

# Lauren Petrullo, Ph.D.

Department of Biology | University of North Carolina at Chapel Hill  
120 South Road, Chapel Hill, NC 27599 (USA)  
email: petrullo@unc.edu | www.petrullolab.com

## EDUCATION

2015—2020 Ph.D., Anthropological Sciences, Stony Brook University  
2013—2015 M.A., Biological Anthropology, New York University  
2008—2012 B.A., Biological Anthropology, New York University

## PROFESSIONAL EXPERIENCE

2026— Assistant Professor, Dept. of Biology, University of North Carolina at Chapel Hill  
2023—2026 Assistant Professor, Dept. of Ecology & Evolutionary Biology, University of Arizona  
2020—2023 Postdoctoral Research Fellow, Department of Psychology, University of Michigan

## HONORS

2020 National Science Foundation Postdoctoral Research Fellowship in Biology, *Integrative Research Investigating the Rules of Life Governing Interactions Between Genomes, Environment, and Phenotypes* (\$207,000)  
2019 Best Podium Talk (*runner up*), Northeastern Evolutionary Primatologists  
2018 Dr. W. Burghardt Turner Diversity Research Grant, Stony Brook University (\$4,400)  
2018 IDPAS Research Grant, Stony Brook University (\$497)  
2017 Dr. W. Burghardt Turner Diversity Research Grant, Stony Brook University (\$2,800)  
2017 AGEP-T FRAME Diversity Research Grant, Stony Brook University (\$3,500)  
2017 Dr. W. Burghardt Turner Diversity Research Grant, Stony Brook University (\$5,000)  
2016 Grants-In-Aid of Research, Sigma Xi (\$1,000)  
2016 Dr. W. Burghardt Turner Diversity Research Grant, Stony Brook University (\$3,500)  
2015 AGEP-T FRAME Diversity Fellowship, Stony Brook University  
2015 Dr. W. Burghardt Turner Diversity Doctoral Fellowship, Stony Brook University (\$50,000)

## PEER-REVIEWED PUBLICATIONS

\*corresponding author; †equal contributions; °trainee/mentee; selected media coverage bulleted

### Preprints

[25] °Schiro, G., °Placko, A.A., Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B., **Petrullo, L.** Maternal effects shape scale-dependent convergence in gut microbial responses to environmental change. preprint: <https://doi.org/10.64898/2026.07.02.736155>

### In revision

[24] \***Petrullo, L.**, Delaney, D.M., Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B. Developmental conditions shape lifetime reproductive strategies in a wild mammal. Resubmitted to **Science**.

### Published

[23] \***Petrullo, L.**, Albery, G., Raulo, A.R., Sweeny, A.R. Microbial contributions to host life history tradeoffs. **Trends in Ecology & Evolution**, *in press*.  
[22] \***Petrullo, L.**, Santangeli, A., Wistbacka, R., Husby, A., \*Raulo, A. 2025. Indirect environmental effects on the gut-brain axis in a wild mammal. **Molecular Ecology**, e70149.  
[21] \***Petrullo, L.**, °Morris, N.J., Tharin, C., Dantzer, B. 2025. Harbingers of change: towards a

mechanistic understanding of anticipatory plasticity in animal systems. **Functional Ecology** 00, 1–22.

- [20] \***Petrullo, L.**, Webber, Q., Raulo, A., Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B. 2025. Social microbial transmission in a solitary mammal. **Ecology Letters** 28, e70186.
  - “Learning from squirrels about microbial health”, **NPR/AZPM Science Fridays**
- [19] \*<sup>†</sup>**Petrullo, L.**, <sup>†</sup>Delaney, D., Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B. 2024. A future food boom rescues the negative effects of early-life adversity on adult lifespan in a small mammal. **Proceedings of the Royal Society B** 291, 20232681.
  - “Findings” column, **Harper’s Magazine**
  - “Studying the survival instincts of squirrels”, **NPR/AZPM Science Fridays**
  - “Early life adversity can mean shorter lives for Yukon’s red squirrels”, **CBC North**
- [18] Halhed, A., **Petrullo, L.**, Boutin, S., Dantzer, B., McAdam, A.G., Wu, M., Cottenie, K. 2023. Consistent spatial patterns in microbial taxa of red squirrel gut microbiomes. **Environmental Microbiology Reports** 16, e13209.
- [17] Sabol, A., Close, W.L., **Petrullo, L.**, Lambert, C.T., Keane, B., Solomon, N.G., Schloss, P.D., Dantzer, B. 2023. Sociality does not predict oral microbiome composition or diversity in free-living prairie voles. **Animal Behavior** 200, 167-182.
- [16] Spear, J.K., Grabowski, M., Sekhavati, Y., Costa, C.E., Goldstein, D.M., **Petrullo, L.**, Peterson, A.L., Lee, A.B., Shattuck, M.R., Gomez-Olivencia, A., Williams, S.A. 2023. Evolution of vertebral numbers in primates, with a focus on hominoids and the last common ancestor of hominins and panins. **Journal of Human Evolution** 179, 103359.
- [15] \***Petrullo, L.**, Boutin, S., Lane, J.E., McAdam, A.G., \*Dantzer, B. 2023. Phenotype-environment mismatch errors enhance lifetime fitness in wild red squirrels. **Science** 379, 269-272.
  - “Squirrels that gamble on reproduction often end up winning the bet”, **Michigan Minds**
  - “Squirrels gamble on spruce cone jackpot”, **St. Albert Gazette**
  - “Squirrels who gamble might have better fitness”, **labroots**
  - “Why red squirrel moms gamble on the trees”, **futurity**
- [14] Baniel, A., **Petrullo, L.**, Mercer, A., Reitsema, L., Sams, S., Beehner, J.C., Bergman, T.J., Snyder-Mackler, N., Lu, A. 2022. Maternal effects on early-life gut microbiome maturation in a wild nonhuman primate. **Current Biology** 32, 4508-4520.e6.
- [13] \***Petrullo, L.**, Delaney, D., Boutin, S., McAdam, A.G., Lane, J.E., Boonstra, R., Palme, R., Dantzer, B. 2022. The glucocorticoid response to environmental change is not specific to agents of natural selection in wild red squirrels. **Hormones and Behavior** 146, 105262.
- [12] Sen, S., Carrera, S.C., Heistermann, M., Potter, C.B., Baniel, A., DeLacey, P.M., **Petrullo, L.**, Lu, A., Beehner, J. 2022. Social correlates of androgen levels and dispersal age in juvenile male geladas. **Hormones and Behavior** 146, 105264.
- [11] \***Petrullo, L.**, Baniel, A., Jorgensen, M., Sams, S., Snyder-Mackler, N., Lu, A. 2022. Early life gut microbiome dynamics mediate maternal effects on infant growth in vervet monkeys. **iScience** 25, 103948.
- [10] \***Petrullo, L.**, Ren, T., Wu, M., Boonstra, R., Palme, R., Boutin, S., McAdam, A.G., \*Dantzer, B. 2022. Glucocorticoids coordinate changes in gut microbiome composition in wild North American red squirrels. **Scientific Reports** 12, 2605.
- [9] Baniel, A., Amato K.R., Beehner, J.C., Bergman, T.J., Mercer, A., Perlman, R., **Petrullo, L.**, Reitsema, L., Sams, S., Lu, A., Snyder-Mackler, N. 2021. Seasonal shifts in the gut microbiome indicate plastic responses to diet in wild geladas. **Microbiome** 9, 1-20.
- [8] \***Petrullo, L.**, Baniel, A., Sweeny A. R. 2021. Establishing a virtual network in mammalian microbiome research. **Evolutionary Anthropology** 30, 105-107.
- [7] \***Petrullo, L.**, Hinde, K., Lu, A. 2019. Steroid hormone concentrations in milk predict sex-

- specific offspring growth in a non-human primate. **American Journal of Human Biology**, e23315.
- [6] Lu, A., **Petrullo, L.**, Carrera, S., Feder, J., Schneider-Crease, I., Snyder-Mackler, N. 2019. Developmental responses to early life adversity: evolutionary and mechanistic perspectives. **Evolutionary Anthropology**, 28(5), 249-266.
- [5] Williams, S.A., Spear, J.K., **Petrullo, L.**, Goldstein, D.M., Lee, A.B., Peterson, A.L., Miano, D.A., Kaczmarek, E., Shattuck, M.R. 2019. Increased variation in numbers of presacral vertebrae in suspensory animals. **Nature Ecology and Evolution**, 3, 949-956.
- [4] \***Petrullo, L.**, Jorgensen, M., Snyder-Mackler, N., Lu, A. 2019. Composition and stability of the vervet monkey milk microbiome. **American Journal of Primatology**, e22982.
- [3] \***Petrullo, L.**, Lu, A. 2019. Natural variation in fetal cortisol exposure predicts neonatal body mass in captive vervet monkeys (*Chlorocebus aethiops*). *American Journal of Primatology*, 81, e22943.
- [2] Mandalaywala, T.M., **Petrullo, L.A.**, Parker, K.J., Maestriperi, D., Higham, J.P. 2017. Vigilance for threat in infancy modifies effects of early life adversity on cortisol/salivary alpha-amylase asymmetry in juvenile rhesus macaques. **Developmental Psychobiology**, 59, 1031- 1038.
- [1] \***Petrullo, L.A.**, Mandalaywala, T. M., Parker, K. J., Maestriperi, D., \*Higham, J. P. 2016. Effects of early life adversity on cortisol/salivary alpha-amylase symmetry in free-ranging juvenile rhesus macaques. **Hormones and Behavior**, 86, 78-84.

## SELECTED ABSTRACTS and PRESENTATIONS

°trainee

- 2026 °Morris, N.J., °Schiro, G., Boutin, S., Dantzer, B., Lane, J.E., McAdam, A.G., **Petrullo, L.** Do milk oriented microbiota influence development in a wild rodent? *Beneficial Microbes, Madison, Wisconsin, USA.*
- 2026 °Schiro, G., °Placko, A.A., Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B., **Petrullo, L.** Temporal dynamics of inherited microbiota in response to environmental fluctuations in a wild mammal. *Society for Integrative and Comparative Biology, Portland, OR, USA.*
- 2026 °Placko, A.A., °Matlock, M., °Schiro, G., **Petrullo, L.** Linking the gut microbiome to immunity and body condition in two sympatric species of wild mice. *Society for Integrative and Comparative Biology, Portland, OR, USA.*
- 2026 °Morris, N.J., °Placko, A.A., °Schiro, G., Walser, A., Pasch, B., **Petrullo, L.** Fungal-bacterial interactions link the diet and gut microbiota of endangered red squirrels. *Society for Integrative and Comparative Biology, Portland, OR, USA.*
- 2026 Schulz, R., Boutin, S., Lane, J.E., McAdam, A.G., **Petrullo, L.**, Dantzer, B. Evaluating the use of maze tasks to quantify spatial memory in a wild mammal. *Society for Integrative and Comparative Biology, Portland, OR, USA.*
- 2025 °Morris, N.J., Boutin, S., Lane, J., McAdam, A.G., Dantzer, B., **Petrullo, L.** 2025. Maternal microbiota predict reproductive outcomes in North American red squirrels (*Tamiasciurus hudsonicus*). *American Society of Mammalogists, Purdue, IN, USA.*
- 2024 Muzzarelli, L., Snyder-Mackler, N., Lu, A., **Petrullo, L.** Evidence for emergence of the gut-brain axis in late but not early infancy. *Northeastern Evolutionary Primatology, Boston, MA, USA.*

- 2023 **Petrullo, L.**, Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B. Reshaping of the red squirrel gut microbiome ahead of a food pulse. *International Mammalogical Congress*, Anchorage, AK, USA.
- 2023 Dantzer, B., **Petrullo, L.**, Delaney, D., McAdam, A.G., Lane, J.E., Boutin, S. Sex differences in life history traits in North American red squirrels. *International Mammalogical Congress*, Anchorage, AK, USA.
- 2022 Baniel, A., **Petrullo, L.** Mercer, A., Reitsema, L., Sams, S., Beehner, J.C., Bergman, T.J., Snyder-Mackler, N., Lu, A. Maternal effects on early-life gut microbiota maturation in wild geladas. *Animal Behavior Society*.
- 2022 **Petrullo, L.**, Boutin, S., Lane, J. E., McAdam, A.G., Dantzer, B. Costs of phenotype-environment mismatching in a small mammal. *Society for Integrative and Comparative Biology*.
- 2021 **Petrullo, L.**, Ren, T., Wu, M., Boonstra, R., Palme, R., Boutin S., McAdam, A.G., Dantzer, B. Understanding the link between glucocorticoids and gut microbiome diversity in wild red squirrels. *Animal Behavior Society*.
- 2020 **Petrullo, L.**, Jorgensen, M., Snyder-Mackler, N., & Lu, A. Postnatal vertical transmission is associated with maternal parity and offspring growth in captive vervet monkeys (*Chlorocebus aethiops sabaeus*). *American Association of Biological Anthropologists*.
- 2019 **Petrullo, L.**, Snyder-Mackler, N., Lu, A. Maturation of the vervet monkey infant gut microbiome. *Northeastern Evolutionary Primatologists*.
- 2018 **Petrullo, L.**, Hinde, K., Lu, A. Steroid hormone concentrations in milk predict postnatal infant growth in rhesus macaques (*Macaca mulatta*). *American Association of Biological Anthropologists*.

## INVITED SEMINARS

- 2026 Comparative Medicine, Wake Forest University School of Medicine
- 2026 Center for Evolution & Medicine, Arizona State University
- 2026 Department of Biology, University of North Carolina at Chapel Hill
- 2026 Department of Biological Sciences, University of Notre Dame
- 2024 Department of Ecology and Evolutionary Biology, Princeton University
- 2022 Department of Biology, University of Massachusetts Amherst
- 2022 Department of Ecology and Evolutionary Biology, University of Arizona
- 2022 Department of Anthropology, Penn State University
- 2020 Long-Term Animal Research Seminar Series, Duke University

## TEACHING

### Instructor of Record

- 2025, 2026 Ecology and Evolution of Animal Microbiomes, University of Arizona
- 2024—2026 Evolutionary Medicine, University of Arizona
- 2018 Research Skills in the Biological Sciences, Stony Brook University
- 2015 Introduction to Biological Anthropology, Fordham College

### Certificates

- 2021 Teaching in Science and Engineering, Michigan Ctr. for Research on Learning & Teaching
- 2020 Developing A Teaching Philosophy, Michigan Ctr. for Research on Learning & Teaching
- 2020 Teaching for Accessibility, Michigan Ctr. for Research on Learning & Teaching

## ACADEMIC ADVISING

## Postdocs

- Dr. Claudia Tranquillo (2026-present)
- Dr. Zachary Compton (2025-present)
- Dr. Gabriele Schiro (2024-present, co-advised with Dr. Taichi Suzuki)

## Graduate students

- Isabella Reyes (*primary advisor*; University of North Carolina at Chapel Hill, Ph.D., in progress)
- Pranav Bellur (*primary advisor*; University of North Carolina at Chapel Hill, Ph.D., in progress)
- Natalie Morris (*primary advisor*; University of North Carolina at Chapel Hill, Ph.D., in progress)
- Isabella Weiler (*committee*; University of Arizona, Ph.D., in progress)
- Emiliano Calvo Alcaniz (*committee*; University of Arizona, Ph.D., in progress)
- Stephen Cooke (*committee*; University of Arizona, Ph.D., in progress)
- Juliana Kusters (*committee*; University of Arizona, M.S., in progress)
- Katie King (*committee*; University of Arizona, Ph.D., in progress)
- Arielle Liu (*committee*; University of Arizona, Ph.D., in progress)
- Natalia Camargo Peña (*committee*; Stony Brook University, Ph.D., in progress)

## Undergraduate trainees

\*directed research; \$Honor's thesis; !independent research for credit

- America Carmona Lucatero (University of Arizona, 2024-present)
- \*!McKenzie Matlock (University of Arizona, 2024-present)
- \*!\$Abigail Pearce (University of Arizona, 2024-present)
- Judith Frayre (University of Arizona, 2024-2025)
- Isabel Martins (Stony Brook University, 2018-2020)
- Brittany Spoto (Stony Brook University, 2017-2018)
- Richard Liang (Stony Brook University, 2017-2018)
- Marisa Turk (Stony Brook University, 2017-2018)
- Samar Syeda (Stony Brook University, 2017-2018)

## FUNDING

### Current

- [1] **NIH NIGMS R35 (MIRA) – 1R35GM159868-01:** Response of the commensal microbiota to host physiological stress. Role: Sole PI, \$2,095,924. 09/2025-09/2029.

### Past

- [2] **NSF NRT-HDR – 2346054:** CAMBIUM: Climate change Adaptation and Mitigation through Biodiversity Informatics edUcation and Mentoring. Role: Senior personnel (Co-Instructor and Fellow Mentor; Lead PI: Mike Barker), \$2,499,000.
- [3] Feasibility Grant, Wake Forest Clinical and Translational Science Institute Primate Signature Program. Role: Lead Investigator, \$7,460.

## ACADEMIC SERVICE

**Journal reviewer:** Functional Ecology, Proceedings of the Royal Society B, Molecular Ecology, Oikos, Ecology & Evolution, Journal of Animal Ecology, Biology Letters, mSphere, Scientific Reports, Animal Microbiomes, Gut Microbes, Mammal Review, Evolutionary Anthropology, Urban Ecosystems, American Journal of Primatology, Developmental Psychobiology

**Grant and fellowship reviewer:** National Science Foundation panelist (GRFP, PRFB, IOS, SBE) and ad-hoc reviewing; The Leakey Foundation

## Research groups

2021— Animal Microbiome Research Group, founder & organizer (>300 members)

**External examiner:** Laurie Auclair, Université du Québec à Montréal, M.S. Biology

### **Departmental Service**

2025— Steering Committee, University of Arizona  
2025— Graduate Student Recruitment Committee, University of Arizona  
2024 Demystifying the graduate application process, a webinar  
2024 Graduate Student Recruitment Committee, University of Arizona  
2024 Graduate Student Seminar Coordinator, University of Arizona  
2023 Graduate Student Recruitment Committee, University of Arizona

### **Professional Memberships**

American Association for the Advancement of Science | American Society of Mammalogists | Society for Integrative and Comparative Biology | Animal Behavior Society | American Society for Microbiology | Ecological Society of America | Society for the Study of Evolution | British Ecological Society