

ALLISON LOUTHAN

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PROFESSIONAL APPOINTMENTS & EDUCATION

Assistant Professor Kansas State University, Division of Biology	2019- current
Postdoctoral Associate Duke University, Department of Biology Advisor: William Morris	2016-2019
Ph.D., Environmental Studies University of Colorado-Boulder Advisor: Daniel Doak	2013-2016
Ph.D. candidate, Program in Ecology & Zoology and Physiology Department University of Wyoming (transferred to University of Colorado-Boulder in 2013) Advisor: Daniel Doak	2009- 2013
B.A., Biology Grinnell College	2004- 2008
Organization for Tropical Studies, South Africa	2007

FELLOWSHIPS, AWARDS, & GRANTS

Co-PI, SERDP contract number RC18-C1-1065 (\$1,577,322)	2017
P.E.O. Scholar Award, International Chapter of P.E.O. Sisterhood (\$15,000)	2014
Beverly Sears Graduate Student Research Grant, University of Colorado (\$1,000)	2014
L'Oréal-UNESCO International Fellowship for Women in Science (\$40,000 total)	2013, 2014
American Philosophical Society, Lewis and Clark Fund (\$5,000)	2013
NSF Doctoral Dissertation Improvement Grant (\$18,393)	2013
Finalist, Environmental Protection Agency STAR Graduate Fellowship	2013
Plummer Grant, University of Wyoming (\$1,000)	2012
Women in Conservation Biology Scholarship, University of Wyoming (\$1,000)	2012
Wyoming NASA Space Grant Graduate Research Fellowship (\$20,000)	2012
Dr. George E. Menkens Memorial Scholarship, University of Wyoming (\$15,600) (\$3000 research, \$12,600 fellowship)	2012
Haub Creative Activities Grant, University of Wyoming (\$1,000)	2011
Cheney International Fellowship for Excellence, University of Wyoming (\$2,500)	2011
Berry Center Avian Ecology Fund, University of Wyoming (\$3,000)	2011
President's fund, University of Wyoming (\$8,000)	2011
NSF Graduate Research Fellowship, honorable mention	2009, 2010, 2011
BLM WY Desert Yellowhead Population Status Assessment (\$45,000) (member of the research team; contributed to writing the proposal)	2010
University of Wyoming Program in Ecology fellowship (\$20,000)	2009

PUBLICATIONS

- Louthan, A.M.**, Keighron, M. Kiekebusch, E., Cayton, H., Terando, A., and Morris, W. Climate change modifies the impact of disturbance interval on the growth rate of natural populations of Venus flytrap. In review at *Ecology*.
- Kiekebusch, E., **Louthan, A.**, Morris, W., Hudgens, B., Haddad, N. Vital rate responses to temperature lead to butterfly population declines under future warming scenarios. In review at *Ecology*.
- D. Doak, R. Langendorf, **A. Louthan**, E. Waddle, N. Chardon, R. Dibner, D. Keinath, E. Lombardi, C. Steenbock, R. Shriver, C. Linares, M. Begona Garcia, W. F. Morris, M. Peterson. A critical comparison of the strengths and weaknesses of integral projection models and matrix projection models. In revision at *Ecological Monographs*.
- W. F. Morris, J. Ehrlén, J. P. Dahlgren, A. K. Loomis, **A. M. Louthan**. 2020. Biotic and anthropogenic forces rival climatic/abiotic factors in determining global plant population growth and fitness. *Proceedings of the National Academy of Sciences U.S.A.* 117:1107-1112.
- A. Louthan**, E. Valencia, D. Martins, T. Guy, J. Goheen, T. Palmer, and D. Doak. 2019. Large mammals generate both top-down effects and extended trophic cascades on floral-visitor assemblages. *Journal of Tropical Ecology* 35:185-198.
- R. Dibner, M. Peterson, **A. Louthan**, D. Doak. 2019. Multiple mechanisms confer stability to isolated populations of a rare endemic plant. *Ecological Monographs* 89: e01360.
- A. Louthan** and D. Doak. 2018. Measurement error of state variables creates substantial bias in results of demographic population models. *Ecology* 99: 2308-2317.

- J. Goheen, D. Augustine, K. Veblen, D. Kimuyu, T. Palmer, L. Porensky, R. Pringle, J. Ratnam, M. Sankaran, G. Charles, A. Ford, A. Hassan, R. Jakopak, T. Kartzinel, C. Riginos, S. Kurukura, **A. Louthan**, W. Odadi, T. Otieno, A. Wambua, H. Young, and T. Young. 2018. Conservation lessons from large-mammal manipulations in East African savannas: the KLEE, UHURU, and GLADE experiments. *Annals of the New York Academy of Sciences* 1429: 31-49. *Invited contribution to the special volume: *The Year in Ecology and Conservation Biology*.
- A. Louthan**, R. Pringle, J. Goheen, T. Palmer, W. Morris, and D. Doak. 2018. Aridity weakens population-level effects of multiple species interactions in *Hibiscus meyeri*. *Proceedings of the National Academy of Sciences U.S.A.* 115: 532-548.
- A. Louthan**, D. Doak, and A. Angert. 2015. Where and when do species interactions set range limits? *Trends in Ecology and Evolution* 30: 780-792.
- D. Doak, G. Himes Boor, V. Bakker, W. Morris, **A. Louthan**, A. Stanley, and L. Crowder. 2015. Recommendations for improving recovery criteria under the United States Endangered Species Act. *Bioscience* 65:189-199.
- A. Louthan**, D. Doak, J. Goheen, T. Palmer, and R. Pringle. 2014. Mechanisms of plant-plant interactions: concealment from herbivores is more important than abiotic-stress mediation in an African savannah. *Proceedings of the Royal Society: B* 281: 20132647.
- A. Louthan**, D. Doak, J. Goheen, T. Palmer, and R. Pringle. 2013. Climatic stress mediates the impact of herbivory on plant population structure and components of individual fitness. *Journal of Ecology* 101 (4): 1074-1083. * featured on the *Journal of Ecology* podcast.
- A. Louthan** and K. Kay. 2011. Comparing the adaptive landscape across trait types: larger QTL effect size in traits under biotic selection. *BMC Evolutionary Biology* 11(60): 749-760. * Received F1000 Award, designed to increase article publicity.
- V. Eckhart, I. Singh, **A. Louthan**, A. Keledjian, A. Chu, D. Moeller, and M. Geber. 2010. Plant-Soil Water Relations and Species Border of *Clarkia xantiana* ssp. *xantiana*. *International Journal of Plant Sciences*, 171(7): 749-760.

Other:

- D.F. Doak, R. Dibner, **A. Louthan**, and M.L. Peterson. 2016. Final report on Desert Yellowhead (*Yermo xanthocephalus*) conservation status. Report and recommendations to the Bureau of Land Management and the U.S. Fish and Wildlife Service.
- A. Louthan**, Préserver la biodiversité face au changement climatique, In: *Deyrolle: à la croisée des saviors*. Louis Albert de Broglie and Sylvie Albou-Tabart, ed., Éditions de La Martinière, 70, 2015.

PRESENTATIONS

Invited presentations:

- A. Louthan**. 2018. "Stronger effects of species interactions in abiotically unstressful areas." Department of Biological Sciences, Marquette University, December 4, 2018.
- A. Louthan**. 2018. "Species interactions exert stronger effects on savanna plant populations in abiotically unstressful areas." Division of Biology, Kansas State University, November 29, 2018.
- A. Louthan**. 2018. "Species interactions exert stronger effects on plant populations in abiotically unstressful areas." Department of Botany, University of Hawai'i-Manoa, February 22, 2018.
- A. Louthan**. 2017. "Species interactions exert stronger effects in abiotically unstressful areas." School of Biological Sciences Seminar, Washington State University, January 26, 2017.
- A. Louthan**. 2016. "The effect of species interactions on population growth rate varies systematically with abiotic stress." University Program in Ecology Seminar, Duke University, November 22, 2016.
- A. Louthan**, D. Doak, R. Pringle, J. Goheen, and T. Palmer. 2013. "Math in Population Biology: constructing predictive models of species' geographic distributions." University of Colorado Lecture series, Physics Department. October 25, 2013.
- A. Louthan**. 2013. "How important are ecological versus climatic factors in setting species' range limits?" L'Oréal-UNESCO Women in Science Poster Session, Paris, France. March 26, 2013.
- A. Louthan**. 2011. "The relative importance of abiotic and biotic factors in setting species' range limits: modeling future species' distributions under climate change." National Museums of Kenya, Nairobi, Kenya. May 18, 2011.

Contributed presentations:

- Kiekebusch, E., **Louthan, A.**, Morris, B., Hudgens, B. and N. Haddad. 2019. Measuring population responses to temperature across the annual lifecycle of a butterfly. International Congress for Conservation Biology. Kuala Lumpur, Malaysia.
- Kiekebusch, E., **Louthan, A.**, Morris, B., Hudgens, B. and N. Haddad. 2018. Measuring demographic rates and phenology at cryptic life stages of a locally rare wetland butterfly. Poster. Ecological Society of America, New Orleans LA.
- A. Louthan**. 2019. "Effects of climate and fire return interval on Venus flytrap (*Dionaea muscipula*)." North Carolina Rare Plant Discussion Meeting, North Carolina Zoological Park. March 6, 2019.

- A. Louthan.** 2016. “Where and when do species interactions set range limits? Competition, herbivory, and pollination in a Kenyan savannah.” Dissertation Defense, University of Colorado-Boulder, March 31, 2016.
- A. Louthan** and D. Doak. 2015. “Observation error optimistically biases estimates of population growth.” Ecology and Evolutionary Biology Symposium, University of Colorado-Boulder, April 17, 2015.
- A. Louthan** and D. Doak. 2015. “Observation error optimistically biases estimates of population growth.” Environmental Studies Brown Bag Lecture Series, University of Colorado-Boulder, April 6, 2015.
- A. Louthan**, D. Doak, R. Pringle, J. Goheen, and T. Palmer. 2014. “Herbivores erase the stress-gradient hypothesis.” Guild of Rocky Mountain Ecologists and Evolutionary Biologists annual meeting, Pingree Park, Colorado, September 20, 2014.
- A. Louthan**, J. Goheen, T. Otieno, R. Pringle, T. Palmer, and D. Doak. 2014. “Sensitivity of population growth to biotic interactions varies systematically with abiotic stress: drivers of small population dynamics in a Kenyan savanna.” Poster presented at ESA annual meeting, Sacramento Convention Center, Sacramento, California, August 15, 2014.
- A. Louthan**, D. Doak, R. Pringle, J. Goheen, and T. Palmer. 2014. “Herbivores, competitors, and rain: plant-plant interactions in an arid Kenyan savannah.” University of Colorado Lecture series, Environmental Studies Department. March 21, 2014.
- A. Louthan**, D. Doak, R. Pringle, J. Goheen, and T. Palmer. 2012. “Herbivores switch the sign of plant-plant interactions.” University of Wyoming Brown Bag Lecture Series, Zoology & Physiology Department. November 12, 2013.
- A. Louthan**, D. Doak, R. Pringle, J. Goheen, and T. Palmer. 2012. “Population- v. individual level effects of herbivores on plant performance.” University of Wyoming Brown Bag Lecture Series, Zoology & Physiology Department. April 23, 2012.
- V. Eckhart, I. Singh, A. Chu, A. Keledjian, and **A. Louthan.** 2008. “Multiple sources of water stress help define the species border of an arid-land annual plant.” ESA annual meeting, Milwaukee, Wisconsin. August 7, 2008.

TEACHING EXPERIENCE

University of Colorado-Boulder

Co-instructor, Ecology, 2015
 Tutor, Biology and Ecology, 2014-2015
 Guest Lecturer, Ecology, 2014

University of Wyoming

Teaching Assistant, field course in Kenya, 2012
 Teaching Assistant, Ecology and Introductory Biology, 2010-2011
 Department of Zoology and Physiology curriculum committee, 2010

Grinnell College

Tutor, chemistry and physics, 2004-2006
 Coordinator, Ecology journal club, Grinnell College, 2008

MENTORING EXPERIENCE

Duke University

Reviewer for high school girl’s STEM scholarship program, 2018
 Skype a Scientist participant, 2018

University of Colorado-Boulder

Panelist for graduate student outreach program on grant application techniques, 2017
 Mentor for “Promoting Geoscience Research Education and Success” for 2 female undergraduates, 2015
 Advised 2 undergraduates or recent undergraduates on field-based projects in East Africa (all entirely or partially funded by my own grant applications), resulting in a senior thesis, 2 in-preparation papers; 1 is now a graduate student at Cornell, 2013, 2015
 Volunteer at “I Have a Dream” Foundation Event for low income students, 2015

University of Wyoming

Advised 1 undergraduate on a field-based project (funded in part by my own grant applications) in East Africa; he recently completed his Ph.D. at Duke University, 2015

SERVICE

Manuscript reviewer: *Conservation Biology, Ecography, Ecological Applications, Ecology, Ecology Letters, Ecosphere, Functional Ecology, Global Change Biology, Global Ecology and Biogeography, Journal of Ecology, Journal of Vegetation Science, Plant Biology, PLOS ONE, Scientific Reports*, ad hoc NSF reviewer

University of Colorado- Boulder

Science Fair Judge, Burlington Elementary School, Longmont, CO, 2015
 Co-coordinator for Environmental Studies Program Colloquium Speaker Series, 2014-2015

Lecturer at Discovery Days (community outreach), Mpala Research Centre, 2012, 2013, 2014
Invited podcast guest for *Journal of Ecology*, 2013
Blog discussing climate change predictions and implications for Kenyan ecology and economy, 2013
Contributor to Mpala Memos (news publication at Mpala Ranch), 2013
Organized & raised money via donations for Laikipia bird watching club (local Kenyan organization), 2013

University of Wyoming

Participant in interdisciplinary workshop on better implementation of the Endangered Species Act, 2012
Research at Ol Pejeta Ranch on rhino conservation, 2012-2013
Mentor for outreach day, Daraja Academy (girl's school), Mpala Research Centre, Kenya 2012
Founder of "Great papers" reading group at the University of Wyoming, Program in Ecology, 2010
Program in Ecology outreach committee, University of Wyoming, 2010
Member of green roof construction committee, University of Wyoming, 2010
Judge, Wyoming state Science fair, 2010
Panelist, Women in Science, Wyoming, 2010

FIELD & LAB EXPERIENCE

Postdoctoral field work in Alaska (1 month a year), 2016-2017
Dissertation field work at Mpala Ranch, Kenya (4-5 months a year), 2011-2015
Dissertation field work in Wyoming & Colorado (1 month a year), 2010-2015
Volunteer field work in California, summer 2009
Student researcher (phylogenetics), Mentored Advanced Project, Grinnell College, Grinnell IA, fall 2007-spring 2008
Independent researcher, Cedar Creek Long-term ecological research station, 2007
Student researcher, Organization for Tropical Studies, South Africa, 2007
Student researcher (plant distribution and soil science), Mentored Advanced Project, Grinnell College, Grinnell IA, 2006