

Curriculum Vitae

James P. Herrera

Gerstner Scholar Postdoctoral Fellow

Richard Gilder Graduate School, American Museum of Natural History

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Education:

- 2015 Stony Brook University
Ph.D., Anthropological Sciences (Physical Anthropology)
- 2009 University of Miami, Coral Gables, FL.
B.A., Anthropology (Biology minor)

Current position:

Gerstner Scholar Postdoctoral Research Fellow, Richard Gilder Graduate School, Department of Mammalogy and Division of Vertebrate Paleontology, AMNH, NY. July 2015 – Present. Supervisors: John J. Flynn, Nancy B. Simmons.

Peer-reviewed Publications:

Zohdy, S., Ragazzo, L., Velonabison, M., **Herrera, J.P.**, Wright, P.C., Gillespie, T.R. (In Review). *Entamoeba histolytica* detected in three lemur species living in areas with high human foot traffic in Ranomafana, Madagascar. *Veterinary Parasitology*.

Herrera, J.P. (In Review). Primate diversification inferred from phylogenies and fossils. *Evolution*.

Laserna, A. and **Herrera, J.P.** (In Review). Impact of behavioral traits on diversification rates in primates. *Evolution*.

Sterling, E.J., Filardi, C., Newell, J. ... **Herrera, J. P.** , ... Jupiter, S. (Accepted). Biocultural approaches to sustainability indicators: bridging local to global for human capacity and ecological resilience. *Nature Ecology and Evolution*.

Herrera, J.P. (Accepted). The effects of biogeography and biotic interactions on lemurs of Madagascar. *International Journal of Primatology*.

Herrera, J.P. (2017). Prioritizing protected areas in Madagascar for lemur diversity using a multidimensional perspective. *Biological Conservation*. 207:1-8. DOI: 10.1016/j.biocon.2016.12.028.

Herrera, J.P. (2017). Testing the adaptive radiation hypothesis for lemurs on Madagascar. *Royal Society Open Science*. 4: 161014. DOI: 10.1098/rsos.161014.

Hudson, L. N., Newbold, T., Contu, S., Hill S. L. L., Lysenko, I., De Palma A., ... **J. P. Herrera**, ... Purvis, A. (2017). The database of the PREDICTS (Projecting Responses of Ecological Diversity In Changing Terrestrial Systems) project. *Ecology and Evolution*. 7: 145-188. DOI: 10.1002/ece3.2579.

Herrera, J.P. (2016). Interactions between plants and primates shape community diversity in a rainforest in Madagascar. *Journal of Animal Ecology*. 85:982-993. DOI: 10.1111/1365-2656.12532.

Herrera, J.P. and Dávalos, L. (2016). Phylogeny and divergence times of lemurs inferred with recent and ancient fossils in the tree. *Systematic Biology*. 65:772-791. DOI: 10.1093/sysbio/syw035.

Kamilar, J., Muldoon, K., Lehman, S.M., **Herrera, J.P.** (2012). Testing Bergmann's rule and the resource seasonality hypothesis in Malagasy primates using GIS-based climate data. *American Journal of Physical Anthropology*. 147:401-408. DOI: 10.1002/ajpa.22002

Herrera, J.P., Wright, P.C., Lauterbur, M.E., Ratovonjanahary, L. (2011). The effects of habitat disturbance on lemurs at Ranomafana National Park, southeast Madagascar. *International Journal of Primatology*. **32**: 1091-1108. DOI: 10.1007/s10764-011-9525-8

Contributed book chapters

Loudon, J.E., Patel, E.R., Faulkner, C., Schopler, R., Kramer, R.A., Williams, C.V., **Herrera, J.P.** (2017). An ethnoprimateological assessment of human impact on the parasite ecology of silky sifaka (*Propithecus candidus*). In: Ethnoprimateology. Fuentes, A.G., Riley, E.P., (eds). Pgs 89 – 110.

Herrera, J.P., Tongasoa, L., Wright, P.C. (2016). Contact zones and sympatric species of dwarf lemurs (Genus *Cheirogaleus*): the roles of ecological adaptation and sexual selection. In Dwarf and mouse lemurs of Madagascar: biology, behavior, and conservation biogeography of the Cheirogaleidae. S. M. Lehman, U. Radespiel and E. Zimmermann (eds). Cambridge UK, Cambridge University Press. Pgs 113 – 134.

Wright, P.C., Erhart, E.M., Tecot, S.R., Baden, A.L., Arrigo-Nelson, **Herrera, J.P.**, S., Morelli, T.L., Deppe, A., Blanco, M., Atsalis, S., Johnson, S.E., Ratelolahy, F., Tan, C. L. M., Zohdy, S. (2012). Long term lemur research at Centre ValBio, Ranomafana National Park Madagascar In: Kappeler PM, Watts D, eds. Long-term field studies of primates. Dordrecht: Springer. Pgs 67 – 100.

Grants, Awards and Honors:

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| 2015 | Gerstner Scholar Postdoctoral Fellowship, Richard Gilder Graduate School, American Museum of Natural History, New York NY |
| 2015 | Earnest A. Hooten Prize for Best Student Poster, 84 th annual meeting of the American Association of Physical Anthropologists, St. Louis MO |
| 2013 | Mohamed bin Zayed Species Conservation Grant, in support of “The search for Sibree’s dwarf lemur (<i>Cheirogaleus sibreei</i>) in southeast Madagascar” (\$5,000) |
| 2013 | International Society of Primatology Research Grant, in support of “Ecological speciation and sexual selection in dwarf lemurs (Genus <i>Cheirogaleus</i>)” (\$2,000) |

- 2013 Explorer's Club-Eddie Bauer Young Explorer Grant, in support of "Long-term changes in endangered lemur populations: effects of habitat loss and climate change in Madagascar" (\$12,500)
- 2012 Margot Marsh Biodiversity Foundation, in support of "Ecological survey of endangered lemurs in an unprotected forest corridor in southeast Madagascar" (\$12,000)
- 2012 Leakey Foundation Dissertation Award, in support of "Evolutionary ecology of lemurs in a rainforest in Madagascar" (\$13,395)
- 2012 Primate Conservation, Inc., in support of "The search for Sibree's dwarf lemur in southeast Madagascar" (\$5,000)
- 2012 American Society of Primatology Conservation Grant, in support of "The search for Sibree's dwarf lemur in southeast Madagascar" (\$1,495)
- 2012 Rufford Small Grants Foundation, in support of "The search for Sibree's dwarf lemur in southeast Madagascar" (\$8,930)
- 2010 Ernst Mayr Travel Grant in Animal Systematics, Museum of Comparative Zoology at Harvard University, in support of "Species delineation in the subfossil lemur assemblage: how many species have gone extinct?" (\$1,200)
- 2010 La Conservatoire Pour la Protection des Primates Research Grant in support of "Modeling the distribution and abundance of *Avahi peyrierasi* based on geography, climate and forest structure" (\$3,250)
- 2010 Conservation International, Primate Action Fund Research Grant, in support of "Modeling the distribution and abundance of *Avahi peyrierasi* in southeast Madagascar based on geography, climate and forest structure" (\$3,000)
- 2010 National Science Foundation Graduate Research Fellowship (\$100,000)
- 2009 Alliance for Graduate Education and the Professoriate Scholarship
- 2009 W. Burghardt Turner Fellowship, SUNY Stony Brook
- 2009 Full tuition scholarship, SUNY Stony Brook

Abstracts & Professional Presentations:

Herrera, J.P. (2017). Historical biogeography and current productivity explain lemur community structure. International Biogeography Society Annual Meeting, Tucson, AZ, USA.

Herrera, J.P. (2016). Resource abundance explains the taxonomic, phylogenetic, and functional diversity of lemur communities on Madagascar. Congress of the International Primatological Society, Chicago, IL, USA.

- Herrera, J.P.** (2016). Testing the high plateau and river barrier hypotheses for the biogeographic evolution of lemurs on Madagascar. Congress of the International Primatological Society, Chicago, IL, USA.
- Herrera, J.P.** (2016). Primate diversification dynamics in deep time: inferences from fossils vs. extant phylogenies. Evolution Annual Meeting, Austin, TX, USA.
- Herrera, J.P.** (2016). Testing the adaptive radiation theory for the evolution of lemurs on Madagascar. *American Journal of Physical Anthropology* 159(S1):173.
- Herrera, J.P.**, Tongasoa, L., Wright, P.C. (2015). Interactions between plants and primates explain the diversity of communities. *American Journal of Primatology* 77(S1): 138.
- Herrera, J.P.**, Warsi, O.M., Dávalos, L.M., Tongasoa, L., Wright, P.C. (2015). The critically endangered *Cheirogaleus sibreei* is discovered in high elevation forests in Ranomafana National Park and the COFAV corridor, southeast Madagascar. *American Journal of Primatology* 77(S1): 95.
- Taylor, L. L., **Herrera, J.P.** (2015). Multiple unique, adaptive shifts in life history across primates correspond to shifts in diet. *American Journal of Primatology* 77(S1): 78.
- Herrera, J.P.** 2015. Environmental instability and functional traits explain lemur ecological community structure. *American Journal of Physical Anthropology*. 156 (S60): 165.
- Taylor, L.L. and **Herrera, J.P.** 2015. Do diet and evolutionary history predict variation in life history variables better than environmental harshness for lemur traits? *American Journal of Physical Anthropology*. 156 (S60): 302.
- Tongasoa, L., **Herrera, J.P.**, Wright, P.C. (2014). Decline of *Hapalemur griseus* at Ranomafana National Park, southeast Madagascar. Congress of the International Primatological Society, Hanoi, Vietnam
- Herrera, J.P.** (2014). Evidence for early adaptive divergence in Malagasy primates: niche filling and mass extinction. Evolution Annual Meeting, Raleigh, NC, USA. Competed in the Ernst Mayr Graduate Student Competition
- Herrera, J.P.**, Tongasoa, L., Wright, P.C. (2013). Three dwarf lemur morphs in Ranomafana National Park, southeast Madagascar. International Prosimian Congress, Ranomafana Madagascar
- Herrera, J.P.** (2012). Ancient dispersals across the central highlands explain the phylogeography of dwarf lemurs, Genus *Cheirogaleus*. *American Journal of Primatology*. 74(S1):55.
- Herrera, J.P.** (2012). Biogeographic causes of speciation in lemurs of Madagascar. *American Journal of Physical Anthropology*. 147(S54):90.
- Herrera, J.P.**, Lauterbur, M.E., Wright, P.C., Ratovonjanahary, L, Taylor, L. L. (2009). Rapid assessment of lemurs in disturbed and undisturbed habitats in southeast Madagascar. *American Journal of Primatology* 71(S1):90. DOI: 10.1002/ajp.20733

Research Projects & Training:

- 2016 – present Bat community ecology in Belize. Surveys for bat diversity in multiple sites and a forest fragment in Orange Walk, Belize. Bat captures (mist nets, harp traps, hand nets) and database management for four years of captures during expeditions lead by N.B. Simmons. Supervisor: N.B. Simmons.
- 2015 – present Inferring the phylogeny and diversification dynamics of primates, living and extinct. Compiling published morphological data matrices and DNA sequences, collecting new morphological data for living and fossil species. Compiling primate fossil database including occurrences, stratigraphy, paleoenvironments, and traits. Supervisors: J.J. Flynn & N.B. Simmons.
- 2011 – 2014 Ecological survey and monitoring project around Ranomafana National Park and peripheral zones. Surveys using line-transect and live-trapping methodology to sample primates, trees, birds, frogs, chameleons, rodents, and insects across gradients of anthropogenic disturbance and topography. Supervisor: P.C. Wright.
- 2010 – 2015 Inferring the phylogeny of lemur species using a total evidence approach. Measuring morphological traits from museum specimens of lemurs, lorises, galagos, and fossil primates. Generated molecular sequences from hair and fecal samples collected in the field, especially focusing on dwarf lemurs (*Cheirogaleus*). Inferring phylogeny and divergence times using likelihood and Bayesian techniques. Supervisors: E.R. Seiffert, L.M. Dávalos.
- March 2014 Bodega Bay Applied Phylogenetics workshop, led by Dr. Peter Wainwright, UC Davis Ecology and Evolution
- April 2012 AnthroTree Workshop, led by Dr. Charles Nunn, Duke University

Relevant Employment:

Gerstner Scholar Postdoctoral Fellow, American Museum of Natural History, NY NY.
July 2015 - Present

Teaching Assistant, SUNY Stony Brook. Stony Brook, NY. Gender in Latin America; Archaeology of Food; Science and Technology in Ancient Societies. 2009 – 2010, 2013

Consultant, “Interactive Dynamics of Wildlife and Human Interaction” Project, Makira region, Madagascar, NSF funded project by U Harvard and UC Berkley; training Malagasy personnel in ecological survey techniques. January 2012

Institutional Collaborations:

Institute for the Conservation of Tropical Environments, Stony Brook University
Centre ValBio Research Station in Ranomafana National Park, Madagascar, SBU
Malagasy Institut pour la Conservation des Ecosystèmes Tropicaux, Madagascar
Center for Inclusive Education, SBU
Duke University SAVA Conservation Madagascar project

Synergistic Activities:

- Jan 2017 – present Member of IUCN Species Survival Commission Primate Specialist Group, Madagascar Section, 2017-2020
- September 2015 – present Mentor for CUNY Queens college undergraduate Alejandro Laserna. Teaching phylogenetic methods and database management, guiding independent research project on the evolution of primate behavior, NSF REU supervisor.
- June 2011-present Mentor for Tongaso Lydia, University of Antananarivo. Supported and guided field research in preparation for Ph.D. Project title: Behavioral ecology and habitat suitability of *Hapalemur griseus* in southeast Madagascar.
- June 2016 Invited lecture for Oyster Bay Audubon Society, New York, entitled: “The unique wildlife of Madagascar”
- April 2016 Invited lecture for Department of Biology, City College of New York, entitled: “Resource abundance determines diversity across scales in Malagasy primates”
- September 2015 Invited lecture for Bruce Museum special exhibit, Extinct Madagascar, entitled: “Biogeographic inferences with extinct lemurs support the role of the central plateau as a dispersal route between wet and dry forests”
- October 2015 Invited lecture for University of Miami course in Wildlife Conservation, entitled: “Conserving corridors: using biodiversity research and community development to preserve natural habitats in Madagascar”
- June 2014 Invited lecture for Oyster Bay Audubon Society, New York, entitled: “Conserving corridors: using biodiversity research and community development to preserve natural habitats in Madagascar”
- March 2014 Lectures for Stony Brook University course in Primate Conservation, entitled: “A tale of two lemurs: endangered dwarf lemurs as a model for biodiversity conservation in Madagascar”, and “Conserving corridors: using biodiversity research and community development to preserve natural habitats in Madagascar”
- 2013 – 2014 “Ny Alan’olona”: Initiating a conservation organization led by rural Malagasy landowners to manage their natural lands sustainably. Project includes biodiversity research and education, reforestation, sustainable farming, and capacity building for an official government-sanctioned conservation association. In collaboration with Tongaso Lydia, Ph.D. candidate U of Antananarivo.
- 2011-2013 Lectures for Stony Brook University Study Abroad in Madagascar Program: The History and Mystery of Life on Madagascar, Effects of Human Disturbance on Biodiversity in Madagascar, Field Methods for Estimating Biological Diversity and Abundance, Statistics for Ecological and Social Data, R Statistics Workshop
- Oct-Nov 2011 Led biodiversity and socio-economic field expedition for the Stony Brook University Study Abroad program. Supervised 7 American and 1 Malagasy undergraduate in ecological and social surveys for independent research.

Manuscript review

Molecular Phylogenetics and Evolution

Biotropica
Journal of Human Evolution
International Journal of Primatology

Analytical Software Proficiency:

R: statistical computing environment, R Development Core
MrBayes: phylogenetic systematics, Ronquist et al.
RaxML: phylogenetic systematics, A. Stamatakis.
Geneious: bioinformatics software, Biomatters Development Team
ArcGIS: geographic information systems software, ESRI
DISTANCE: wildlife abundance estimation using line transect distance sampling data, Thomas et al.
Amira: 3D digital reconstruction software, FEI Software

References:

Nancy B. Simmons, Ph.D.
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Professor, Richard Gilder Graduate School
American Museum of Natural History, New York NY
Phone: 212-769-5483, E-mail: simmons@amnh.org

John J. Flynn, Ph.D.
Postdoctoral supervisor
Dean & Professor - Richard Gilder Graduate School
Frick Curator of Fossil Mammals, Division of Paleontology, Division of Vertebrate Zoology, Principal Investigator, SICG (Sackler Institute of Comparative Genomics)
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Patricia C. Wright, Ph.D.
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Erik R. Seiffert, Ph.D.
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Professor, Department of Cell and Neurobiology
Keck School of Medicine
University of Southern California
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Liliana M. Dávalos, Ph.D.
Ph.D. committee chair
Assistant Professor, Department of Ecology and Evolution

Faculty, Interdepartmental Doctoral Program in Anthropological Sciences
Consortium for Environmental Research
Stony Brook University
Phone: 631-632-1554, E-mail: Liliana.davalos-alvarez@stonybrook.edu