

Carol S. Henger

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Work Experience

Genomics Professor, Northeast STEM Starter Academy (NSSA), Summer 2022

Taught Genomics to classes of 6th-9th graders. The course material included concepts such as: DNA structure, Transcription and Translation, DNA forensics, Genetic Diseases, DNA sequencing, and Gene Editing. The mission of NSSA is to provide additional STEM education to Mount Vernon's public-school students to increase graduation rates and expose them to a variety of careers in the sciences.

Molecular Pathology Post-Doctoral Fellow, Wildlife Conservation Society, 2020-2022

Developed a molecular protocol to detect big cats in the wildlife trade using multiplex qPCR. The protocol will contribute to big cat conservation by creating an investigative on-the-spot pre-screening tool to identify big cat species from bone and other products confiscated from the wildlife trade. Created a portable qPCR test kit to detect the critically endangered saola from fecal and other environmental samples collected in the field. This test will help us learn important information about the saola population size and distribution.

Teaching Assistant, Fordham University, 2014-2020

Taught lab courses for undergraduate students in the fields of Anatomy and Introductory Biology. Each laboratory session included a presentation about the current topic followed by a laboratory activity.

Business Owner, Urban Animal Petcare Company, 2014-2019

Hired and managed 8-10 employees at a time. Invoiced clients and managed payroll. Maintained meticulous schedules and kept in constant communication with clients and employees. Utilized social media to promote the business.

Zookeeper and Trainer, Bronx Zoo and Palm Beach Zoo, 2003-2014

Used positive reinforcement to train apes, tapirs, monkeys, and otters for husbandry procedures, such as being weighed, getting blood drawn, and going into a carrier. Cleaned and disinfected enclosures and prepared diets. Educated visitors about animal ecology and conservation.

Animal Curator, Lutz Children's Museum, 2002-2003

Managed the Museum's animal collection, which housed domestic animals used for outreach programs. Performed outreach programs, incorporating the animals into an educational talk for children.

Mentorship

Project TRUE (*Teens Researching Urban Ecology*) Site Leader June-August 2016-2017

Supervised five teams of Fordham undergraduates and their teenage mentees each summer and assisted them with creating and implementing ecological research projects. At the end of the summer, each group presented their research at Fordham University and the Bronx Science Consortium. Project TRUE is a member of the NYC Science Research Mentoring Consortium.

Poster Presentations from Project TRUE:

Adelona I, Lawrence C, Wong C, Haight C, Mleczko L, Henger C. 2016. The relationship between vegetative coverage and erosion levels in NYC wetlands.

Baig M, Herrera S, Vasquez J, Resoso C, Henger C, Mleczko L. 2016. Vertebrate richness in NYC Wetlands.

Casper E, Castromonte R, Lloyd T, Yates S, Zhou, T, Henger C, Mleczko L. 2016. Assessing invertebrate abundance in NYC wetlands.

El Farissy IC, Fariah J, Subryan A, White J, Ward N, Davis S, Henger C. 2017. Economic inequality and pond ecosystem health.

Hargous E, Baker D, Nathaniel J, Robles K, Mleczko L, Henger, C. 2016. Studying stem density, animal activity, road proximity, and invasive plants in NYC forests.

*Emily Hargous presented her team's poster at the International Urban Wildlife Conference, San Diego, 2017.

Jaquenoud C, Montan R, Mora E, Perez F, Scordia Y, Henger C, Davis S. 2017. Environmental and special factors affecting species richness and composition in urban ponds.

Loftus S, Anderson K, Guerrero C, Manon C, Davis S, Henger C. 2017. Surveying lichen species richness in urban greenspaces.

Martinez G, Kastner L, Pineda A, Chan J, Bhowal N, Mleczko L, Henger C. 2016. The effect of Proximal urbanization and tree species richness on animal activity.

Rutishauser N, McDonald E, Saravo A, Trocco I, Davis S, Henger C. 2017. Red-eared slider vs. Eastern painted turtle abundance in Brooklyn ponds.

Steward N, Outar A, Innocent L, Shaek S, Davis S, Henger C. 2017. Where the wild things are:
A comparative study of species richness between Green-wood cemetery and Prospect Park.

Research Mentor 2016-2019

Taught three Fordham undergraduates and two master's students study design, laboratory techniques, and data analysis.

Science Communication of Mentees:

Emily Hargous. *Student Studies the City's Coyotes, DNA*.

<https://thefordhamram.com/61192/news/research/>. Fordham Ram newspaper. March 2018. Julia Rist.

Emily Casper. *Feast or famine: assessing urban stopover resources for*

shorebirds in Jamaica Bay, NY. Poster for the Student Conference on Conservation Science.

American Museum of Natural History. October 2019.

Calder Summer Undergraduate Research (CSUR) Mentor June-August 2015

Guided an undergraduate student, Giselle Herrera, through a molecular ecology project. Taught how to incorporate laboratory techniques and data analysis to test specific hypotheses. She is coauthor on a published manuscript about coyote genetic diversity and relatedness.

Education

Fordham University Bronx, NY

Ph.D, Biological Sciences, GPA 3.83 May 2020

Hunter College, City University of New York New York, NY

M.A., Animal Behavior and Conservation Dec 2010

Texas Christian University Fort Worth, TX

B.S., Environmental Science, Spanish Minor May 2002

Grants and Awards

Freedman Fellowship — \$34,000 2018-2019

Freedman Professional Development — \$5,000 2018-2019

Clare Boothe Luce Fellowship — \$61,000	2016-2018
Clare Boothe Luce Professional Development — \$10,000	2016-2018
Louis Calder Center Graduate Student Research Grants — \$5,000	2015-2018
Fordham Graduate Student Support Grant — \$1,000	2016
Animal Welfare Institute Grant — \$1,000	2016

Publications

Henger CS, Hargous E, Nagy CM, Weckel M, Wultsch C, Krampis K, Duncan N, Gormezano L, Munshi-South J. 2022. DNA metabarcoding reveals that coyotes in New York City consume wide variety of native prey species and human food. *PeerJ: DOI 10.7717/peerj.13788*

Plimpton LD, **Henger CS**, Munshi-South J, Tufts D, Kross S, Diuk-Wasser M. 2021. Use of molecular scatology to assess the diet of feral cats living in urban colonies. *Journal of Urban Ecology* 7: 1-12.

Duncan N, Asher O, Weckel M, Nagy C, **Henger C**, Yau F, and Gormezano L. 2020. Baseline diet of an urban carnivore on an expanding range front. *Journal of Urban Ecology* 6: 1-6.

Henger CS, Herrera GA, Nagy CM, Weckel ME, Gormezano LJ, Wultsch C, Munshi-South J. 2019. Genetic diversity and relatedness of a recently established population of eastern coyotes (*Canis latrans*) in New York City. *Urban Ecosystems* 23: 319 -330.

Manzollillo BR, **Henger CS**, Graham T, Hall N, Toomey AH. 2019. Are coyotes “natural”? Differences in perceptions of coyotes among urban and suburban park users. *Cities and the Environment (CATE)* 12: 1-18.

DeCandia, AL, **Henger CS**, Krause A, Gormezano LJ, Weckel M, Nagy C, Munshi-South J, vonHoldt BM. 2019. Genetics of urban colonization: neutral and adaptive variation in coyotes (*Canis latrans*) inhabiting the New York metropolitan area. *Urban Ecology* 5: 1-12.

Yasukawa K, Lindsey-Robbins J, **Henger CS**, Hauber ME. 2016. Antiparasitic behaviors of Red-winged Blackbirds in response to simulated Brown-headed Cowbirds: Further tests of the frontloaded parasite-defense hypothesis. *Wilson Journal of Ornithology* 128: 475-690.

Henger CS, Hauber ME. 2014. Variation in antiparasitic behaviors of Red-winged Blackbirds in response to simulated Brown-headed Cowbirds. *Wilson Journal of Ornithology* 126: 488-499.

Henger CS, Wallace SB, Hauber ME. 2012. Comparison of two field data collection methods in recording avian behavior. *The Kingbird* 62: 197-288.

Conference Participation

Session Organization

Northeast Natural History Conference April 2019

Session Organizer and Moderator: *Northeastern Coyote: Genetics, Ecology, and Perceptions*

Oral Presentations:

“Are coyotes “Natural”? Perceptions of coyotes in New York City”. Tatiana Graham and Dr. Anne Toomey, Pace University

“Genetics of urban colonization: Neutral and adaptive variation in coyotes inhabiting the New York metropolitan area”. Dr. Alexandria DeCandia, Princeton University

“High genomic diversity and candidate genes under selection associated with range expansion in eastern coyote (*Canis latrans*) populations”. Dr. Elizabeth Heppenheimer, Princeton University

“N of 1: Spatial ecology of an eastern coyote along the east Bronx waterfront.” Dr. Mark Weckel, American Museum of Natural History

American Society of Mammalogists Meeting July 2019

Symposium Co-organizer and Moderator: *Ecology, Evolution, and the Behavior of Urban Mammals*

Oral Presentations:

“Landscape genetics across multiple cities reveals influence of the built environment on commensal brown rats”. Dr. Matthew Combs, Fordham University

“Integrating research and behaviour change strategies to conserve urban mammals in La Paz, Bolivia”. Mariana Da Silva Loayza, Wildlife Conservation Society, Bolivia

“Microhabitat selection and behavior of field mice along an urban gradient”. Dr. Danielle Lee, Southern Illinois University Edwardsville

“Studies at a large urban population of Mexican free-tailed bats (*Tadarida brasiliensis*) in downtown Houston”. Timothy McSweeney, Houston Museum of Natural Science

“Making movement personal: Inferring personality traits from GPS tracking data of urban coyotes”. Dr Christopher Schell, University of Washington, Tacoma

“Effects of urbanization on the ecophysiology of raccoons”. Dr. Albrecht Schulte-Hostedde, Laurentian University

Oral Presentations

International Congress for Conservation Biology (ICCB)

A New DNA Tool Kit for Monitoring Big Cat Species in the Wildlife Trade December 2021

American Society of Mammalogists Meeting

Molecular Diet Analysis of New York City Coyotes June 2018

Molecular Ecology of Coyotes in New York City June 2016

Northeast Natural History Conference April 2016

Population Genetics of Coyotes in New York City

Hunter College N.E.U.R.O.N. Conference April 2011

Measuring Antiparasitic Behaviors in the Red-winged Blackbird

Poster Presentation

International Urban Wildlife Conference June 2017

Molecular Ecology of Coyotes in New York City

Invited Talks and Panels

The Metropolitan Society of Natural Historians: *Molecular Ecology of NYC Coyotes* June 2020

WCS Career Webinar Series: *Molecular Ecology of NYC Coyotes* July 2020

American Museum of Natural History Panel: *Urban Coyotes* December 2019

Biology on Tap: *Molecular Diet Analysis of NYC Coyotes* June 2019

Bedford Audubon Society: <i>Urban/Suburban Coyotes</i>	May 2018
Queens Zoo: <i>Relatedness and Diet of NYC Coyotes</i>	November 2018
Wave Hill Hoot and Howl Event: <i>Ecology of NYC Coyotes</i>	February 2017
Brooklyn Historical Society Panel: <i>Wild New York</i>	September 2016

Volunteer Experience

Cheetah Conservation Fund, Namibia, 2012

International Exotic Feline Sanctuary, 2001-2002

Earthwatch, 2000, 2003

Sanccob Penguin Rescue, Vervet Monkey Foundation, Cheetah Outreach, South Africa 2003

Memberships

American Society of Mammalogists, Sigma Xi, Society for the Study of Evolution, Biology Graduate Student Association, Fordham University, American Museum of Natural History

Skills

R, MaxEnt, Raven, Geneious, Microsoft Office Suite, Zoom, Google Suite, ArcGis, Qgis, Photoshop, Illustrator, Circuitscape, STRUCTURE, Quickbooks, HTML, CSS, Python, Linux command line, DNA extraction and PCR, metabarcoding, public speaking, grant writing, teaching, mentoring

Languages

Fluent in English, conversational in Spanish and American Sign Language

Study Abroad, Spring 2000

Studied at the Universidad de las Americas (UDLA) in Puebla, Mexico for the Spring 2000 semester. Immersed in the Mexican culture, lived in the dormitory with students from Mexico and took classes in Spanish.

Science Communication

The Riverdale Press. *Coyote attack has neighbors worried*. Sachi McClendon. October 28, 2022.
<https://www.riverdalepress.com/stories/coyote-attack-has-neighbors-worried,85084>.

The New York Times: *Coyotes came to New York City, but not for our pizza.*

<https://www.nytimes.com/2022/10/03/science/coyotes-new-york-diets.html>. Bethany Brookshire. October 3, 2022.

The Guardian: *Scientists step up hunt for 'Asian unicorn', one of world's rarest animals.*

<https://www.theguardian.com/environment/2022/jan/07/scientists-step-up-hunt-for-asian-unicorn-one-of-worlds-rarest-animals-aoe>. Veronika Perková. January 2022.

Connecticut Public Radio: *How the tenacious coyote conquered North America.*

<https://www.ctpublic.org/environment/2020-12-11/how-the-tenacious-coyote-conquered-north-america>. Lucy Nalpathanchil, Carmen Baskauf. December 2020.

Gothamist: *Prospect Park Alliance Says This is Their First-Ever Recorded Skunk.*

<https://gothamist.com/arts-entertainment/photos-prospect-park-alliance-says-their-first-ever-recorded-skunk>. Emily Suzanne Lever. October 2019.

WNYC Interview: *Urban Skunks*. Shannon Lin. October 2019.

Catapult: *An Icon of the American Wilderness is Alive in the Bronx*. <https://catapult.co/stories/an-icon-of-the-american-wilderness-is-alive-in-the-bronx>. Lenora Todaro. February 2019.

AM New York: *Gotham Coyote Project tracking coyotes across NYC, studying behavior.*

<https://www.amny.com/news/coyotes-new-york-bronx-1.19712404>. Lisa Colangelo. July 2018.

CUNY TV, Science and U Interview: *Urban Coyotes*. <http://www.cuny.tv/show/scienceand/PR2006873>. Carol Anne Riddell. January 2018

Village voice: *How Coyote Conquered New York.*

<https://www.villagevoice.com/2016/10/12/how-coyotes-conquered-new-york/>.

Jon Campbell. October 2016

Mental floss: *How Scientists are Using Poop to Study New York City's Coyote Population.*

<http://mentalfloss.com/article/88744/how-scientists-are-using-poop-study-new-york-citys-coyote-population>. Erin McCarthy. November 2016