

# Julie Wolfe Turner

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## Contact Information

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Website: [www.julwturner.com](http://www.julwturner.com)

## Career Highlights

- Skilled in data management, statistics, and coding
- 10 peer-reviewed papers published/in review
- Experienced mentor with mentees moving on to their desired positions in scientific fields
- Skilled communicator with diverse audiences

## Education

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- August 2011 - Michigan State University; East Lansing, MI  
May 2018 Dual Ph.D. in Integrative Biology and the interdisciplinary program in Ecology, Evolutionary Biology, and Behavior  
Major Advisor: Dr. Kay Holekamp
- August 2007 - Grinnell College; Grinnell, IA  
May 2011 Double major in Biology and History (B.A.)  
Biology advisor: Kathryn Jacobson; History advisor: Elizabeth Prevost

## Research and Work Experience

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### Positions

- December 2020 - Postdoctoral Fellow, University of British Columbia  
Present Cumulative effects of landscape change on movement, habitat selection, and social behaviors  
Advisors: Josie Hughes, Eliot McIntire, Cole Burton
- September 2018 - Postdoctoral Fellow, Memorial University of Newfoundland  
November 2020 How movement, habitat use, and sociality relate to disease and cause-specific mortality.  
Advisor: Eric Vander Wal
- August 2011 - PhD candidate, Michigan State University  
June 2018 Social development and its influence on adult traits in the spotted hyena  
Advisor: Kay Holekamp
- May 2010 - Summer Research Assistant  
August 2010 Oak Ridge National Laboratory, TN  
Analyzing behavioral responses after exposing fresh water organisms to magnetic fields (w/ Mark Bevelhimer and Glenn Cada; 40 hrs/week)
- May 2009 - Summer Research Assistant  
August 2009 Oak Ridge National Laboratory, TN  
Campus Sustainability Initiative implementing a new recycling program (w/ Susan Michaud; 40 hrs/week)

### Technical skills

- Coding (primarily R, but experience with SQL and Python)
- Rstudio and Rmarkdown
- Collaborating with Git
- GIS skills (QGIS and R)
- Managing large, long-term databases (MS Access and SQLite)
- Resource selection and step selection analyses
- Social network analysis
- Hierarchical models
- Bayesian and frequentist statistics
- Writing technical reports

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## Field work experience

- Wildlife Evolutionary Ecology Lab
- Elk calf captures (Manitoba, Canada, 1 month, 2019)
  - Wolf kill site investigations (Manitoba, Canada, 1 week, 2019)
  - Snowshoe hare captures (Newfoundland, Canada, 1 week, 2018)

### Skills:

- Radio-telemetry
- Remote GPS navigation
- Live animal captures

- Mara Hyena Project
- Wild spotted hyena behavioral research (Masai Mara, Kenya, 2 years over 2012 – 2016; 1 year straight 2013 – 2014)

### Skills:

- Radio-telemetry
- Remote GPS navigation
- Processing immobilized animals
- Predator/prey surveys
- Field site management
- Permit acquisition
- Hiring assistants

## **Publications**

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\*Mentee

### Refereed

Newediuk, L, J Ethier, SP Boyle, JA Aubin, J Baluffi-Fry, E Dedeban, MP Laforge, CM Prokopenko, **JW Turner**, QMR Webber, E Vander Wal. (2021) Sociopolitical factors drive conservation planning timelines: a Canadian case study with global implications. *Biological Conservation* 257(2021): 109091.

**Turner, JW**, AL Robitaille, PS Bills, and KE Holekamp. (2020) Early life relationships matter: Social position during early life predicts fitness among female spotted hyenas. *Journal of Animal Ecology* 90(1): 183-196.

Robitaille, AL\*, QMR Webber\*, **JW Turner**, E Vander Wal. (2020) The problem and promise of scale in multilayer animal social networks. *Invited contribution to Current Zoology Special Issue: Embracing the complexity of animal social systems using multilayer network analysis*. 67(1): 113-123.

**Turner, JW**, RM LaFleur\*, AT Richardson\*, and KE Holekamp. (2020) Risk-taking in free-living spotted hyenas is associated with anthropogenic disturbance, predicts survivorship, and is consistent across experimental contexts. *Ethology* 126(1): 97-110.

Gering, E, ZM Laubach, P Weber, GS Hussey, **JW Turner**, KE Holekamp, and T Getty. (2020) Time makes you older, parasites make you bolder: *Toxoplasma gondii* infections predict hyena boldness toward definitive lion hosts in a human-altered landscape. *Evolution in Action: Past, Present and Future*. W Banzhaf, BHC Cheng, K Deb, KE Holekamp, RE Lenski, C Ofria, RT Pennock, WF Punch, DJ Whittaker, Eds. Springer International Publishing.

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**Turner, JW**, PS Bills, and KE Holekamp. (2018) Ontogenetic change in determinants of social network position in the spotted hyena. *Behavioral Ecology and Sociobiology* 72:10.

Johnson-Ulrich, L, KDS Lehmann, **JW Turner**, and KE Holekamp. (2018) Testing cognition in the *umwelt* of the spotted hyena. The experimental *umwelt*. A practical guide to animal cognition. N Bueno-Guerra & F Amici, Eds. Cambridge University Press. Cambridge, UK.

## In review

**Turner, JW**, CM Prokopenko, KA Kingdon, D Dupont, S Zabihi-Seissan, and E Vander Wal. (*In review*) Death comes for us all: an interplay of habitat selection, movement, and social behavior relate to cause-specific mortality among grey wolves. *Behav Ecol.* [BioRxiv preprint](#).

Webber, QMR, CM Prokopenko, KA Kingdon, **JW Turner**, E Vander Wal. (*In review*) Moving together, foraging apart: effects of the social environment on movement-integrated habitat selection. *Proc R Soc B*.

Gering, E, ZM Laubach, P Weber, GS Hussey, KDS Lehmann, TM Montgomery, **JW Turner**, W Perng, MO Pioon, KE Holekamp, and T Getty. (*in review*) *Toxoplasma gondii* infections are associated with boldness towards lions in wild hyena hosts. *Nature Communications.* [BioRxiv preprint](#).

Laubach, ZM, JR Greenberg, **JW Turner**, TM Montgomery, MO Pioon, L Smale, R Cavalcante, K Padmanabhan, C Lalancette, B vonHoldt, CD Faulk, DC Dolinoy, KE Holekamp, W Perng. (*in review*) Associations of early social experience with offspring DNA methylation and later life stress phenotype. *Nature Communications* [BioRxiv preprint](#).

## In preparation

Denief, ED\*, **JW Turner**, CM Prokopenko, and E Vander Wal. (*In prep*) At a snail's pace: the influence of habitat disturbance on terrestrial snail movement using experimentally manipulated mesocosms.

**Turner, JW**, PS Bills, KE Holekamp. (*In prep*) Human disturbance negatively affects social development in wild spotted hyenas.

Prokopenko CM\*, S Zabihi-Seissan, KA Kingdon\*, **JW Turner**, D Dupont, and E Vander Wal. (*In prep*) Pangs of hunger: State drives switching and searching response of gray wolves.

## Other publications and reports

Cada, G, M Bevelhimer, K Riemer, and **J Turner**. (2011) Effects on freshwater organisms of magnetic fields associated with instream hydrokinetic turbines. FY2010 Annual Progress Report to the Wind and Water Power Program, U.S. Department of Energy, Washington, DC.

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## Presentations

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**Turner, JW.** Social development and its effects on adult traits in spotted hyenas. **Invited Pop.** Bio. Seminar, Duke University, Durham, NC (virtual presentation). Feb. 2021.

**Turner, JW,** CM Prokopenko, KA Kingdon, D Dupont, S Zabihi-Seissan, and E Vander Wal. The walking dead: behaviors leading to cause-specific mortality in gray wolves. The Animal Behavior Society Virtual Conference. July 2020.

Denief, E, **JW Turner,** CM Prokopenko, and E Vander Wal. At a snail's pace: the influence of habitat disturbance on terrestrial snail movement. The Animal Behavior Society Virtual Conference. July 2020.

Laubach, ZM, R Cavalcante, DC Dolinoy, CD Faulk, JR Greenberg, C Lalancette, TM Montgomery, K Padmanabhan, W Perng, MO Pioon, L Smale, **JW Turner,** B vonHoldt, and KE Holekamp. Early social experiences contribute to DNA methylation and development of future stress phenotype. The Animal Behavior Society Virtual Conference. July 2020.

**Turner, JW,** CM Prokopenko, KA Kingdon, D Dupont, S Zabihi-Seissan, and E Vander Wal. The walking dead: testing whether end-of-life behaviors can be used to predict cause-specific mortality. The Wildlife Society Joint Conference, Reno, NV. Oct. 2019.

Dupont DLJ, CM Prokopenko, KA Kingdon, S Zabihi-Seissan, **JW Turner,** VB Harriman, and E Vander Wal. To Eat or Not to Eat: Testing a Predictive Model of Large Carnivore Behaviour to Estimate Prey Kill Rates in Multi-Prey Systems. The Wildlife Society Joint Conference, Reno, NV. Oct. 2019.

**Turner, JW,** CM Prokopenko, KA Kingdon, D Dupont, S Zabihi-Seissan, and E Vander Wal. The walking dead: testing whether end-of-life behaviors can be used to predict cause-specific mortality. Canadian Society for Ecology and Evolution Joint Conference, Fredericton, NB. Aug. 2019.

**Turner, JW.** Social development and its effects on adult traits in spotted hyenas. Invited Biology Department Seminar, Memorial University of Newfoundland, St. John's, NL. Oct. 2018.

**Turner, JW** and KE Holekamp. Effects of early social bonds on adult fitness in free-living spotted hyenas (*Crocuta crocuta*). EEBB Colloquium, Michigan State University, East Lansing, MI. Mar. 2016.

**Turner, JW** and KE Holekamp. Effects of early social bonds on female fitness in free-living spotted hyenas (*Crocuta crocuta*). Animal Behavior Society Conference, University of Alaska Anchorage, Anchorage, AK. Jun. 2015.

**Turner, JW.** The effects of static magnetic fields on fresh water organisms. Biology Seminar, Biology Department, Grinnell College, Grinnell, IA. Oct. 2010.

**Turner, JW.** The effects of static magnetic fields on fresh water organisms. Fishheads Seminar, Environmental Sciences Department, Oak Ridge National Laboratory, Oak Ridge, TN. Aug. 2010.

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## Science Communication

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- October 2020 Soapbox Science - St. John's, NL
- 3 minute lightning talk on spotted hyenas
  - Panelist for Q&A
- December 2018 - January 2020 Consultant on "Family" in [Animal Social Networks](#) by Rotating Planet
- Story development
  - Hyena and social network expertise
  - Travel guidance when filming in Kenya
- March 2017 - August 2018 Freelance science communicator/naturalist, Masai Mara, Kenya
- Invited formal/informal talks to school and tourist groups
  - Groups of 1-50 people of all ages and nationalities
- January 2018 Interviewed for *Girl Power - why do female spotted hyenas rule the pack?* by Stewart Wallis in [Discover Wildlife](#)
- September 2014 Consultant on *Mama Hyena* (2015) by FL Concepts Paris
- Guided film crew through the Mara
  - Interviews
- June 2012 - August 2018 Outreach events associated with Holekamp Lab and Mara Hyena Project
- MSU Museum Darwin Discovery Day (East Lansing, MI, 2012, 2013, 2016)
  - ABS Science Day (Anchorage, AK, 2015)
  - Hyena and Mara Ecosystem talks to students and tourists (Kenya)
  - Science nights at local schools (East Lansing, MI)
    - Targeted towards families and children
    - Developed games and content

## Blogging

- Turner, JW. (Jan. 2021) [Growing up Hyena](#). *Animal Ecology in Focus*.
- Turner, JW. (Nov. 2016) [Social networks in spotted hyenas](#). *BEACON blog*.
- Turner, JW. (May 2014) [A hyena is a hyena, no matter how small](#). *Notes From Kenya blog*.
- Turner, JW. (Feb. 2014) [Routine and adventure](#). *Notes From Kenya blog*.
- Turner, JW. (Feb. 2014) [February is hatari time with hyenas](#). *Notes From Kenya blog*.
- Turner, JW. (Jul. 2013) [Alien abduction!](#) *Notes From Kenya blog*.
- Turner, JW. (Jun. 2013) [Battle for the elephant carcass](#). *Notes From Kenya blog*.
- Turner, JW. (Aug. 2012) [An ode to Target and welcoming Junior](#). *Notes From Kenya blog*.
- Turner, JW. (Jul. 2012) [Pan ate Target!](#) *Notes From Kenya blog*.

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## Service

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- September 2018 - December 2020 Cognitive and Behavioural Ecology Program Journal Club Coordinator  
Memorial University of Newfoundland
- Leading a review paper being completed by the group
- September 2018 - Present Mentor Undergraduate Students  
Memorial University of Newfoundland, Wildlife Evolutionary Ecology Lab
- 1 high school student, 2 undergraduates, 1 honors student
- April 2019 Judge, Biology Graduate Student Symposium at MUN
- October 2018 Judge, Conservation Science Species-at-risk Poster Session
- April 2016 Judge, University Undergraduate Research and Arts Forum at MSU
- December 2015 Panelist, MSU Zoology Student Association Graduate School Forum
- August 2014 - May 2015 Service on MSU Zoology Department Curriculum Committee
- August 2012 - August 2018 Mentor Undergraduate and Post-Undergraduate Research Assistants  
Michigan State University and Mara Hyena Project
- 22 undergraduates and 2 post-undergraduates

## Teaching Experience

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- August 2014 - June 2016 Instructor, Behavioral Ecology of African Mammals (BEAM) (ZOL 490)  
(*Lead instructor July 2015 - June 2016*)  
Michigan State University Integrative Biology Department
- 3 week field course in Kenya
- May 2012 - present Guest Lectures
- African Mammals and Personality
  - Animal Personality
  - Hyena Physiology and Behavior
  - Behavioral Ecology Techniques in the Wild
  - Employing Social Network Analysis
- August 2012 - May 2016 Teaching assistant (6 semesters, 20 hrs/week)  
Michigan State University
- Ecology Lab (ZOL/PLB 355L)
  - Organismal Biology Lab (BS 172)
  - Cell and Molecular Biology Lab (BS 171)
  - Marine Biology (ZOL 353)

## Competitive scholarships, fellowships, and awards

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College of Natural Sciences Dissertation Completion Fellowship (2017)	\$7500
College of Natural Sciences Dissertation Continuation Fellowship (2016)	\$6000
American Society of Mammalogists Grant-in-aid (2013)	\$1000
Animal Behavior Society Student Research Grant (2013)	\$1250

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Ecology, Evolutionary Biology, and Behavior summer fellowship (2013, for 4 years)	\$7200
BEACON Science and Technology Center Top Up Fellowship (2011, over 5 years)	\$15,000
MSU College of Natural Science Recruitment Fellowship (2011)	\$25,000

## Awards and honors

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- Michigan State University Excellence-in-teaching Citation (2016-2017)
- Phi Kappa Phi Honor Society (2013)
- Graduate with honors in biology at Grinnell College (2011)
- Phi Beta Kappa Honor Society (2011)
- Mortarboard Honor Society (2010)

## Other skills

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- Conversational Spanish
- Photography
- Skilled at off-road, 4x4 driving
- Wilderness first aid and CPR certified

## References

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Dr. Josie Hughes  
Research Scientist  
Environment & Climate Change Canada  
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Dr. Kay Holekamp  
University Distinguished Professor  
Michigan State University  
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Dr. Eric Vander Wal  
Associate Professor  
Memorial University of Newfoundland  
evanderwal@mun.ca

Dr. Matthew Rowe  
Professor  
University of Oklahoma  
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