – 2023 Co-Chair, Postdoctoral EEB Leadership. Department of Ecology and Evolutionary Biology, University of Toronto.

2021 – 2023 Postdoctoral Representative, Cultures of Care Network, Faculty of Arts & Sciences, University of Toronto.

2020 – 2021 Sub-Committee Chair, EEB Allyship Network. Department of Ecology and Evolutionary Biology, University of Toronto.

2019 – 2022 Postdoctoral Representative, Wellness Committee. Department of Ecology and Evolutionary Biology, University of Toronto.

DEPARTMENT SERVICE

2024 Graduate Admissions Committee. University of Virginia

PROFESSIONAL SERVICE

I have served as a reviewer for *American Naturalist*, *Cells*, *Evolution*, *Evolution Letters*, *Genetics*, *Human Molecular Genetics*, *micropublication*, *Molecular Ecology*, and *Proceedings of the Royal Society B*.

I have served as an external grant reviewer for NSF.

ACTIVE PROFESSIONAL MEMBERSHIPS

Genetics Society of America (GSA); Society for the Study of Evolution (SSE)

PUBLIC OUTREACH

2024 Skype a Scientist. 9th Grade Biology, West Windsor-Plainsboro Regional School District, West Windsor, NJ. 15 & 16 April.

2023 Skype a Scientist. Honors Biology and Academic Biology Classes, South Iredell High School, Statesville, NC. 25 May.

2023 Skype a Scientist. 4th Grade Class, Dwight School, New York City, NY. 4 October.

2022 Skype a Scientist. Honors Biology and Academic Biology Classes, South Iredell High School, Statesville, NC. 20 May.

2022 Skype a Scientist. National Science Honor Society, South Iredell High School, Statesville, NC. 18 February.

2021 Skype a Scientist. Honors Biology, Notre Dame Academy, Duluth, GA. 23 & 26 April.

2020 Skype a Scientist. 11th Grade Class, Templeton Academy, Washington, DC. 30 October.

- 2020 Skype a Scientist. 6th Grade Class, Molly Ockett School, Fryeburg, ME. 30 March.
- 2019 Invited Speaker “Partitioning Reproductive Success: Empirical Tests in a Nematode Model System”. Eugene Chapter of 500 Women Scientists.
- 2019 Co-Coordinator of the Public Seminar Series: “Science, Policy, Society”. Graduate Evolutionary Biology and Ecology Student Association (GrEBES). University of Oregon.
- 2018 Keynote Panelist. ARCS Oregon Chapter Scholar Luncheon.
- 2018 Lead Coordinator of the Public Seminar: “40 Years of Evolution of Darwin’s Finches in the Galapagos” featuring Drs. Peter and Rosemary Grant. GrEBES. University of Oregon.
- 2017 Lead Coordinator of the Public Symposium: “Harnessing Ecology: Biofuels and Bioremediation”. GrEBES. University of Oregon.
- 2016 Lead Coordinator of the Public Seminar Series: “De-Extinction” featuring Dr. Jack Horner and Dr. Hank Greely. GrEBES. University of Oregon.
- 2016 Invited Speaker: “Evolution of Reproductive Proteins in the Context of Sexual Selection”. ARCS Oregon Chapter Educational Seminar.