

Bradley Hartman Bakken, Ph.D.

Program Co-Coordinator
Wyoming Early Hearing Detection and Intervention (EHDI) Program
Late Onset Hearing Loss (LOHL) Hearing Screening System

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CURRENT AND FORMER POSITIONS

Program Co-Coordinator, LOHL Hearing Screening System

Wyoming EHDI Program (Laramie, WY, USA)

Work emphasis: Coordination of hearing screening, follow-up, and reporting for infants, toddlers, and preschoolers in the state of Wyoming

Term: 2018 - Present

Former positions within the same organization: Science, Technology, and Education Coordinator (2014 - 2018) and Program Assistant (2012 - 2014)

Postdoctoral Research Associate

Division of Biology, Kansas State University (Manhattan, KS, USA)

Research emphasis: Evolutionary and ecological genomics of flowering plants

Supervisor: Dr. Mark C. Ungerer

Term: 2009 - 2011

Postdoctoral Research Associate

Department of Forest and Wildlife Ecology, University of Wisconsin-Madison (Madison, WI, USA)

Research emphasis: Physiological responses of birds and mammals to plant secondary compounds

Supervisor: Prof. William H. Karasov

Term: 2008 - 2009

Biological Field Technician

Department of Zoology and Physiology, University of Wyoming (Laramie, WY, USA)

Duties: Estimate abundance and diversity of both small mammals and vegetation in a mixed-grass prairie ecosystem

Supervisor: Eric Everett (M.Sc. Candidate advised by Prof. Steven Buskirk)

Term: 5/2001 - 8/2001

EDUCATION

Doctor of Philosophy; University of Wyoming

Major: Zoology & Physiology

Dissertation title: Vertebrate solutions to the osmoregulatory quandary posed by nectarivory

Advisor: Prof. Carlos Martínez del Rio

Date conferred: August 2008

Bachelor's of Science; University of Wyoming

Majors (concurrent):

1) Wildlife & Fisheries Biology & Management; and

2) Environment & Natural Resources

Minor: Biology

Advisor: Prof. Harold L. Bergman

Date conferred: December 2002

ACADEMIC EXPERIENCE

COURSE INSTRUCTOR

Human Systems Physiology (Junior level); University of Wyoming, spring 2006.

LABORATORY INSTRUCTOR

General Biology (Freshman level), Human Physiology (Sophomore level), Human Systems Physiology (Junior level), Integrative Physiology (Junior level), and Mammalian Physiology (Senior level); University of Wyoming, 2003-2007 with the following exceptions: fall 2005 and spring 2006.

RESEARCH ASSISTANTSHIPS

Evolutionary Genetics (supervisor: Dr. Mark C. Ungerer); Kansas State University, spring 2008.

Molecular Biology (supervisor: Prof. Enrique Caviedes-Vidal); Universidad Nacional de San Luis (San Luis, Argentina), spring 2009.

Physiological Ecology (supervisor: Dr. Pablo Sabat); Universidad de Chile (Santiago, Chile), fall 2005.

Physiological Ecology (supervisor: Dr. Zeev Arad); Technion - Israel Institute of Technology (Haifa, Israel), summer 2009.

Zoology and Physiology (supervisor: Prof. Carlos Martínez del Rio); University of Wyoming, 2003-2008.

PUBLICATIONS

Carleton SA, B Hartman Bakken, and C Martínez del Rio. 2006. Metabolic substrate use and the turnover of endogenous energy reserves in broad-tailed hummingbirds (*Selasphorus platycercus*). *Journal of Experimental Biology* 209(14): 2622-2627.

Fleming PA, B Hartman Bakken, CN Lotz, and SW Nicolson. 2004. Concentration and temperature effects on sugar intake and preferences in a sunbird and a hummingbird. *Functional Ecology* 18: 223-232.

Hartman Bakken B, LG Herrera M, RM Carroll, J Ayala-Berdón, JE Schondube, and C Martínez del Rio. 2008. A nectar-feeding mammal avoids body fluid disturbances by varying renal function. *American Journal of Physiology – Renal Physiology* 295: F1855-F1863.

Hartman Bakken B, TJ McWhorter, E Tsahar and, C Martínez del Rio. 2004. Hummingbirds arrest their kidneys at night: diel variation in glomerular filtration rate in *Selasphorus platycercus*. *Journal of Experimental Biology* 207(25): 4383-4391.

Hartman Bakken B and P Sabat. 2006. Gastrointestinal and renal responses to water intake in the green-backed firecrown (*Sephanoides sephanooides*), a South American hummingbird. *American Journal of Physiology – Regulatory, Integrative and Comparative Physiology* 291: R830-R836.

Hartman Bakken B and P Sabat. 2007. Evaporative water loss and dehydration during the night in hummingbirds. *Revista Chilena de Historia Natural* 80: 267-273.

Hartman Bakken B and P Sabat. 2008. The mechanisms and ecology of water balance in hummingbirds. *Neotropical Ornithology* 19 (Suppl.): 501-509.

Karasov WH, E Caviedes-Vidal, B Hartman Bakken, I Izhaki, M Samuni-Blank, and Z Arad. 2012. Capacity for absorption of water-soluble metabolites greater in birds than in rodents. *PLoS ONE* 7(2): e32417.

Kooyers NJ, B Hartman Bakken, MC Ungerer, and KM Olsen. 2018. Freeze-induced cyanide toxicity does not maintain the cyanogenesis polymorphism in white clover (*Trifolium repens*). *American Journal of Botany* 105 (7): 1224-1231.

McWhorter TJ, B Hartman Bakken, WH Karasov, and C Martínez del Rio. 2006. Hummingbirds rely on both paracellular and carrier-mediated intestinal glucose absorption to fuel high metabolism. *Biology Letters* 2: 131-134.

Staton SE, B Hartman Bakken, BK Blackman, MA Chapman, NC Kane, S Tang, MC Ungerer, SJ Knapp, LH Rieseberg, and JM Burke. 2012. The sunflower (*Helianthus annuus* L.) genome reflects a recent history of biased accumulation of transposable elements. *The Plant Journal* 72: 142-153.

Welch KC, B Hartman Bakken, C Martínez del Rio, and RK Suarez. 2006. Hummingbirds fuel hovering flight with newly ingested sugar. *Physiological and Biochemical Zoology* 79: 1082-1087.

AWARDS, FELLOWSHIPS, HONORS, AND GRANTS

Antonia Brancia Maxon Award for EHDI Excellence (Nominee; 2022)
 American Ornithologists' Union, Van Tyne Research Award (\$1,275; 2005)
 Journal of Experimental Biology, Traveling Fellowship (\$3,905; 2004)
 National Institutes of Health/National Center for Research Resources (\$4,500; 2004)
 National Institutes of Health, University of Wyoming Northern Rockies Regional INBRE (\$34,000; 2007)
 National Science Foundation, Research Experience for Undergraduates Award (\$3,000; 2002)
 Society for Integrative and Comparative Biology, Graduate Student Travel Award (\$1,900; 2005)
 United States-Israel Binational Science Foundation, Young Scientist Travel Grant (\$4,000; 2009)
 University of Wyoming, College of Arts & Sciences Travel Award (\$300; 2007)
 University of Wyoming, Department of Zoology and Physiology Travel Grant (\$300; 2007)
 University of Wyoming, George E. Menkens Fellowship (\$8,000; 2005)
 University of Wyoming, Graduate School Travel Award (\$300; 2007)
 University of Wyoming, L. Floyd Clarke Graduate Scholar Fellowship (\$1,000; 2003)
 University of Wyoming, Ornithology Award (\$350; 2005)
 University of Wyoming, Outstanding Graduate Teaching Assistant (\$1,500; 2004)

INVITED SYMPOSIUM TALKS

Water homeostasis in nectar-feeding vertebrates: out of the lake and into the ocean. American Physiological Society, intersociety meeting. Symposium contributor. Westminister, Colorado; August 2010.

The ecology and mechanisms of water balance in hummingbirds. 8th Neotropical Ornithological Congress. Symposium contributor. Maturín, Venezuela; May 2007.

RESEARCH PAPERS PRESENTED

Hartman Bakken B, PA Fleming, CN Lotz, and SW Nicolson. Sugar intake and preferences in a sunbird and hummingbird: possible roles in the coevolution with ornithophilous plants? University of Wyoming Graduate Student Symposium. Laramie, Wyoming; 2003.

Hartman Bakken B, TJ McWhorter, E Tsahar, and C Martínez del Rio. Hummingbirds arrest their kidneys. University of Wyoming Graduate Student Symposium. Laramie, Wyoming; 2004.

Hartman Bakken B and P Sabat. Mechanisms of water balance in hummingbirds. Society for Integrative and Comparative Biology, annual meeting. Phoenix, Arizona; January 2007.

PUBLISHED ABSTRACTS

McWhorter TJ, B Hartman Bakken, WH Karasov, and C Martínez del Rio. 2005. Hummingbirds fuel high metabolism with both paracellular and carrier-mediated intestinal glucose absorption. *Integrative and Comparative Biology* 45(6): 1043.

McWhorter TJ, B Hartman Bakken, E Tsahar, and C Martínez del Rio. 2003. Renal function in nectar-feeding birds: hummingbirds turn off the faucet at night. *Integrative and Comparative Biology* 43(6): 979.

Welch KC, B Hartman Bakken, and RK Suarez. 2005. Use of dietary sugar by hummingbirds as revealed by stable isotope and respiratory analyses. *Integrative and Comparative Biology* 45(6): 1094.

SERVICE

BOARD MEMBER

- Directors of Speech and Hearing Programs in State Health and Welfare Agencies: Executive Board
 - Member-At-Large: 2018 - 2019
 - Vice President - Communications: 2019 - 2020
 - President-Elect: 2020 - Present
- Hands & Voices Family Leadership in Language & Learning Center: Advisory Board
 - Member: 2020 - Present

INVITED AUTHOR

- Summer homes are expensive: hummingbirds and life in the cold. Wyoming Chapter of the Audubon Society. Fall 2003 newsletter.

INVITED SPEAKER

- Grant Writing Workshop. National Early Hearing Detection and Intervention (EHDI) Meeting. Directors of Speech and Hearing Programs in State Health and Welfare Agencies, Board Member. Chicago, Illinois; March 2019.
- Nectar-feeding vertebrates and the physiological mechanisms they use to maintain water balance. Department of Biology, University of North Dakota. Grand Forks, North Dakota; December 2011.
- The osmoregulatory problem with eating nectar and how vertebrates solve it: hummingbirds are (pretty much) amphibians and nectar-feeding bats are (by and large) hummingbirds. Great Lakes WATER Institute. Milwaukee, Wisconsin; August 2011.

Can nectar-feeding vertebrates provide insight into human diseases? Marshfield Clinic. Minocqua, Wisconsin; July 2005.

An introduction to hummingbirds. United States Forest Service, Medicine Bow-Routt National Forests. Centennial, Wyoming; July 2005.

How to win friends and influence people (by talking about hummingbirds). Audubon Society. Cheyenne and Laramie, Wyoming; April 2005.

The ecology of physiological dysfunction: renal 'failure' in hummingbirds. The Wildlife Society, Wyoming Student Chapter. Laramie, Wyoming; April 2004.

MANUSCRIPT REVIEWER

Comparative Biochemistry and Physiology, Journal of Arid Environments, Journal of Comparative Physiology B, Journal of Experimental Biology, Physiological and Biochemical Zoology, Science, The Auk, The Condor, and Zoology.

PROFESSIONAL SOCIETIES

American Association for the Advancement of Science (2004-2009)

American Ornithologists' Union (2005-2009)

American Physiological Society (2006-2009)

Directors of Speech and Hearing Programs in State Health and Welfare Agencies (2017 - Present)

Society for Integrative and Comparative Biology (2006-2009)

PROFESSIONAL REFERENCES

Please inquire.