

Holly L. Lutz

Scripps Institution of Oceanography | Department of Pediatrics
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EDUCATION

PhD Cornell University – Dept. of Ecology and Evolutionary Biology, Dept. of Population Medicine and Diagnostic Sciences, Lab of Ornithology; August 2016

BA University of Chicago – Department of Biological Sciences, Specialization in Ecology and Evolutionary Biology; June 2009

PROFESSIONAL APPOINTMENTS

2020 – pres. Assistant Project Scientist II, Department of Pediatrics, University of California San Diego School of Medicine; Scripps Institution of Oceanography, UC San Diego
2016 – pres. Research Associate, Integrative Research Center, Field Museum of Natural History
2019 Postdoctoral Scholar, University of California San Diego School of Medicine; Scripps Institution of Oceanography, UC San Diego
2017 – 2018 Postdoctoral Fellow, University of Chicago, Department of Surgery
2014 – 2015 Resident Graduate Student, Field Museum of Natural History
2011 – 2016 Graduate Student, Cornell University

FELLOWSHIPS & GRANTS

Fellowships

2017 - 2019 National Science Foundation Postdoctoral Research Fellowship in Biology,
2015 Bouchet Graduate Diversity Fellow, Edward A. Bouchet Graduate Honor Society
2014 - 2015 Lester Armour, William A. & Stella Rowley Fellow, Field Museum of Natural History
2013 - 2016 National Science Foundation Graduate Research Fellow
2011 - 2012 Presidential Life Sciences Fellow, Cornell University
2008 - 2009 REU Research Fellow, Field Museum of Natural History

Grants

2019 Negaunee Seed Grant, Field Museum of Natural History (\$28,100)
2019 Grainger Research Fund, Field Museum of Natural History (\$12,375) - declined
2018 Council on Africa, Chicago, IL (\$5,976)
2015 Athena Fund, Cornell Lab of Ornithology (\$4,000)
2014 Illumina MiSeq Grant, Pritzker Lab. of Molecular Systematics & Evolution (\$5,000)
2014 CALS Alumni Association Grant (\$545)

2014	Cornell Center for Comparative and Population Genomics (\$750)
2013	NSF Malaria Research Coordination Network (\$1,975)
2013	American Society of Naturalists (\$200)
2013	Athena Fund, Cornell Lab of Ornithology (\$1,800)
2012	Sigma Xi, Cornell Chapter (\$400)
2012	Andrew W. Mellon Grant (\$1,000)
2012	NSF Malaria Research Coordination Network (\$3,000)
2011	Krammer Graduate Research Grant (\$1,000)

PUBLICATIONS

In Review

Dodiya, H. B., **Lutz, H. L.**, Patel, P., Leibowitz, J., Zhang, C., Weigle, I., Xia, J., Oshomuvwe, D. Olszewski, M., Zhang, X., Schipma, M. J., Butovsky, O., Tanzi, R. E., Gilbert, J. A., Sisodia, S. S. Early life microbiome perturbation results in sex-specific changes of brain amyloidosis and microglia phenotypes in APPPS1-21 Alzheimer's transgenic mice. *Journal of Experimental Medicine*.

Lutz, H. L., Vangelatos, A., Gottel, N., Osculati A., Visona, S., Finley, S. J., Tuomisto, S., Karhunen P., Gilbert, J. A., T. Javan, G. T. Manner of death and demographic effects on microbial community composition in organs of the human cadaver. *Frontiers in Microbiology*.

Özen, S.*, **Lutz, H. L.***, Rivera, V. M., Batu, E. D., Anderson, E., Salas Garcia, Aldrovandi, M. G., Pazarbasi, İ, Akbaba, T., Bilginer, Y., Balat. A., Peynircioglu, B., Reiff, A., Gilbert, J. A., Dedeoglu, F., Hausmann, J. S. Microbiome is not linked to clinical disease severity of Familial Mediterranean Fever in an international cohort of children. *Arthritis & Rheumatology*.

*Co-first authors

Publications

In Press. Miller, S. E., Barrow, L. N., Ehlman, S. M., Goodheart, J.A., Greiman, S. E., **Lutz, H. L.**, Misiewicz, T. M., Smith, S. M., Tan, M., Thawley, C. J., Cook, J. A., Light, J. E. Building natural history collections for the 21st Century and beyond. *BioScience*.

2020. Song, S. J., Sanders, J., Delsuc, F., Metcalf, J. Amato, K., Taylor, M. W., Mazel, F., **Lutz, H. L.**, Winker, K., Graves, G. R., Humphrey, G., Gilbert, J. A., Hackett, S. J., White, K. P., Skeen, H. R., Kurtis, S. M., Withrow, J., Braile, T., Miller, M., McCracken, K., Maley, J., Blanton, J. M., McKenzie, V. J., Knight, R. Comparative analyses of vertebrate gut microbiomes reveal convergence between birds and bats. *mBio*. doi. 10.1128/mBio.02901-19

2019. **Lutz, H. L.**, Jackson E. W., Webala, P. W., Babyesiza, W. S., Kerbis Peterhans, J. C., Demos, T. C., Patterson, B. D., Gilbert, J. A. Ecology and host identity outweigh evolutionary history in shaping the bat microbiome. *mSystems* DOI: 10.1128/mSystems.00511-19

2019. Demos T. C., Webala P. W., **Lutz, H. L.**, Kerbis Peterhans J. C., Goodman S. M., Cortés-Delgado N., Bartonjo M., Patterson B. D. Molecular systematics and coalescent delimitation

of a cryptic radiation of African long-fingered bats (Chiroptera, Miniopteridae). *Zoologica Scripta*. doi.org/10.1111/zsc.12388

2019. Fecchio, A., Bell, J., Bosholn, M., Vaughan, J., Tkach, V., **Lutz, H. L.**; Cueto, V., Gorosito, C., González-Acuña, D., Stromlund, C., Kvasager, D., Comiche, K., Kirchgatter, K., Pinho, J., Berv, J., Anciaes, M., Fontana, C., Zyskowski, K., Sampaio, S., Dispoto, J., Galen, S., Weckstein, J. D., Clark, N. An inverse latitudinal gradient in infection probability and phylogenetic diversity for *Leucocytozoon* blood parasites in New World birds. *Journal of Animal Ecology*. doi: 10.1111/1365-2656.13117
2019. Phillips C. D., Dunnum J. L., Dowler R. C., Bradley L. C., Garner H. J., MacDonald K. A., Lim B.K., Revelez M. A., Campbell M. L., **Lutz, H. L.**, Cook J. A., Bradley R. D., and the Systematic Collections Committee of the American Society of Mammalogists. Curatorial guidelines and standards of the American Society of Mammalogists for collections of genetic resources. *Journal of Mammalogy*. 100(6), 1690-1694.
2019. Barrow, L. N., McNew, S. M., Mitchell, N., Galen, S. C., **Lutz, H. L.**, Skeen, H., Valqui, T., Weckstein, J. D., Witt, C. C. Deeply conserved susceptibility in a multi-host, multi-parasite system. *Ecology Letters*, 22(6), 987-998.
2019. Fecchio, A., Bell, J.A., Pinheiro, R., Cueto, V., Gorosito, C., **Lutz, H.L.**, Gaiotti, M., Paiva, L., França, L., Toledo-Lima, G., Tolentino, M., Pinho, J., Tkach, V., Fontana, C., Grande, J., Santillán, M., Caparroz, R., Roos, A., Bessa, R., Nogueira, W., Moura, T., Nolasco, E., Comiche, K., Kirchgatter, K., Guimarães, L., Dispoto, J., Marini, M., Weckstein, J.D., Batalha-Filho, H., Collins, M. D. Avian host composition, local speciation, and dispersal drive the regional assembly of avian malaria parasites in South American birds. *Molecular Ecology*, 28(10), 2681-2693.
2019. **Lutz, H. L.**, Ramírez-Puebla, T., Abbo, L., Schlundt, C., Sjaarda, A. K., Durand, A., Hanlon, R. T., Gilbert, J. A., Mark Welch, J. L. A simple microbiome in the European common Cuttlefish, *Sepia officinalis*. *mSystems*.00177-19.
2019. Fecchio, A., Wells, K., Bell, J. A., Tkach, V. V., **Lutz, H. L.**, Weckstein, J. D., Clegg, S. M., Clark, N. J. . Climate variation influences host specificity in avian malaria parasites. *Ecology Letters*, doi: 10.1111/ele.13215
2017. **Lutz, H. L.**, Tkach, V. T., Weckstein, J. D. Methods for Specimen-based Studies of Avian Symbionts. Pp. 157-183 in M. S. Webster (editor). *The Extended Specimen: Emerging Frontiers in Collections-based Ornithological Research*. Studies in Avian Biology (no. 50). CRC Press, Boca Raton, FL.
2016. **Lutz, H. L.**, Marra, N. J., Grewe, F., Carlson, J., Palinauskas, V., Valkiunas, V., Stanhope, M. J. Laser capture microdissection microscopy and genome sequencing of the avian malaria parasite, *Plasmodium relictum*. *Parasitology Research*, 115, 4503 – 4510.
2016. **Lutz, H. L.**, Patterson, B. D., Kerbis, J. C., Webala, P. W., Stanley, W. T., Gnoske, T. P., Hackett, S. J., Stanhope, M. J. Diverse sampling of East African bats and birds supports a chiropteran origin of malaria parasites in primates and rodents. *Molecular Phylogenetics and Evolution*, 99, 7-15.

2015. **Lutz, H. L.**, Hochachka, W. M., Engel, J. I., Bell, J. A., Tkach, V. V., Bates, J. M., Hackett, S. J., Weckstein, J. D. Parasite prevalence corresponds to host life history in a diverse assemblage of Afrotropical birds and haemosporidian parasites. *PLOS ONE*, 10(4), e0121254.
2013. **Lutz, H. L.**, Weckstein, J. D., Patané, J. L., Bates, J. M., Aleixo, A. Biogeography and spatio-temporal diversification of *Selenidera* and *Andigena* toucans (Aves: Ramphastidae). *Molecular Phylogenetics and Evolution*, 69, 873 – 883.

INVITED SEMINARS

- Lutz, H. L.** 2020. Insights into the bat microbiome and evidence for convergent evolution of microbial associations in flighted tetrapods. Graduate Student Invited - Suzanne Ott Prather Annual Lecture Series, University of Nebraska-Lincoln, Lincoln, NE.
- Lutz, H. L.** 2018. Host-symbiont ecology of Afrotropical vertebrates. Conservation and Science Lecture Series, Lincoln Park Zoo, Chicago, IL.
- Lutz, H. L.** 2017. Bats and birds and bugs and things. Moore Lab of Zoology, Occidental College, Los Angeles, CA.
- Lutz, H. L.** 2017. Wildlife microbiome and host-symbiont biology in Afrotropical birds and bats. A. Watson Armour Seminar Series, Field Museum of Natural History, Chicago, IL.
- Lutz, H. L.** 2015. Phylogenetics of haemosporidia in Afrotropical vertebrates, presented at the Annual Yale Bouchet Conference on Diversity and Graduate Education, Yale University, New Haven, CT.
- Lutz, H. L.** 2014. Evolution of malaria parasites in African vertebrates, presented to the Council on Africa, Field Museum of Natural History, Chicago, IL, USA.
- Lutz, H. L.**, Weckstein, J. D., Engel, J. I., Bates, J. M., Hackett, S. J. 2013. Evolution and diversity of malarial parasites in the African tropics, presented at Makerere University Department of Biological Sciences Symposium on Afrotropical Biodiversity, Kampala, Uganda.

TEACHING EXPERIENCE

- | | |
|---|--------------------|
| <p>Teaching Assistant
 Cornell University, Ithaca, NY
 Department of Ecology and Evolution, College of Agriculture and Life Sciences
 Course: BIOEE2640 Tropical Field Ornithology in the Dominican Republic
 Center for Biodiversity and Sustainability, Punta Cana Ecological Foundation
 Instructor: Prof. André Dhondt</p> | <p>Winter 2016</p> |
| <p>Teaching Assistant
 Cornell University, Ithaca, NY
 Department of Ecology and Evolution, CALS
 Course: BIOEE1780 Introduction to Evolutionary Biology and Diversity</p> | <p>Spring 2014</p> |

Lead Instructor: Robert Reed

Head Teaching Assistant

Fall 2012

Cornell University, Ithaca, NY

Department of Ecology and Evolution, CALS

Course: BIOEE1780 Introduction to Evolutionary Biology and Diversity

Lead Instructor: Brian Lazzaro

Residency Advisor

Summer 2010, 2011, 2012

Field Museum of Natural History, Chicago, IL

Pritzker Laboratory for Molecular Systematics and Evolution

Program: DNA Research Summer Residency for high school students

Design of residency projects and training of high school students and instructors in molecular research methods, e.g., screening African birds for malarial parasites, molecular identification of cryptic species in African rodents, and analysis of host-parasite associations between birds and blood parasites from Peruvian cloud forests.

Teaching Assistant

Fall 2008

The University of Chicago, Chicago, IL

Department of Biological Sciences

Course: BIOSCI20184 Biodiversity

Instructor: Dr. or Prof Michael LaBarbera

INTERNATIONAL FIELD WORK

following scientific expeditions range from 1.5 - 2 months

- 2018. Kenya.** Lead organizer. Bat collection, parasite and pathogen specimen preparation, specimen export and import; student training.
- 2016. Kenya.** Lead organizer. Bat collection, parasite and pathogen specimen preparation, specimen export and import; student training.
- 2016. Uganda.** Co-organizer. Bird and mammal specimen collection and preparation, parasite and pathogen collection and preservation, specimen export and import; student training.
- 2014. Kenya.** Lead organizer. Bat collection, parasite and pathogen specimen preparation, specimen export and import; student training.
- 2014. Honduras.** Co-organizer. Bird, parasite and pathogen specimen preparation, student training.
- 2013. Uganda.** Co-organizer. Bird and mammal specimen collection and preparation, parasite and pathogen collection and preservation; student training.
- 2011. Mozambique.** Team member. Bird and mammal specimen collection and preparation, parasite and pathogen collection and preservation
- 2010. Peru.** Team member. Bird and symbiont collection and specimen preparation.
- 2009. Malawi.** Team member. Bird and mammal specimen collection and preparation, parasite and pathogen collection and preservation.

SERVICE & OUTREACH

American Society for Microbiology July 2020 - present
mSystems Editorial Board
Editor

American Society of Mammalogists July 2019 - present
Conservation Committee
Curatorial Guidelines Committee

Contributing Blog Writer January 2017 - 2018
www.micronow.com
American Society of Microbiology

Graduate and Professional Student Assembly 2011 - 2014
Student Advocacy Committee, Cornell University, Ithaca, NY

Editorial review

(Book) Backyard Biology: Investigate Habitats Outside Your Door with 25 Projects (Build it Yourself Series), Authors: Donna Latham, Beth Hetland, Nomad Press: White River Junction, VT. 2012.

Peer review for American Naturalist, Current Microbiology, EcoHealth, Ecology & Evolution, Folia Zoologica, Frontiers in Microbiology, International Journal of Parasitology, ISMEJ, Journal of Avian Biology, Journal of Biogeography, Journal of Ornithology, Malaria Journal, Microbial Biotechnology, Parasitology, Parasitology Research, Zoologica Scripta

Education: General Public

Members' Nights at Field Museum of Natural History, educating public on role of collections and scientific research in conservation, medicine and health, and societal progress. Pop-up science talks at various public venues in Chicago, during which I discuss my research in general terms and field questions as well as provide hands-on experiences with scientific tools and specimens.

PROFESSIONAL SOCIETIES & MEMBERSHIPS

American Society of Mammalogists
American Society of Parasitologists
American Ornithologists Union
American Society for Microbiology
Bat Conservation International
Ecological Society of America

Other Honors

In 2012, I was honored by the naming of a tropical avian louse species after my contributions to parasite collections: *Cotingacola lutzae*, ex. *Laniocera hypopyrra* (Cinereous Mourner).

Valim, M. & Weckstein, J. D. 2012. Two new species of Brueelia Kéler, 1936 (Ischnocera, Philopteridae) parasitic on Neotropical trogons (Aves, Trogoniformes). *ZooKeys* 128: 1–13 (2011) doi: 10.3897/zookeys.128.1583