Stefanie Siller Wilks

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EDUCATION

2016 - 2022	Columbia University, New York NY
	PhD in Ecology, Evolution and Environmental Biology
	Advisor: Dustin Rubenstein
	PhD Conferral Date: October 19, 2022
2014 - 2015	Columbia University, New York NY
	Post-baccalaureate: Ecology, Evolution and Environmental Biology
2009 - 2013	Princeton University, Princeton NJ
	Bachelors of Arts in Anthropology (High Honors)
	Certificates: African Studies, Dance

PUBLICATIONS

Young, R.C., D.F. Westneat, J. Vangorder-Braid, A. Sirman, **S.J. Siller**, J. Kittilson, A. Ghimire, and B.J. Heidinger. 2022. Stressors interact across generations to influence offspring telomeres and survival. Proc. R. Soc. B.2892022086820220868

Pearson, R.G. and **S.J. Siller**. 2021. Observed Impacts of Climate Change on Biodiversity. Synthesis. Network of Conservation Educators and Practitioners, Center for Biodiversity and Conservation, American Museum of Natural History, New York, NY. Available from <u>https://ncep.amnh.org</u>.

Galante, P.J., K. Hade, **S.J. Siller**, N. Gazit, and S.K. Macey. 2020. Modeling suitable habitat for a species of conservation concern: an introduction to spatial analysis with QGIS. Lessons in Conservation 10(1):96–119. Available from <u>ncep.amnh.org/linc</u>.

Clark, J.A., **S.J. Siller**, and S.K. Macey. 2020. Bats in the city? An exploration of acoustic monitoring of bats. Lessons in Conservation 10(1):66–95. Available from <u>ncep.amnh.org/linc</u>.

Siller, S.J., and D.R. Rubenstein. 2019. A tissue comparison of DNA methylation of the glucocorticoid receptor gene (Nr3c1) in European starlings. Integrative and Comparative Biology 15(2): 264-272.

Bravo A, AL Porzecanski, JA Cigliano, **S Siller**, and E Betley. 2018. Applying critical thinking to an invasive species problem. Lessons in Conservation 8:52–65.

Gaynor KM, JW Solomon, **S Siller**, L Jessel, JE Duffy, and DR Rubenstein. 2017. Development of genomeand transcriptome-derived microsatellites in related species of snapping shrimps with highly duplicated genomes. Molecular Ecology Resource 6: e160-e173.

TEACHING EXPERIENCE

2022 – present	Columbia Science Fellow, Columbia University – Lecturer
_	I teach two weekly seminars in Frontiers of Science, a required undergraduate course in
	Columbia's Core Curriculum. The course integrates modern scientific discovery with
	scientific habits of mind to promote critical thinking and scientific understanding in students.

I collaborate closely with a team of instructors to develop innovative active learning lessons and pedagogical techniques for inclusive teaching in the sciences.

- Spring 2022 Introduction to Behavioral Endocrinology, Columbia University Instructor I personally developed and taught this new seminar-style course for biology and E3B majors. The course focused on building student capacity in critical analysis and scientific writing through the subject of hormones and behavior, enabling students to conduct a scientific literature review on a topic in the field. Weekly activities, discussion groups, and opportunities for peer review promoted student communication and collaboration as they practiced and honed reading, writing, and analytical abilities.
- Summer 2021; SUMA K5140 Sustainability Science, Columbia University Faculty Support Assistant
- Spring 2021 I led group sessions and individual student workshops to guide understanding of ecology and evolution basics critical for considering complex sustainability concepts. In addition to writing and grading exams, I also mentored students on academic writing standards for their final papers.
- Spring 2019EEEB3019 Principles of Animal Behavior, Columbia University TAIn this 10-person seminar, I taught one of the lectures, led weekly scientific paper discussion
groups, provided feedback and grades on weekly reflection papers, wrote and graded
midterm exams, and mentored students in development of final literature review papers.
- Fall 2018EEEB2001 Environmental Biology I, Columbia University TA
I taught a lecture on the endocrine system, co-led weekly recitation groups on topics ranging
from cellular biology to ecosystem functioning, and contributed to and graded exams in this
mid-sized introductory course.
- Spring 2017 **EEEB2002 Environmental Biology II, Columbia University TA, Lab Instructor** I facilitated weekly labs for 14 students, and graded and provided feedback on lab reports and rewrites. We covered topics in systematics, dispersal and range changes under climate change, plant respiration, and forest ecosystems.
- Summer 2012 Northern Kenya Conservation Clubs Teacher I designed and implemented lessons plans, experiments and activities at 7 primary schools; assisted in coordinating and organizing Community Conservation Day for over 300 attendees; launched a computer course at Mpala Primary School for 15 students, grades 4-5.

TEACHING DEVELOPMENT

2022 - present Inclusivity in STEM Discussion Forum

In collaboration with fellow Frontiers of Science instructors at Columbia University, I colead a bi-weekly series of discussions with undergraduate students on inclusivity in STEM courses. The tactical goal is to identify actionable steps for integrating anti-racist and inclusive pedagogical practices into the science classroom. The groups is funded by Columbia's Equity and Diversity Activities Grant.

2020 – 2022 **E3B Graduate Student Working Group: Rethinking the Fundamentals** In order to decolonize and dismantle the racist ideological underpinnings of our field, I spearheaded a monitoring and evaluation project to collect student feedback on changes made to our department's curriculum after the first two semesters. The broader group worked with our department's DEI (Diversity, Equity, and Inclusion) Committee to revise the curriculum in order to reflect and incorporate contributions of BIPOC scholars and scientists, provide proper context for our current tools, concepts, and literature, and build ethical scientific practice.

- 2020 2022 Animal Behavior, 12th edition Contributor For the 12th edition of this textbook, I wrote tailored learning objectives for each chapter and section that describe the skills and behaviors students will gain from the book. In addition, I developed student self-assessment questions and multiple choice and shortanswer questions for each chapter that gauge student understanding at a variety of Bloom's Taxonomic levels.
- 2019 2022 Teaching Development Program: Advanced Track, Columbia Center for Teaching and Learning

I worked with a community of peers to cultivate my teaching practices through a series of pedagogical training workshops on active and inclusive teaching, teaching observations, and completion of a capstone project.

2017 – 2022 Network of Conservation Educators and Practitioners (NCEP), Center for Biodiversity and Conservation, American Museum of Natural History I managed, researched, and wrote conservation teaching materials for the NCEP module database and the journal *Lessons in Conservation* to provide relevant and updated resources for educators; investigated and curated open access resources to enhance equitable engagement; and built capacity for conservation educators by facilitating studios and community exchanges on active and evidence-based teaching for conservation.

- Summer 2021 NCEP Studio: Learning and Creating Collaboratively Facilitator In this 4-week online workshop, I worked with the NCEP team to promote opportunities for professional development of post-secondary educators by bringing together teams of instructors to exchange teaching strategies, train in evidence-based pedagogical approaches, and practice new techniques.
- 2020 2021 **Teaching Assessment Fellow, Columbia University** I worked with a team of educators to create and evaluate surveys for a graduate Conservation Biology course to assess student learning and effectiveness of course activities in building conservation capacity and knowledge.
- 2019 2020 Lead Teaching Fellow, Columbia University I promoted development of graduate student pedagogical practices by organizing and leading workshops on scientific mentorship and Universal Design for Learning; facilitated teaching development opportunities for students; acted as a liaison between the department and Center for Teaching and Learning.

Summer 2020 NCEP Studio: Re-tooling your Classroom: Active and Evidence-based Teaching for Conservation Educators – Participant & Facilitator In this 4-week online workshop, I worked with peer educators to unpack significant learning principles, learned to use effective online tools and approaches, and practiced applying various active learning techniques.

Summer 2020 NCEP Community Exchange – Participant & Facilitator In this 4-week online exchange, I worked with the NCEP team to share challenges and solutions to online active learning, rethink traditional education and scientific methods, and discuss methods for engaging students from diverse backgrounds.

Fall 2019Course Design Seminar, Columbia Center for Teaching and Learning
In this 4-week course, I explored evidence-based, inclusive instructional design practices to
create a learner-centered syllabus for a course on Behavioral Endocrinology.

Summer 2018 NCEP Studio: Implementing Active Teaching and Learning in the Classroom – Participant I participated in a 3-day workshop on developing and using evidence-based teaching

strategies and techniques, translating passive teaching styles into active, and integrating active teaching into the classroom.

GRANTS & FELLOWSHIPS

- 2021 GSAS Teaching Scholar, Columbia University
- 2020 Teaching Assessment Fellowship, Columbia University Center for Teaching and Learning (\$2000)
- 2019 Lead Teaching Fellowship, Columbia University Center for Teaching and Learning (\$2000)
- 2019 Small Grants Program for Local and Regional Outreach Promoting the Understanding of Evolutionary Biology, Society for the Study of Evolution (with S. Shah) (\$500)
- 2019 ABS Outreach Grant, Animal Behavior Society (with S. Shah) (\$895)
- 2018 Van Tyne Award, American Ornithological Society (\$2500)
- 2016 Columbia University E3B Pre-Dissertation Research Grant (\$3000)
- 2016 NSF Graduate Research Fellowship Program, DGE-16-44869
- 2016 Columbia University Dean's Fellowship

PRESENTATIONS & POSTERS

Siller SJ, Rubenstein DR. A tissue comparison of DNA methylation of the glucocorticoid receptor gene (Nr3c1) in European starlings, American Ornithological Society, Anchorage AK, Jun 26-28 2019.

Siller SJ, Rubenstein DR. Methylation in the GR Promoter in the Brain and Blood of the European starling, International Ornithological Congress, Vancouver CA, Aug 19-26 2018.

Jaguar Conservation in the Paraguayan Gran Chaco. ZACC, Jacksonville FL. Jan 24, 2018.

Project Neofelis: a New Flagship Species. ZACC, Jacksonville, FL. Jan 24, 2018.

Siller SJ. Kuhifadhi Mazingira: Cultivating Conservation Knowledge in Rural Kenyan Schools, Clubs, and Communities. SCCS-NY, American Museum of Natural History, New York NY. Oct. 11-13, 2017.

Siller SJ. NYC pretzels versus birdseed: Social environment influences food preference in feral NYC pigeons. Barnard Summer Research Institute, Barnard College, New York NY. Jan. 30, 2015.

FIELD SKILLS & EXPERIENCE

Skills: Wildlife trapping (mist-nets, ground traps and trapping in nest boxes); banding and measuring birds; behavioral observations; wildlife transect surveys; biological sampling (blood, fecal, sperm); tissue dissection.

Spring 2019PhD Research – Heidinger Lab, NDSU, Fargo ND
Conducted field work on house sparrows as part of a project assessing impacts of parental
and post-natal stress on offspring growth, development, stress response, DNA methylation,
and telomere length.

2016 – 2017 PhD Research – Hudson Highlands, Cornwall NY Set up field site of 100 nest boxes as pilot study to assess pre- and post-natal effects of stress on European starling offspring; trapped and sampled starlings as part of a project to determine the use of blood as a non-lethal biomarker for DNA methylation in the brain.

- 2014 2015 **Research Scientist Calisi Lab, Barnard College, New York NY** Ran behavioral study on impact of social environment on pigeon foraging strategies in an urban environment; developed scan sampling survey to evaluate pigeon densities.
- 2013 2014 **Princeton in Africa Fellow Mpala Research Centre, Laikipia Kenya** Conducted field work to assess breeding and nest behavior of Von der Decken's hornbills; conducted three wildlife transect surveys.

LAB SKILLS & EXPERIENCE

Skills: RNA and DNA tissue and blood extraction; bisulfite conversion; enzymatic methyl-seq hybridization; pyrosequencing; cryostat tissue dissection; PCR; cresyl violet staining; analytics using Geneious and R.

- 2016 2022 **PhD Research Rubenstein Lab, Columbia University, New York NY** Assessed expression and DNA methylation patterns in blood, brain (hippocampus and hypothalamus), and liver using pyrosequencing and methyl-seq probe hybridization techniques to determine impacts of developmental stress on the methylome.
- 2015 2016 Research Scientist Rubenstein Lab, Columbia University, New York NY Used pyrosequencing to assess DNA methylation in Nr3C1 promoter in superb starlings to assess adaptive mechanisms to unpredictable environmental conditions; developed genome- and transcriptome-derived microsatellites for Synalpheus shrimp.

WORK EXPERIENCE

2017 – 2018 Society for the Preservation of Endangered Carnivores and their International Ecological Study (S.P.E.C.I.E.S.) – Program Director Developed annual reporting system and coordinated updates from global teams to evaluate

Developed annual reporting system and coordinated updates from global teams to evaluate progress, identify challenges, and unify project goals; connected and maintained relationships with partners and fundraising collaborators to create new project opportunities; hired and managed intern team to garner expertise and support on social media, fundraising, and networking initiatives; expanded reach and impact by creating and editing monthly newsletter *Carnivore Connection* and managing the website (WordPress); represented and presented for S.P.E.C.I.E.S. at national conferences.

2013 – 2014 Mpala Research Centre, Laikipia Kenya – Princeton in Africa Fellow Outreach Coordinator

Organized talks to facilitate information sharing between researchers and the community; assisted in production, writing, and photo editing for the Annenberg-funded Mpala Live! Program; coordinated and evaluated after-school conservation and wildlife education programs at 11 rural public Kenyan schools; implemented "Mpala Girls Empowerment

Project" including lecture series, shadowing opportunities and graduate internships to provide mentorship and conservation education for young women.

Assistant to Director

Maintained relationships with researchers and donors by editing the monthly *Mpala Memos* newsletter, managing the Adopt-an-Elephant Program, and composing donation reports on Salesforce.

MENTORSHIP & OUTREACH

Spring 2020	Mentoring in the Sciences: Tools, Tips, and Techniques for Being an Effective
	Mentor
	Developed resource for graduate students to develop and enhance their mentoring skills for current and future practice.
Fall 2019	Connect, Share, Learn: Enhancing the E3B TA Experience
	Organized and led workshop for peers in the department to share TA experiences with incoming TAs and learn to implement Universal Design for Learning techniques in their teaching.
April 2017	Hudson Highlands Nature Museum: Earth Day
	Ran a booth on bird conservation and recycling, engaging young children in the importance of environmental work.
2017	Mentored undergraduate Arden Berlinger in learning lab techniques, protocols, and analysis, including PCR and pyrosequencing, preparing her for a symposium presentation.

ART for OUTREACH

In development A Superb Story: The Evolution of Cooperative Breeding in Superb Starlings

This children's book, co-written and co-illustrated by S. Shah and funded by the Animal Behavior Society and Society for the Study of Evolution, tells the story of the evolution of cooperative breeding in Superb starlings. It is accompanied by a game, and is part of the Northern Kenya Conservation Club (NKCC) curriculum. Also available in Kiswahili.

2017 **A Climate Change Tale** This story presents the impacts of climate change on biodiversity, including changing communities, phenological mismatches, and impacts on migrating species. It has been used in 2 primary schools in New York, NY and Stamford, CT.