

Rachel A. Munds
Department of Global Health
University of South Florida
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EDUCATION

Ph.D., 2018 Biological Anthropology, University of Missouri
M.Phil., 2010 Primate Conservation, Oxford Brookes University, UK
B.A., 2007 Anthropology, minor Zoology, Southern Illinois University-Carbondale

PROFESSIONAL APPOINTMENTS

2022-*Present* Postdoctoral Research Fellow, Department of Global Health, University of South Florida.
Supervisor: Dr. Lynn “Marty” Martin
2019-2021 Eyes High Postdoctoral Research Fellow, Department of Anthropology & Archaeology,
University of Calgary. Supervisor: Dr. Amanda D. Melin
April-July
2020 Interim Laboratory Manager, Melin lab, University of Calgary

RESEARCH INTERESTS

Genotype-phenotype association, adaptation, sensory ecology, phylogenetics, speciation & taxonomy, conservation

TEACHING & MENTORING

2019 Instructor, Evolution, University of Missouri
2019 Instructor, Mammalogy, University of Missouri
2018 Instructor, Genetics & Evolution for Conservation, University of Missouri
2012-2019 Teaching Assistant, Introduction to Biology laboratory, University of Missouri
2011-2016 Teaching Assistant, Introduction to General Ecology laboratory, University of Missouri

2014-2016 Mentor, Chelsea Titus, Division Biological Sciences, University of Missouri

2014-2016 Tutor, Missouri Athletic Tutoring Complex, University of Missouri
2009 Assistant Instructor, Primatology Field Course, Danua Girang Field Center, Malaysia

PUBLICATIONS

Peer-Reviewed Articles: *indicates undergraduate co-author.

- In prep* Munds RA, Melin AD, & Higham JP. Is primate cone ratio variation functional and adaptive? Review article prepared for Proceedings B.
- 2022 Munds RA, Cooper E, Janiak MC, Lam LG, DeCasien A, Bauman S, Montague M, Martinez M, Kawamura S, Higham JP, & Melin AD. Variation and heritability of retinal cone ratios in a free ranging population of rhesus macaques. *Evolution*.
- 2021 Munds RA, Titus CL*, Moreira LAA, Eggert LS, & Blomquist GE. Examining the molecular basis of coat color in a nocturnal primate family (Lorisidae). *Ecology and Evolution*. DOI: 10.1002/ece3.7338
- 2018 Munds, RA, Titus CL*, Eggert LS, & Blomquist GE. 2018. Using a multi-gene approach to infer the complicated phylogeny and evolutionary history of lorises (Order Primates: Family Lorisidae). *Molecular Phylogenetics and Evolution*. 127, 556-567. *Editors Choice*
- 2018 Munds RA, Dunn RH, & Blomquist GE. Multivariate craniodental allometry of tarsiers. *International Journal Primatology*. 39(2): 252-268.
- 2017 Svensson MS, Bersacola E, Mills MSL, Munds RA, Perkin A, Masters JC, Couette S, Nekaris KAI, Bearder SK. A giant among dwarfs: A new species of galago (Primates Galagidae) from Angola. *American Journal of Physical Anthropology* 163(1):30-43
- 2013 Munds RA, Nekaris KAI, Ali R, Nijman V, & Goossens B. Living together in the night: abundance and habitat use of sympatric and allopatric populations of slow lorises and tarsiers (*Nycticebus* and *Tarsius*). *Endangered Species Research* 22:269-277
- 2013 Munds RA, Nekaris KAI, & Ford SM. Taxonomy of the Bornean loris with new species *Nycticebus kayan* (Primates, Lorisidae). *American Journal of Primatology* 75(1):46-56

Book Chapters

- 2020 Nekaris KAI, Munds RA, & Pimley EP. Trapping, collaring and monitoring the Lorisinae of Asia (*Loris*, *Nycticebus*) and Perodicticinae (*Arctocebus*, *Perodicticus*) of Africa. In Nekaris KAI & Burrows AM (eds). *Evolution, Ecology, and Conservation of Lorises and Pottos*. Cambridge University Press, Cambridge, UK.
- 2016 Starkweather KE, Munds RA. Primate mating patterns. *International Encyclopedia of Primatology*
- 2010 Nekaris KAI, Munds RA. Using facial markings to unmask diversity: the slow lorises (Primates: Lorisidae: *Nycticebus*) of Indonesia. In Gursky S & Supriatna J (eds). *The Primates of Indonesia*. Springer: New York.

Technical Reports

- 2021 Munds RA (Assessor). IUCN Red List. *Nycticebus coucang ssp. insularis* (Robinson, 1917). IUCN. 2021. The IUCN Red list of Threatened Species 2021: e.T163029192A163029237.
- 2020 Svensson M, Bersacola E, Nijman V, Munds RA, Perkin A, & Bearder SK. *Galagoides kumbirensis*. The IUCN Red List of Threatened Species 2020: e.T164378198A164378551

Conference Papers & Posters

- 2021 Munds RA, Cooper E, Janiak MC, Lam LG, DeCasien A, Bauman S, Montague M, Martinez M, Kawamura S, Higham JP, & Melin AD. Sex and age variation and heritability of cone ratios in a free-ranging population of Rhesus macaques (*Macaca mulatta*). Evolution.
- 2021 Melin AD, Munds RA, Cooper E, Janiak MC, Lam LG, DeCasien A, Bauman S, Montague M, Martinez M, Kawamura S, & Higham JP. Cone ratio variation in free-ranging Rhesus macaques (*Macaca mulatta*). Society of Molecular Biology and Evolution.
- 2020 Munds RA, Janiak MC, Montague MJ, Martinez M, Kawamura S, Melin AD, Higham JP. The heritability of red-green cone ratios in a population of free-ranging Rhesus macaques (*Macaca mulatta*). The International Primatological Society.
- 2020 Blair ME, Le MD, Cao GTH, Lopez EH, Veronese DA, Kenyon M, Md-Zain BM, Munds RA, Nekaris KAI, Nijman V, Roos C, Thach HM, Sterling EJ. Revisiting molecular phylogenetic relationships among slow lorises (genus: *Nycticebus*): Unveiling novel genetic diversity. The International Primatological Society.
- 2020 Melin A, Munds R, Janiak M, Montague M, Martinez M, Kawamura S, Higham J. L:M cone ratio variation in free-ranging Rhesus macaques (*Macaca mulatta*). The Society of Molecular Biology & Evolution
- 2020 Melin AD, Barron-Arrambide A, Munds RA, Montague MJ, Martinez M, Danias J, Wollstein G, & Higham JP. Intraocular pressure, optic nerve apperace, and posterior pole pathology in a large cohort of free-ranging rhesus macaques. The Association for Research in Vision and Ophthalmology.
- 2017 Munds RA & Blomquist GE. Multivariate craniodental allometry in tarsiers (*Tarsius*), a small-bodied, cryptic, insular primate. American Association of Physical Anthropology.
- 2016 Titus CL, Munds RA & Eggert LS. A phylogenetic reconstruction of captive Lorisidae primates with mitochondrial and a nuclear intron. International Primatological Society
- 2016 Munds RA, Titus CL, Eggert LS, & Blomquist GE. Examining the adaptiveness of coat variation in slow lorises (*Nycticebus*) through the use of the melanocortin-1-receptor. International Primatological Society

- 2016 *Munds RA, Ahsan MH. Phylogenetic reconstruction of Tarsiidae: Uncovering the history of a deeply rooted family. American Association of Physical Anthropology*
- 2015 Titus C, *Munds RA, & Eggert LS. Phenotypic and genetic analyses of slender loris (Loris), slow loris (Nycticebus), angwantibo (Arctocebus), and potto (Perodicticus). Midwest Primate Interest Group*
- 2013 *Munds RA, Ali R, Nekaris KAI, Nijman V, & Goossens B. Living together in the night: abundance & habitat use of sympatric and allopatric populations of slow lorises and tarsiers (Nycticebus and Tarsius). American Association of Physical Anthropology.*
- 2011 *Munds RA, Nekaris KAI, & Ford SM. Facial markings used to reveal taxonomic differences in the Bornean slow loris (Nycticebus menagensis). American Association of Physical Anthropology.*
- 2011 Roatch N, *Munds RA, Ali R, Nijman V, Nekaris KAI, & Goossens B. Bornean loris and tarsier (Nycticebus menagensis & Tarsius bancanus borneanus) abundance and micro-habitat divergences in a degraded forest in Sabah, Malaysian Borneo. American Association of Physical Anthropology.*
- 2008 *Munds RA, Collins R, Nijman V, Nekaris KAI. Abundance estimates of three slow loris taxa in Sumatra (N. coucang), Java (N. javanicus) and Borneo (N. menagensis). International Primatological Society.*
- 2007 *Munds RA, Best K, Hoppe P, Niebruegge K, Sabin D, Whipple M, Knobbe J, Porton IJ, & Ford SM. Captive lemur response to two types of natural enrichment. American Association of Physical Anthropology.*

Selected Press

- 2013 Illuminations: Loved to death, http://illumination.missouri.edu/s13/loved_to_death
- 2013 BBC Nature: Primate Species: New slow loris species found in Borneo
<http://www.bbc.co.uk/nature/20704172>
- 2013 National Geographic: Venomous primate discovered in Borneo.
<http://news.nationalgeographic.com/news/venomous-primate-discovered-in-borneo>

INVITED PRESENTATIONS

- 2018 University of Missouri, Division of Biological Sciences
- 2017 University of Missouri, Department of Anthropology
- 2016 University of Missouri, Evolutionary Bootcamp
- 2015 University of Missouri, Saturday Morning Science
- 2014 Redbud Audubon Society, Belleville, IL (joint with Dr. Susan M. Ford)
- 2014 University of Missouri, EvoBlitz
- 2014 University of Missouri, Wildlife Society
- 2013 University of Missouri, EcoLunch

RESEARCH GRANTS

- 2017 University of Missouri, Graduate Student Travel Fund (\$250)
- 2016 The Dorothy Tompkins Gelvin Ph.D., Memorial Scholarship Fund (\$400)
- 2013 The Dorothy Tompkins Gelvin Ph.D., Memorial Scholarship Fund (\$400)
- 2009 Columbus Zoo & Aquarium Conservation Fund, PI R. Ali (\$5000)
- 2008 Primate Conservation Inc. (\$2506)
- 2008 Primate Action Fund (\$4200)
- 2008 Primate Society of Great Britain (£500)
- 2008 Margot Marsh Biodiversity Foundation (\$6000)

RESEARCH APPOINTMENTS, EXPERIENCE & TRAINING

- 2022- Researcher, Depart. Public Health, University of South Florida
Present Location: University of South Florida
Projects: Gene expression of immunological genes of interest focusing on lyme disease tolerance or susceptibility in *Peromyscus spp.*. Project uses droplet digital PCR, probe-based method. RNA extractions and reverse-transcription.

- 2019- Researcher, Dept. Anthropology & Archaeology, University of Calgary
2021 Location: Foothills Campus. Head of lab: Dr. Amanda D. Melin
Projects: Gene expression of opsins in a catarrhine monkey (*Macaca mulatta*) using droplet digital PCR; probe-based method. RNA extraction and reverse-transcription. Transcriptomics.

- 2019 Researcher, Dept. Anthropology & Archaeology, University of Calgary
Fall Sebana Seca Research Station, Puerto Rico
Project: Collected ocular tissue samples from a catarrhine monkey (*M. mulatta*). Sterile collection of retinal tissue samples for RNA extractions. Ocular dissections. RNA sample storage. Assisted with morphological ocular data collection (OCT scans, tonometer, eyeball morphometrics).

- 2020 Lab Manager, Dept Anthropology & Archaeology, University of Calgary
Spring Location: Foothills Campus. Head of lab: Dr. Amanda D. Melin
Responsibilities: Manage molecular genetics lab, BSL II. Order supplies. Balance budget. Keep lab clean, dispose of waste. Set-up and maintain molecular equipment (e.g. thermocyclers, centrifuges, -80 & -20 freezers). Pick up and maintain orders. Assist in hiring & the training of a temporary lab manager and lab technician.

- 2012- Researcher, Divisions of Biological Sciences, University of Missouri
2017 Location: Eggert Lab. Head of lab: Dr. Lori S. Eggert
Projects: Lorisidae taxonomy and evolution through genetic analyses using ancient DNA, nuclear DNA, and mitochondrial DNA. Phylogenetic analyses using mitochondrial and nuclear DNA. Genetics of coat color using a candidate gene approach (melanocortin 1 receptor).

- 2013 Primary Investigator, Lupa Masa EcoLodge, Sabah, Malaysia, Borneo
Project: Abundance of Bornean slow lorises and tarsiers in a montane rainforest. Nocturnal field surveys using line-transect methods.

- 2011 Graduate Research Assistant, Department of Anthropology, University of Missouri
Principal Investigator: Dr. Gregory E. Blomquist
Project: Genetic analyses of co-adaptation of maternal resource supplies affecting infant growth between mother & offspring macaques, using R.

- 2009 Primary Investigator, Danau Girang Field Center, Sabah, Malaysia, Borneo
Project: Abundance surveys, habitat surveys, and trapping of Bornean slow lorises and tarsiers. Assisted in other research projects that involved trapping of small mammals (tree shrews, rodents), diurnal primate surveys, herpetological trapping, and surveys. Employed variety of methods such as line-transect surveys, point-sampling, ecological plot sampling, trapping grid, and tissue and morphological data collection.
- 2009 Primary Investigator, Field Museum of Natural History, American Museum of Natural History, and the Smithsonian Museum of Natural History
Project: Investigating the taxonomy of the Bornean slow loris through coat color and pattern differences. Body size measurements & photographic images for coat color analysis.
- 2008 Research Assistant, Primate Conservation, Oxford Brookes University, Oxford, UK
Principal Investigator: Dr. K.A.I. Nekaris
Project: Taxonomic investigations of *Nycticebus* spp. through microscopic hair analyses.

PROFESSIONAL MEMBERSHIPS

Nocturnal Primate Research Group
American Association of Physical Anthropology
American Society of Primatology
International Society of Primatology

AD HOC MANUSCRIPT & GRANT REVIEWS

American Journal of Primatology, Evolutionary Anthropology, Ecology and Evolution, Evolution, Folia Primatologica, International Journal of Primatology, Mammalian Biology, Primate Conservation, Tecnociencia, Zoological Research, Zootaxa; Primate Conservation Inc. (Grant)

SKILLS

Programs: Program R, Adobe Illustrator, BEAST, BEAUti, Clustal, DAMBE, GENEIOUS, GIMP, MEGA, Microsoft Office Suite, paML, PROVEAN, QuantaSoft, SPSS, TreeGraph

Languages: Fluent: English. Basic: French, Malay, & Portuguese

PROFESSIONAL REFERENCES

Dr. Amanda D. Melin (Postdoctoral Research Advisor)

Professor of Anthropology & Archaeology

University of Calgary

Email: amanda.melin@ucalgary.ca

Phone: 403 210 6640 (Foothills campus)

Dr. Gregory E. Blomquist (PhD advisor)

Associate Professor of Anthropology

University of Missouri

Email: BlomquistG@missouri.edu

Phone: 573 882 4731 (department number)

Dr. Lori S. Eggert (PhD Committee member)

Professor Emeritus of Biological Sciences

University of Missouri

Email: eggertl@missouri.edu

Phone: 573 884 3685

Dr. K.A.I. Nekaris (Master's advisor)

Professor of Anthropology and Primate Conservation

Oxford Brookes University

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