

## Kathryn Wilsterman

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### Appointments

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2022-*curr.* Assistant Professor, Colorado State University, Fort Collins, CO  
2021-2022. NIH NRSA Post-doctoral Fellow, University of Montana, Missoula MT  
2019-2021 NSF Post-doctoral Fellow, University of Montana, Missoula MT

### Training & Education

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2014-2019 PhD in Integrative Biology, University of California, Berkeley, Berkeley CA  
2010-2014 B.Sc., Biology, Bucknell University, Lewisburg PA

### Peer-reviewed Publications

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φ = co-first authorship

\*\* = Undergraduate mentee co-authors

25. **K Wilsterman**, EC Moore, RM Schweizer, KC Cunningham\*\*, JM Good, and ZA Cheviron. 2022. Adaptive structural and functional evolution of the placenta protects fetal growth in high elevation deer mice. *bioRxiv*. doi: <https://doi.org/10.1101/2022.09.27.509814>
24. **K Wilsterman** and K Cunningham\*\*. 2022. Evolution in reproductive tempo and investment across the *Peromyscus* radiation. In Press, *J. Exp. Zool. A*.
23. Gotlieb, Nφ, **K Wilsterman**φ, SL Finn\*\*, MF Browne, SR Bever, E Iwakoshi-Ukena, K Ukena, GE Bentley, LJ Kriegsfeld. 2022. Impact of chronic prenatal stress on maternal neuroendocrine function and embryo and placental development in mice. *Front. Physiol.* doi: 10.3389/fphys.2022.886298.
22. Williams, CT, HE Chmura, CK Deal, and **K Wilsterman**. 2022. Sex-differences in phenology: a Tinbergian Perspective. *Integrative and Comparative Biology*. doi: 10.1093/icb/icac035.
21. Burnett, NP, A. Hernandez, EE King, RL Tanner, and **K Wilsterman**. 2022. Commentary, Policy Forums: A push for inclusive data collection in STEM organizations. *Science*. 376(6588):37-39.
20. **Wilsterman, K** and ZA Cheviron. 2021. Fetal growth, high altitude, and evolutionary adaptation: A new perspective. *Am. J. Physiol. – Regul., Comp, & Integr. Physiol.* 321(3): R279-R294.
19. **Wilsterman, K**, MA Ballinger, and CM Williams. 2021. A universal framework for animal dormancy. *Func. Ecol.* 35: 11-31.
18. Robertson, CE, and **K Wilsterman**. 2020. Developmental and reproductive physiology of high-altitude small mammals: challenges and evolutionary innovations. *J. Exp. Biol.* 223(24): jeb215350.
17. Burnett, NP, EE King, MK Salcedo, RL Tanner, and **K Wilsterman**. 2020. Letter to the Editor: Conference scheduling undermines diversity efforts. *Nature Ecol. & Evol.* 4, 1283–1284.
16. **Wilsterman, K**, MM Alonge, DK Ernst, CA Limber\*\*, LA Treidel, and GE Bentley. 2020. Flexibility in the Emergency Life-history Stage: Acute food restriction prevents sickness behavior but not the immune response. *Proc. Royal Soc. B.* 287(1929): 20200842.
15. **Wilsterman, K**, MM Alonge, X Bao\*\*, KA Conner\*\*, and GE Bentley. 2020. Food access modifies GnIH, but not CRH, cell number in the hypothalamus in a female songbird. *Gen. Comp. Endocrinol.* 292: 113438.
14. Hernández M<sup>a</sup>C, Á Navarro-Castilla, **K Wilsterman**, GE Bentley, and I Barja. 2019. When food access is challenging: evidence of wood mice ability to balance energy budget under predation risk and physiological stress reactions. *Behav. Ecol. & Sociobiol.* 73:145.
13. **Wilsterman, K**, X Bao\*\*, AD Estrada\*\*, P Comizzoli, and GE Bentley. 2019. Sex steroids influence organizational but not functional decidualization of feline endometrial epithelial cells in a 3D culture system. *Biol. Repro.* 101(5): 906-915.
12. **Wilsterman, K**, GE Bentley, and P Comizzoli. 2019. RFRP-3 promotes basal lamina degradation and cellular death while increasing progesterone secretion in cultured cat ovarian follicles. *PeerJ*. 7: e7540
11. Williams, CT, H Chmura, V Zhang, D Dillon, **K Wilsterman**, BM Barnes, and CL Buck. 2019. Environmental heterogeneity affects seasonal variation in thyroid hormone physiology of free-living arctic ground squirrels. *Can. J. Zool.* 97(9): 783-790.

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10. **Wilsterman K**, N Gotlieb, LJ Kriegsfeld, and GE Bentley. 2018. Pregnancy stage determines the effect of chronic stress on ovarian progesterone synthesis. *Amer. J. Physiol. - Endo. & Metab.* 315(5): E987-E994.
09. Squicciarini, V, R Riquelme, **K Wilsterman**, GE Bentley, and HE Lara. 2018. Role of RFRP-3 in the development of cold stress-induced polycystic ovary phenotype in rats. *J. Endocrinol.* 239(1): 81-91.
08. Grant, AD, **K Wilsterman**, BL Smarr, and LJ Kriegsfeld. 2018. Evidence for a coupled oscillator model of endocrine ultradian rhythms. *J. Biol. Rhy.* 33(5): 475-496.
07. **Wilsterman, K**, RM Calisi, NL McGuire, and GE Bentley. 2018. "Seasonality: Hormones and Behavior." Chapter in: *Encyclopedia of Animal Behavior, 2<sup>nd</sup> Edition* Ed. J Choe, Ed. RJ Nelson. Academic Press, Elsevier.
06. **Wilsterman, K**, A Pepper\*\*, and GE Bentley. 2017. Low glucose availability stimulates progesterone production by mouse ovaries in vitro. *J. Exp. Biol.* 220, 4583-4588 doi:10.1242/jeb.164384
05. Bentley, GE, **K Wilsterman**, DK Ernst, SE Lynn, MJ Dickens, RM Calisi, LJ Kriegsfeld, D Kaufer, AC Geraghty, D viviD, NL McGuire, and K Tsutsui. 2017. Neural versus gonadal GnIH: Are they independent systems? A mini-review. *Integr. & Comp. Biol.* (6):1194-1203. DOI: 10.1093/icb/icx085.
04. Williams, CT, **K Wilsterman**, V Zhang\*\*, J Moore, BM Barnes, and CL Buck. 2016. The secret life of ground squirrels: accelerometry reveals sex-dependent plasticity in above-ground activity. *Royal Soc. Open Sci.* 3: 160404. DOI: 10.1098/rsos.160404
03. **Wilsterman, K**, CT Williams, BB Barnes, and CL Buck. 2015. Energy regulation in context: Free-living female arctic ground squirrels modulate the relationship between thyroid hormones and activity among life history stages. *Horm. & Behav.* 75: 111-119.
02. **Wilsterman, K**, AD Mast, TH Luu, and MF Haussmann. 2015. The timing of embryonic exposure to elevated temperature alters stress endocrinology in domestic chickens (*Gallus domesticus*). *Gen. Comp. Endo.* 212: 10-16.
01. Williams, CT, **K Wilsterman**, AD Kelley, AR Breton, H Stark, MM Humphries, AG McAdam, BM Barnes, S Boutin, and CL Buck. 2014. Light loggers reveal weather-driven changes in the daily activity patterns of arboreal and semi-fossorial rodents. *J. Mamm.* 95: 1230-1239.

### External Awards

2020-22	<b>National Institute of Health R15 AREA Award (1 R15 HD103925 01)</b> "Understanding the etiology of altitude-related obstetric complications through evolutionary adaption" Co-Investigator with PI Zachary A. Cheviron	\$440,715
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### Other Grants and Fellowships

**Total: \$389,128**

2021	- NIH NRSA F32 Fellowship - "Understanding the etiology of altitude-related obstetric complications through evolutionary adaption"	\$69,545
2019	- National Science Foundation Post-Doctoral Fellow	\$138,000
	UNVEIL Post-Doctoral Fellowship (Declined)	Declined
	Life Sciences Research Foundation Post-Doctoral Fellow (Declined)	Declined
	UNVEIL Research Support	\$30,000
2018	- Phi Beta Kappa Graduate Fellowship	\$7,500
	Graduate Student Research Allocation Committee Research Funds	\$300
	BURET NIH Workshop Series Participant	\$500
2017	- Graduate Student Research Allocation Committee Travel Funds	\$250
	Graduate Student Research Allocation Committee Research Funds	\$300
	SICB Grant-in-Aid of Research	\$980
	Integrative Biology Summer Research Award	\$1,750
2016	- SMART (Student Mentoring and Research Teams) Mentor	\$2,837
	Graduate Division Conference Travel Grant	\$900
	Sigma Xi Local Chapter Grants-in-Aid of Research (GIAR)	\$500
	Integrative Biology Summer Research Award	\$1,750
	SMART (Student Mentoring and Research Teams) Project Funding	\$1,466

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	Graduate Student Research Allocation Committee Research Funds	\$300
2015	- National Science Foundation Graduate Research Fellow	\$102,000
	Graduate Student Research Allocation Committee Travel Funds	\$250
2014	- Jo Gayle Howard Fellowship	\$25,000
2013	- National Science Foundation Research Experience for Undergraduates	\$5,000

## Awards and Honors

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- 2016 - Outstanding Graduate Student Instructor Award  
2014 - Eleanor D. Decker Prize for Women - Awarded to the woman of the graduating class who best represents the ideals of intellectual maturity, personal conviction, and strength of character

## Invited Talks

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- 2023 **Invited keynote speaker.** University of Michigan, Dept of Human Genetics Post-doc Symposium  
**Invited seminar.** University of Wyoming  
**Invited seminar.** Cellular and Molecular Biology Graduate Program, Colorado State University.
- 2022 **Invited seminar.** University of New Hampshire.  
**Invited plenary speaker.** GREEBS Conference (Graduate Researchers in Ecology and Evolutionary Biology)  
**Invited speaker.** FASEB/Endocrine Society Conference: "Allostasis: Stressed or Stressed out?".  
**Invited seminar.** Animal Reproduction and Biotechnology Laboratory, Colorado State University.  
**Invited seminar.** University of Denver.
- 2021 **Invited seminar.** Colorado State University, Fort Collins.  
**Invited seminar.** Gonzaga University.

## Teaching

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*Animal Physiology*, Co-Instructor, Colorado State University; Spr. 2023

## Mentorship and Advising

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*Programs for which I have mentored students:*

National Institutes of Health, T24 Wolves 2 Rams, Front Range Community College	2023-curr.
National Institutes of Health, Bridges to Baccalaureate program, UC Berkeley	Summer 2018
SICB Broadening Participation Meeting Mentorship program	Jan. 2018
Student Mentoring and Research Teams (SMART) program, UC Berkeley	Summer 2016

*Undergraduate research assistant mentees*

(UCB - UC Berkeley; UM - Univ. of Montana)

p poster presentation; \*\* manuscript co-author; § honors thesis mentees

Jaelyn Lai (UCB)	Cody Limber (UCB) p§**	Mya Voigtsberger (CSU) p
Alvin Balmeo (UCB)	Kristin Conner (UCB) p§**	Aria Fischer (CSU)
Aimee Pepper (UCB) p**§	Michael Sleeting (UM) p	Ellery Myers (CSU)
Laura Reynolds (UCB)	Allegra Estrada (UCB) p**	Kylie Jewett (CSU)
Emily Tang (UCB)	Hannah Johnson (UM) p§	
Rita Bao (UCB) **	Madison Atlas (UM)	
Kirksey Cunningham (UM) p§**	Jacob Albright (UM)	

## Professional Service

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**Review Editor**, *Frontiers in Veterinary Medicine* (2022-curr.)

**Assistant Editor (non-divisional)**, *Integrative and Comparative Biology* (2021)

**Guest Editor**, NSF Jumpstart Biology Initiative, *Integrative and Comparative Biology* (2021)

**Reviewer for Journals (Manuscripts):** *Acta Biochimica et Biophysica Sinica* (1), *Behavioral Ecology* (1), *Biology Letters* (1), *Conservation Physiology* (1), *Ecology* (1), *Frontiers in Veterinary Science* (1), *General and Comparative Endocrinology* (6), *Journal of Assisted Reproduction and Genetics* (1),

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Journal of Zoology (1), Molecular and Cellular Endocrinology (1), PeerJ (1), Physiological and Biochemical Zoology (1), Scientific Reports (2)

**Society Affiliations:** Society for the Study of Evolution (2022 - *curr.*), Society for the Study of Reproduction (2015 - *curr.*), Society of Integrative and Comparative Biology (2013 - 2022)

### Professional Development

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- 2020 – **Indigenous Mentoring Program Workshop**; facilitated sessions focused on sharing “knowledge about cultural humility, visiting Native students’ home communities, establishing and sustaining healthy mentor-mentee relationships, and campus and community-wide services and programs available for American Indian and Alaska Native students”. Organized by Univ. of Montana Office of Organizational Learning and Development.
- Summer Institute on Scientific Teaching**; four-day workshop focused on “evidence-based active learning strategies” to “expand and sharpen participants’ teaching skills”. Organized by Howard Hughes Medical Institute, the Yale Center for Teaching and Learning, and the Helmsley Charitable Trust.
- 2018 – **BURET (Bring out the Best in your Undergraduate Researchers: Teaching & Mentoring in Chemistry & Biology Labs) Workshop Series**; NIH-supported workshop series for graduate students and post-doctoral scholars interested in undergraduate teaching and mentoring.
- 2015-18 – **Certificate in Teaching and Learning in Higher Education**; Completed Fall 2018. Graduate Student Instruction Teaching & Resource Center.

### Outreach & Service

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- 2019-*curr.* Conferences and Broadening Participation Working Group, Founding Member
- 2015-2019 UC Berkeley Expanding Your Horizons Conference (Volunteer & Committee Chair)
- 2016-2017 Episode for The Graduates, Radio Talk Show on KALX 90.7  
<https://shows.acast.com/the-graduates/episodes/kate-wilsterman>
- 2014-2016 Bay Area Scientists in Schools (BASIS) Volunteer

### Contributed Conference Presentations (22 total)

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\*\* = Undergraduate mentee co-authors

- Wilsterman, K**, EC Moore, RM Schweizer, JM Good, and ZA Cheviron. 2022. Evolutionary adaptations that limit hypoxia-dependent fetal growth restriction are linked to remodeling of placental structure and function. Poster. Society for the Study of Reproduction. Spokane, WA.
- Wilsterman, K**, EC Moore, RM Schweizer, JM Good, and ZA Cheviron. 2022. Reproductive adaptations that protect fetal growth at altitude are linked to remodeling of placental structure and function. Contributed Talk. Evolution. Cleveland, OH.
- Moore, EC, F Rodriguez-Caro, **K Wilsterman**, Q McKelvey-Pham, and JM Good. 2022. Hotspots of disruption in placental regulatory gene networks reflect a common genetic architecture underlying hybrid placental dysplasia in rodents. Evolution. Cleveland, OH.
- Wilsterman, K**, EC Moore, JM Good, and ZA Cheviron. 2022. *Placental gene networks underlying fetal growth restriction at high altitudes*. Poster. Society for Integrative and Comparative Biology, Phoenix, AZ.
- Cunningham, KC\*\*, **K Wilsterman**, and ZA Cheviron. 2022. *Gestating at altitude: How do maternal physiology and evolutionary adaptation influence fetal growth?* Poster. Society for Integrative and Comparative Biology, Phoenix, AZ.
- Johnson, HC\*\*, **K Wilsterman**, JM Good, and ZA Cheviron. 2021. *Does adaptation to high altitude affect hypoxia-dependent structural plasticity of the placenta?* Poster. Society for Integrative and Comparative Biology, Washington, DC (Meeting moved to virtual format).
- Gotlieb, N, **K Wilsterman**, SL Finn, M Browne, D Hu, D Cornejo, G Hutchinson, E Iwakoshi-Ukena, K Ukena, GE Bentley, and LJ Kriegsfeld. 2020. *Neural circuits and hormonal mechanisms underlying the negative impact of stress on pregnancy outcomes*. Poster. The Endocrine Society’s Annual Meeting. San Francisco, CA.

- Wilsterman, K**, MM Alonge, DK Ernst, CA Limber\*\*, LA Treidel, and GE Bentley. 2019. *A test of the energy limitation hypothesis: acute food restriction prevents sickness behavior but not the immune response in female zebra finches*. Talk. Society for Integrative and Comparative Biology, Tampa, FL. **Selected for Best Student Presentation Competition** (Division of Ecoimmunology and Disease Ecology).
- Hernández M<sup>a</sup>C, Á Navarro-Castilla, **K Wilsterman**, GE Bentley, and I Barja. 2019. *How does predation risk and physiological stress response explain energy budget balance in a free-ranging rodent?* Poster. Ecology and Behaviour. Toulouse, France.
- Wilsterman, K**, GE Bentley, and P Comizzoli. 2019. *RFRP-3 Promotes Cell Death and Basal Lamina Degradation in Cultured Cat Ovarian Follicles*. Poster. Society for the Study of Reproduction, San Jose, CA.
- Estrada, AD\*\*, **K Wilsterman**, P Comizzoli, and GE Bentley. 2019. *Sex steroids alter 3D growth of feline endometrial cells in vitro*. Poster. Society for Integrative and Comparative Biology. Tampa, FL.
- Wilsterman, K**, M Ballinger, and CM Williams. 2018. *Winter dormancy in insects and mammals*. Talk. Society for Integrative and Comparative Biology, San Francisco, CA.
- Wilsterman, K**, N Gotlieb, P Comizzoli, GE Bentley, and LJ Kriegsfeld. 2017. *How does chronic stress affect ovarian function during pregnancy?* Poster. Society for the Study of Reproduction, Washington, DC.
- Wilsterman, K**, N Gotlieb, LJ Kriegsfeld, and GE Bentley. 2017. *Mapping the ovarian pathways involved in stress-induced reproductive dysfunction in mice*. Poster. Society for Integrative and Comparative Biology. New Orleans, LA.
- Pepper, AW\*\*, **K Wilsterman**, and GE Bentley. 2017. *Outside of the axis: the mammalian ovary as a distinct physiological cue integration center*. Poster. Society for Integrative and Comparative Biology. New Orleans, LA.
- Ernst, D, **K Wilsterman**, J Kumaravel, and G Bentley. 2016. *Ovarian GnIH expression and steroidogenesis in response to acute stress in a songbird*. Talk. International Symposium on Avian Endocrinology, Niagara-on-the-Lake, ON, Canada. Also presented at Society for Integrative and Comparative Biology 2017, New Orleans, LA.
- Wilsterman, K**, GE Bentley, DE Wildt, and P Comizzoli. 2016. *Steroid hormone synthesis by the domestic cat ovary is seasonally inhibited by gonadotropin-inhibitory hormone (GnIH)*. Poster. Society for the Study of Reproduction. San Diego, CA.
- Wilsterman, K**, P Comizzoli, and GE Bentley. 2016. *RFRP-3 expression and function in reproductive tissues of the domestic cat (Felis catus)*. Poster. Society for Integrative and Comparative Biology, Portland, OR.
- Prendergast, BJ, MJ Dickens, N Gotlieb, D Guardado, DK Ernst, LJ Kriegsfeld, KG Onishi, N Perfito, BL Smarr, **K Wilsterman**, and GE Bentley. 2015. *Immune responses of inbred laboratory mice exposed to a natural environment*. Poster. Society for Behavioral Neuroscience, Pacific Grove, CA.
- Zhang, VY\*\*, CT Williams, **K Wilsterman**, and CL Buck. 2015. *Determinants of activity patterns in arctic ground squirrels of Alaska: environmental conditions more influential than sex-specific differences*. Poster. Society for Integrative and Comparative Biology 2015, West Palm Beach, FL.
- Wilsterman, K**, CT Williams, and CL Buck. 2015. *Circulating levels of thyroid hormone reflect seasonal changes in activity of free-living arctic ground squirrels*. Talk. Society for Integrative and Comparative Biology, West Palm Beach, FL
- Wilsterman K**, CT Williams, and CL Buck. 2014. *Fair-weather friends: environmental constraints on the activity of arctic ground squirrels*. Talk. Society for Integrative and Comparative Biology, Austin, TX