

Allison Louthan

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## PROFESSIONAL PREPARATION

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

## PUBLICATIONS

Undergraduate researchers are underlined>.

21. Kiekebusch, E, A Louthan, W Morris, B Hudgens, and N Haddad. Vital rate responses to temperature lead to butterfly population declines under future warming scenarios. In revision at *Journal of Animal Ecology*.
20. Doak, D, E Waddle, R Langendorf, A Louthan, N Chardon, R Dibner, R Shriver, C Linares, M Begona Garcia, S Fitzpatrick, WF Morris, M DeMarche. 2022. Reply to Ellner et al.'s comment on Doak et al. 2021. In press at *Ecology*.
19. Ratajczak, Z., SL Collins, J Blair, S Koerner, A Louthan, M Smith, J Taylor, and JB Nippert. Reintroducing bison results in long running and resilient increases in grassland diversity. In press at *Proceedings of the National Academy of Sciences U.S.A.*
18. Louthan, AM, M Keighron, E Kiekebusch, H Cayton, A Terando, and W Morris. 2022. Climate change modifies the impact of disturbance interval on the growth rate of natural populations of Venus flytrap. In press at *Ecological Monographs*.
17. Alston, J, C Reed, L Khasoha, B Brown, G Busienei, N Carlson, T Coverdale, M Dudenhoefter, M Dyck, J Ekeno, A Hassan, R Hohbein, R Jakopak, B Kimiti, S Kurukura, P Lokeny, A Louthan, S Musila, P Musili, T Tindall, S Weiner, T Kartzinel, T Palmer, R Pringle, and J Goheen. 2022. Ecological consequences of large herbivore exclusion in an African savanna: 12 years of data from the UHURU experiment. *Ecology* 103: e3649.
16. Louthan, AM, ML DeMarche, and LG Shoemaker. 2021. Climate sensitivity across latitude: scaling physiology to communities. *Trends in Ecology and Evolution* 36: 931-942. \* Received Faculty Opinions recommendation
15. Louthan, AM, J Walters, AJ Terando, V Garcia, and WF Morris. 2021. Shifting correlations among multiple aspects of climate complicate predicting future demography of a threatened species. *Ecosphere* 12: e03740.
14. Louthan, AM and WF Morris. 2021. Climate change impacts on population growth across a species' range differ due to nonlinear responses of populations to climate and variation in rates of climate change. *PLOS ONE* 16: e0247290.

13. Doak, D, E Waddle, R Langendorf, **A Louthan**, N Chardon, R Dibner, D Keinath, E Lombardi, C Steenbock, R Shriver, C Linares, M Begona Garcia, WC Funk, S Fitzpatrick, WF Morris, M DeMarche. 2021. A critical comparison of the strengths and weaknesses of integral projection models and matrix projection models. *Ecological Monographs* 91: e01447.
12. Morris, WF, J Ehrlén, JP Dahlgren, AK Loomis, and **A 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.
11. **Louthan, AM**, 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.
10. Dibner, R, M DeMarche, **A Louthan**, and D Doak. 2019. Multiple mechanisms confer stability to isolated populations of a rare endemic plant. *Ecological Monographs* 89: e01360.
9. **Louthan, AM** and D Doak. 2018. Measurement error of state variables creates substantial bias in results of demographic population models. *Ecology* 99: 2308-2317.
8. Goheen, J, 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 Kartzinell, 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*.
7. **Louthan, AM**, 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.
6. **Louthan, AM**, D Doak, and A Angert. 2015. Where and when do species interactions set range limits? *Trends in Ecology and Evolution* 30: 780-792.
5. Doak, D, 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.
4. **Louthan, AM**, 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.
3. **Louthan, AM**, 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.
2. **Louthan, AM**, 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 Faculty Opinions recommendation
1. Eckhart, V, 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**

- Morris, WF., G Himes-Boor, E Aschehoug, N Haddad, D Pavlik, **A Louthan**, J Walters, and N Kerr. 2022. Managing threatened species across jurisdictional boundaries: the importance of environmental synchrony, climate change, coordinated management, and dispersal corridors. Report to the Department of Defense Strategic Environmental Research and Development Program.
- Hudgens, B, J Abbott, N Haddad, E Kieckbusch, **A Louthan**, WF Morris, L Stenzel, and J Walters. 2020. Evaluating the Use of Spatially Explicit Population Models to Predict Conservation Reliant Species in Nonanalogue Future Environments on DoD Lands. Report to the Department of Defense Strategic Environmental Research and Development Program.

Doak, DF, R Dibner, **A Louthan**, and ML DeMarche. 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.

**Louthan, AM**, 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.

## GRANTS, FELLOWSHIPS, AND AWARDS

U.S.-Africa Frontiers of Science, Engineering, and Medicine Symposium invitation (declined)	2022
McIntire-Stennis Capacity Grant (internal at KSU, \$27,255)	2022
ADVANCE Distinguished Lecture Series (internal at KSU, \$1,200)	2022
BRIEF program (internal at KSU, cancelled due to Covid)	2020
ADVANCE Distinguished Lecture Series (internal at KSU, \$1,200)	2020
Co-Investigator, Konza Long-Term Ecological Research Renewal (\$1,187,00)	2020-2026
Co-PI, SERDP contract number RC18-C1-1065 (\$1,577,322)	2017-2022
P.E.O. Scholar Award, International Chapter of P.E.O. Sisterhood (\$15,000)	2014
Beverly Sears Graduate Student Research Grant (internal at University of Colorado, \$1,000)	2014
L'Oréal-UNESCO International Fellowship for Women in Science (\$40,000)	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 (internal at UW, \$1,000)	2012
Women in Conservation Biology Scholarship (internal at UW, \$1,000)	2012
Wyoming NASA Space Grant Graduate Research Fellowship (internal at UW, \$20,000)	2012
Dr. George E. Menkens Memorial Scholarship (internal at UW, \$15,600) (\$3000 research, \$12,600 fellowship)	2012
Haub Creative Activities Grant (internal at UW, \$1,000)	2011
Cheney International Fellowship for Excellence (internal at UW, \$2,500)	2011
Berry Center Avian Ecology Fund (internal at UW, \$3,000)	2011
President's fund (internal at UW, \$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

## PRESENTATIONS

**Invited seminars;** \* indicates invitation by graduate students

School of Biological Sciences, University of Nebraska-Lincoln	planned Fall 2023
Department of Zoology, University of British Columbia (Chitty Lecture Series)*	planned March 1, 2023
Institute of Ecology and Evolution, University of Oregon	planned February 3, 2023
Department of Ecology, Evolution, and Organismal Biology, Brown University	April 12, 2022
Department of Wildlife Biology, University of Montana	April 4, 2022
Department of Ecology, Montana State University	March 8, 2022
Plant Biology Program, Southern Illinois University	January 21, 2022
Department of Biological Sciences, Marquette University	2018
Division of Biology, Kansas State University	2018
Department of Botany, University of Hawai'i-Manoa	2018
School of Biological Sciences Seminar, Washington State University	2017
University Program in Ecology Seminar, Duke University	2016
University of Colorado Lecture series, Physics Department	2013
L'Oréal-UNESCO Women in Science Poster Session, Paris, France	2013

**Invited conference presentations** (underlining indicates lab trainee)

**Louthan, AM**, AW Baumgardner, J Ehrlén, J Dahlgren, A Loomis, and WF Morris. Sensitivity of population growth rate to abiotic and biotic drivers differs systematically with latitudinal position in range. Conference on: Constraints on species' ranges and niche evolution. Ascona, Switzerland, canceled due to Covid-19.

**Contributed conference presentations**

Lab trainees are underlined.

A Querns and **Allison Louthan**. A test for demographic compensation using *Hibiscus meyeri*. Botany conference, Anchorage, AK. July 24-27, 2023.

**A Louthan**, N Kerr, WF Morris. Implications of fire management for Venus flytrap populations. North Carolina Longleaf Pine Summit, virtual. March 9, 2022.

M Robinson, A, K Abbott, E Bruna, N Ivalú Cacho, L Dyer, P Hahn, B Inouye, N Underwood, S Whitehead, LN Zehr, W Wetzel, and the members of The Herbivory Variability Network (including **A. Louthan** and S. Lynch). Plant apparency shapes the distribution of herbivory within and among plant individuals: Data from the HerbVar Network. Entomological Society of America, virtual. October 31-November 3, 2021.

WC Wetzel, K Abbott, E Bruna, N Ivalú Cacho, L Dyer, P Hahn, B Inouye, M Robinson, N Underwood, S Whitehead, LN Zehr, and the members of The Herbivory Variability Network (including **A. Louthan** and S. Lynch). Macroevolutionary and global patterns of intraspecific variability: Data from the HerbVar Network. Entomological Society of America, virtual. October 31-November 3, 2021.

S Whitehead, K Abbott, E Bruna, N Ivalú Cacho, L Dyer, P Hahn, B Inouye, M Robinson, N Underwood, LN Zehr, W Wetzel, and the members of The Herbivory Variability Network (including **A. Louthan** and S. Lynch). Multi-scale spatial variation in herbivore damage to plant reproductive organs: Data from the HerbVar Network. Entomological Society of America, virtual. October 31-November 3, 2021.

Sutton, A and **A Louthan**. Interactive effects of grazing, fire, and climate on forb abundance. Konza Long-term Ecological Research Site, annual meeting, Manhattan, KS. September 4, 2021.

**Louthan, AM**, AW Baumgardner, J Ehrlén, J Dahlgren, A Loomis, and WF Morris. Sensitivity of population growth rate to climatic and biotic drivers across species' ranges. Botany conference, virtual. July 18-23, 2021.

Herzog, S, **AM Louthan**. Assessment of types of plant rarity at Konza Prairie. Central Ecology & Evolution Conference, virtual. April 9-10, 2021.

**Louthan, AM** and AW Baumgardner. Specialist and generalist forb populations have divergent responses to grazers depending on fire regime. Kansas Natural Resources Convention, virtual. January 27-29, 2021. (Poster)

Ratajezak, Z, S Collins, J Blair, S Koerner, **A Louthan**, J Nippert, J Taylor, and M Smith. Megagrazer rewilding results in long-running and resilient biodiversity gains in a Great Plains grassland. Ecological Society of America, virtual. August 2-6, 2021.

**Louthan, AM**, AW Baumgardner, J Ehrlén, J Dahlgren, A Loomis, and WF Morris. 2020. Sensitivity of population growth rate to climatic and biotic drivers across species' ranges, Ecological Society of America, virtual. August 2-6, 2020.

Johnson, L, **A Louthan**, M Gaillard, J Alsdurf. Grazing drives genetic differentiation of the dominant grass and increases community diversity in tall grass prairie. Ecological Society of America, virtual. August 2-6, 2020. (Poster)

Kiekebusch, E, **A Louthan**, W Morris, B Hudgens, and N Haddad. Measuring population responses to temperature across the annual lifecycle of a butterfly. International Congress for Conservation Biology. Kuala Lumpur, Malaysia. July 21-25, 2019.

- Louthan, A.** Effects of climate and fire return interval on Venus flytrap (*Dionaea muscipula*). North Carolina Rare Plant Discussion Meeting, North Carolina Zoological Park, Asheboro, NC. March 6, 2019.
- Kiekebusch, E, **A Louthan**, W Morris, B Hudgens, N Haddad. Measuring demographic rates and phenology at cryptic life stages of a locally rare wetland butterfly. Ecological Society of America, New Orleans, LA. August 5-10, 2018. (Poster)
- Louthan, A** and D Doak. Observation error optimistically biases estimates of population growth. Ecology and Evolutionary Biology Symposium, University of Colorado-Boulder, Boulder, CO. April 17, 2015.
- Louthan, A** and D Doak. Observation error optimistically biases estimates of population growth. Environmental Studies Brown Bag Lecture Series, University of Colorado-Boulder, Boulder, CO. April 6, 2015.
- Louthan, A**, D Doak, R Pringle, J Goheen, and T Palmer. Herbivores erase the stress-gradient hypothesis. Guild of Rocky Mountain Ecologists and Evolutionary Biologists annual meeting. Pingree Park, CO. September 20, 2014.
- Louthan, A**, J Goheen, T Otieno, R Pringle, T Palmer, and D Doak. Sensitivity of population growth to biotic interactions varies systematically with abiotic stress: drivers of small population dynamics in a Kenyan savanna. Ecological Society of America, Sacramento, CA, August 15, 2014. (poster)
- Louthan, A**, D Doak, R Pringle, J Goheen, and T Palmer. Herbivores, competitors, and rain: plant-plant interactions in an arid Kenyan savannah. Environmental Studies Department Lecture Series, University of Colorado-Boulder, Boulder, CO. March 21, 2014.
- Louthan A**, D Doak, R Pringle, J Goheen, and T Palmer. Herbivores switch the sign of plant-plant interactions. Zoology & Physiology Department Lecture Series, University of Wyoming, Laramie, WY. November 12, 2012.
- Louthan, A**, D Doak, R Pringle, J Goheen, and T Palmer. Population- v. individual level effects of herbivores on plant performance. Zoology & Physiology Department Lecture Series, University of Wyoming, Laramie, WY. November 12, 2011.
- Eckhart, VM, I Singh, A Chu, A Keledjian, and **A Louthan**. Multiple sources of water stress help define the species border of an arid-land annual plant. Ecological Society of America, Milwaukee, WI. August 3-8, 2008.
- Geber, MA, VM Eckhart, DA Moeller, P Tiffin, EC Looney, I Singh, and **A Louthan**. Population dynamics and environmental variation across the geographic range of a California annual plant. Ecological Society of America, San Jose, CA. August 5-10, 2007.

## TEACHING

### **Kansas State University**

Instructor, Population Biology

Fall 2020, Fall 2021

Instructor, Advanced Population Biology

Fall 2021

### **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**

Coordinator, Ecology journal club, Grinnell College

2008

Tutor, chemistry and physics

2004-2006

## MENTORING

### **Kansas State University**

#### ***Postdoctoral associates***

Dr. Alex Sutton (beginning a faculty position in 2021 at Bangor Univ., Wales) 2019-present

#### ***Graduate Students***

Shannon Lynch 2021-2022

Aleah Querns 2021-present

Sarah Herzog 2020-present

#### ***Undergraduates***

Natalie Miller 2021-present

Aaliyah Kelly 2021-present

Natalie Miller 2021-present

Dayton Raines 2021-present

Thomas Leihsing (most promising student in Div. of Biol., finalist for Truman Scholarship ) 2020-present

Hannah McNulty 2021-2022

Lily Ivanov (REU student) 2021

Alexes Juarez (post baccalaureate) 2021

Anna Swanson 2021

Dylan Stockman 2020

Katharina Bremser 2020

#### ***Graduate student committees***

Kristen Hobbs 2022-present

Jack Systma 2022-present

Maya Parker-Smith (at U. Missouri) 2021-present

Emily Wedel 2020-present

Katy Silber 2019-present

Peter Pfaff 2019-present

Elisabeth Teige 2021

Jackie Gehrt 2020-2021

#### ***Other institutions***

Mentored 3 female undergraduates in Dr. Morris' lab 2016-2019

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 3 undergraduates or recent undergraduates on field-based projects in East Africa 2011-2015

(both entirely or partially funded by my own grant applications)

## SERVICE

Subject matter editor at *Ecological Applications* 2020-current

#### **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, Nature, Plant Biology, PLOS ONE, Scientific Reports, ad hoc*  
NSF reviewer (DEB)

### **Kansas State University**

Skype a Scientist participant 2022-current

EEB seminar series coordinator 2021-current

Mental health committee 2020-current

Konza LTER Diversity, Equity, and Inclusion Committee 2020-current

SafeZone certified	2020-current
Facilitator for GROW program (K-12 outreach program to girls)	2020
Edler award selection committee (Internal Kansas State Biology award)	2019, 2020, 2021
Judge for grad students on parade (Internal Kansas State Biology award)	2019
<b>University of Colorado- Boulder</b>	
Science Fair Judge, Burlington Elementary School, Longmont, CO	2015
Volunteer at “I Have a Dream” Foundation mentoring event for low-income students	2015
Co-coordinator for Environmental Studies Program Colloquium Speaker Series	2014-2015
Lecturer at Discovery Days (community outreach), Mpala Research Centre	2012-2014
Invited podcast guest for <i>Journal of Ecology</i>	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 for Laikipia bird watching club (local Kenyan organization)	2013
Reviewer for high school girl’s STEM scholarship program	2018
Skype a Scientist participant	2018
<b>University of Wyoming</b>	
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