Lauren Petrullo, Ph.D.

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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

APPOINTMENTS

Fall 2023— Assistant Professor, Dept. of Ecology & Evolutionary Biology, University of Arizona

2020—2023 NSF Postdoctoral Research Fellow, Department of Psychology, University of Michigan

PEER-REVIEWED PUBLICATIONS

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

Preprints in review/revision

[24] *__Petrullo, L.,__ Delaney, D.M., Krebs, C.J., Boutin, S., Lane, J.E., McAdam, A.G., Dantzer, B. Developmental conditions shape lifetime reproductive strategies in a wild mammal. In review at *Science.* biorxiv: https://doi.org/10.64898/2025.12.05.692614

[23] *__Petrullo, L.,__ Albery, G., Raulo, A.R., Sweeny, A.R. Microbial contributions to host life history tradeoffs. In review at *Trends in Ecology & Evolution.* ecoevorxiv: https://doi.org/10.32942/X27363

Published

[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

[19] *✝__Petrullo, L.,__ ✝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
- "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., Maestripieri, 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., Maestripieri, 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.

FUNDING

Current

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

[2] **NSF NRT-HDR:** CAMBIUM: Climate change Adaptation and Mitigation through Biodiversity Informatics edUcation and Mentoring. Role: Senior personnel (Lead PI: Mike Barker, University of Arizona), $2,499,000.

[3] **Desert Laboratory Seed Grant** – Host-microbe interactions and heat tolerance in a desert-adapted wild rodent. Role: Sole PI, $5,000.

Pending

[4] NSF IOS Core Grant – "From feast to famine and back again: understanding microbial contributions to host fitness in a fluctuating environment". Role: Lead PI, (Co-I: Ben Dantzer, University of Michigan) $1,541,509. Submitted July 2025.

Past

[5] Feasibility Grant, Wake Forest Clinical and Translational Science Institute Primate Signature Program. Role: Lead Investigator, $7,460.

FELLOWSHIPS & AWARDS

2020—2023 National Science Foundation Postdoctoral Research Fellowship in Biology, *Integrative Research Investigating the Rules of Life Governing Interactions Between Genomes, Environment, and Phenotypes* ($207,000)
2015—2020 AGEP-T FRAME Diversity Fellowship, Stony Brook University
2015—2020 Dr. W. Burghardt Turner Diversity Doctoral Fellowship, Stony Brook University ($50,000)
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)

SELECTED ABSTRACTS and PRESENTATIONS

°trainee/mentee

Submitted abstracts

2025 °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.*

2025 °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.*

2025 °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.*

2025 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.*

Selected presentations

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 and WORKSHOPS

2024, 2025 *Workshop,* NSF NEON RCN: Integrating Organismal Biology into NEON, Tempe, AZ
2025 *Seminar,* Wake Forest University, School of Medicine, Wake Forest, NC
2024 *Seminar,* Princeton University, Department of Ecology and Evolutionary Biology
2022 *Seminar*, University of Massachusetts Amherst, Department of Biology
2022 *Seminar,* University of Arizona, Department of Ecology and Evolutionary Biology
2022 *Seminar*, Penn State University, Department of Anthropology & Huck Institutes of Life Sciences
2020 *Seminar,* Duke University, Long-Term Animal Research Seminar Series

TEACHING and PEDAGOGY

Instructor of Record

2025— Ecology and Evolution of Animal Microbiomes (ECOL 427), University of Arizona
2024— Evolutionary Medicine (ECOL 220), University of Arizona
2018 Research Skills in the Biological Sciences, Stony Brook University
2015 Introduction to Biological Anthropology, Fordham College

Certificates

2021 Short Course on College Teaching in Science and Engineering, Center for Research on Learning and Teaching, University of Michigan
2020 Developing A Teaching Philosophy, Center for Research on Learning and Teaching, University of Michigan
2020 Teaching for Accessibility, Center for Research on Learning and Teaching, University of Michigan

ACADEMIC ADVISING

Postdocs

- Dr. Gabriele Schiro (2024-present)
- Dr. Zachary Compton (2025-present)

Graduate students

- Natalie Morris (*primary advisor*; University of Arizona, 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 Kosters (*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 researchers

*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 Pearse (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)

ACADEMIC SERVICE

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

Grant and fellowship reviews:

- National Science Foundation PRFB panel (2025)
- National Science Foundation GRFP panel (2024)
- National Science Foundation BIO/IOS panel (Behavioral Systems, 2024)
- National Science Foundation ad-hoc reviewing (2024, 2025; SBE and BIO/IOS-IEP)
- The Leakey Foundation ad-hoc reviewing (2024, 2025)

Research groups

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

External thesis examinations: Laurie Auclair, Université du Québec à Montréal, M.S. in 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, University of Arizona
2024 Graduate Student Recruitment Committee, University of Arizona
2023 Graduate Student Recruitment Committee, University of Arizona

Professional Memberships

American Society of Mammalogists, Society for Integrative and Comparative Biology, Animal Behavior Society,

American Society for Microbiology, Ecological Society of America, British Ecological Society