

## E. Ashley Shaw

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### EDUCATION

- 2018      PhD, Ecology, Colorado State University, Fort Collins, Colorado  
Dissertation: Trophic relationships in soil communities: How abiotic stress affects biotic interactions in the McMurdo Dry Valleys, Antarctica
- 2013      MSc, Ecology, Colorado State University, Fort Collins Colorado  
Thesis: Fire management effects on C flow from root litter to the soil community in a tallgrass prairie
- 2010      BA (magna cum laude), Biology, Bellarmine University, Louisville, Kentucky

### PROFESSIONAL EXPERIENCE

- 2018-present      Postdoctoral Scholar, Institute for Ecology and Evolution, University of Oregon
- 2010-2018      Graduate Research Assistant, Colorado State University
- 2010, 2015, 2016      Graduate Teaching Assistant, Colorado State University
- 2010      Microbiology Intern, Skidaway Institute of Oceanography

### PEER-REVIEWED PUBLICATIONS

*10 published articles and ~330 citations*

10. **Shaw, EA**, CM Boot, JM Moore, DH Wall, and J Baron. 2019. Nitrogen addition affects the soil nematode community structure and maturity in a subalpine forest. *Soil Biology and Biochemistry*
9. **Shaw, EA**, BJ Adams, JE Barrett, WB Lyons, RA Virginia, DH Wall. 2018. Stable C and N isotope ratios reveal soil food web structure and identify the nematode *Eudorylaimus antarcticus* as an omnivore-predator in Taylor Valley, Antarctica. *Polar Biology*. <https://doi.org/10.1007/s00300-017-2243-8>
8. García-Palacios, P, **EA Shaw**, DH Wall, S Hättenschwiler. 2017. Contrasting mass-ratio vs. niche complementarity effects on litter C and N loss during decomposition along a regional climatic gradient. *Journal of Ecology*. 105: 968–978. doi:10.1111/1365-2745.12730
7. **Shaw, EA**, K Deneff, C Milano de Tomasel, MF Cotrufo, and DH Wall. 2016. Fire affects root decomposition, soil food web structure and carbon flow in tallgrass prairie. *SOIL*. DOI: 10.5194/soil-2-199-2016
6. Andrés, P, JC Moore, RT Simpson, G Selby, F Cotrufo, K Deneff, ML Haddix, **EA Shaw**, C Milano de Tomasel, R Molowny-Horas, DH Wall. 2016. Soil food web stability in response to grazing in a semi-arid prairie: the importance of soil heterogeneity. *Soil Biology and Biochemistry*. DOI: 10.1016/j.soilbio.2016.02.014
5. García-Palacios, P, **EA Shaw**, DH Wall, S Hättenschwiler. 2016. Temporal dynamics of biotic and abiotic drivers of litter decomposition. *Ecology Letters*. DOI: 10.1111/ele.12590
4. Soong, JL, ML Vandegehuchte, AJ Horton, UN Nielsen, K Deneff, **EA Shaw**, C Milano de Tomasel, W Parton, DH Wall, and MF Cotrufo. 2016. Soil microarthropods support ecosystem productivity and soil C accrual: evidence from a litter decomposition study in the tallgrass prairie. *Soil Biology and Biochemistry*. 92: 230 – 238. DOI: 10.1016/j.soilbio.2015.10.014
3. García-Palacios, P, M Vandegehuchte, **EA Shaw**, M Dam, KH Post, KS Ramirez, ZA Sylvain, C Milano de Tomasel, and DH Wall. 2015. Are there links between responses of soil microbes and ecosystem functioning to elevated CO<sub>2</sub>, N deposition and warming? A global perspective. *Global Change Biology*, 21: 1590–1600. DOI: 10.1111/gcb.12788
2. Ramirez, KS, JW Leff, A Barberan, ST Bates, J Betley, TW Crowther, EF Kelly, EE Oldfield, **EA Shaw**, C Steenbock, MA Bradford, DH Wall, and N Fierer. 2014. Biogeographic patterns in below-ground

diversity in New York City's Central Park are similar to those observed globally. *Proceedings of the Royal Society B*. <http://dx.doi.org/10.1098/rspb.2014.1988>

1. Cotrufo, MF, T Nguyen, J Soong, ML Vandegehuchte, K Deneff, UN Nielsen, **EA Shaw**, Z Sylvain, C Milano de Tomasel, and DH Wall. 2014. Naphthalene addition to soil surfaces: an effective method to suppress soil microarthropods with negligible direct effects on soil C dynamics. *Applied Soil Ecology*, 74: 21-29. DOI: 10.1016/j.apsoil.2013.09.008

### Publications in review

**Shaw, EA** and DH Wall. Biotic interactions in experimental Antarctic soil microcosms vary with abiotic stress. Submitted to *Functional Ecology*

### Publications in preparation

**Shaw, EA** and DH Wall. Nematode trophic ecology and feedbacks to ecosystem function. Annual Review of Phytopathology (invited)

**Shaw, EA** and DH Wall. Soil food web complexity varies with carbon source across the McMurdo Dry Valley landscape. (In preparation for submission to *Ecology Letters*)

**Shaw, EA**, J Lee, A Terauds, DH Wall, and others. Long term monitoring dataset for soil biodiversity and biogeochemistry in the McMurdo Dry Valleys, Antarctica (In preparation for submission to *Scientific Data*)

Wall, DH, RA Virginia, **EA Shaw**, W Andriuzzi, BJ Adams, JE Barrett, and others. Long term experimental effects of elevated temperature, carbon and moisture on soil communities: Links to an extreme climate event (In preparation for submission to *Proc Royal Soc B*)

## GRANTS AND AWARDS

(Total amount awarded: \$19,651)

|  | Amount              |
|--|---------------------|
| 2018 AntEco Travel Award<br>Scientific Committee for Antarctic Research for meeting attendance   | \$1000              |
| 2017 Antarctic Science International Bursary<br>Early career research grant; international collaboration to spatially model soil habitat & identify/prioritize Antarctic dry valleys' conservation areas. PIs: <b>EA Shaw</b> & J Lee (PhD student, Univ. Queensland, AUS) | \$4855              |
| 2018, 2017, 2016, 2014<br>National Science Foundation Travel Awards<br>Scientific Committee for Antarctic Research (SCAR) meetings Switzerland, Belgium, Malaysia, & New Zealand   | \$6888 <i>total</i> |
| 2018, 2017, 2016, 2013<br>Graduate Degree Program in Ecology Travel Awards<br>Awarded at Colorado State University for attendance at scientific meetings   | \$2025 <i>total</i> |
| 2014 Natural Resource Ecology Laboratory Graduate Student Travel Award<br>Awarded at Colorado State University for SCAR meeting in New Zealand   | \$500               |
| 2013 Best Student Paper, runner-up<br>Society of Nematologists Annual Meeting, Knoxville, Tennessee;<br>for outstanding oral presentation  |                     |
| 2012 Department of Biology Graduate Student Travel Award   | \$633               |
| 2010 Programs for Research and Scholarly Excellence Fellowship<br>Natural Resource Ecology Lab, Colorado State University  | \$2500              |
| 2010 Graduate Fellowship<br>Graduate Degree Program in Ecology, Colorado State University  | \$750               |

**ACADEMIC SERVICE AND LEADERSHIP**

- 2018-2019 Seminar Speaker Selection Committee Member, Institute for Ecology and Evolution University of Oregon
- 2015-2017 Graduate Student Representative for the McMurdo Dry Valleys, Antarctica LTER site NSF Long Term Ecological Research (LTER) program
- 2016, 2017 Lead organizer, McMurdo LTER Annual Graduate Student Showcase
- Launched an annual virtual meeting for McMurdo LTER graduate students to discuss their research; this annual meeting is currently ongoing
  - Organized 19 speakers from 8 universities (2016) & 18 speakers from 9 universities (2017)
- 2016 Organizing committee member, McMurdo Dry Valleys Environmental Stewardship Workshop
- NSF funded workshop on human impact in McMurdo Dry Valleys, Antarctica
  - Final report: [https://mcmlter.org/sites/default/files/Priscu\\_MDV\\_2016\\_workshop\\_FINAL.pdf](https://mcmlter.org/sites/default/files/Priscu_MDV_2016_workshop_FINAL.pdf)
- 2013-2016 Ecology committee student representative, Society of Nematologists
- 2011-2013 Student committee co-chair, Society of Nematologists
- 2010-2012 Outreach committee member, Front Range Student Ecology Symposium, Colorado State Univ.
- 2011 Student Volunteer, Ecological Society of America Annual Meeting, Austin, TX

**PROFESSIONAL DEVELOPMENT**

- 2019 Scientific Literacy Journal Club, Scientific Literacy Program, University of Oregon
- 2019 Lab Lit Book Club, Scientific Literacy Program, University of Oregon
- 2019 Teaching Engagement Program classroom discussion workshop series  
Center for Academic Learning, University of Oregon
- Strategies for Discussion Leaders
  - Advanced Strategies for Discussion Leaders: Difficult Dialogues
  - Critical Inquiry and Ethical Dialogue
- 2017 **Invited participant**, Priority Threats Management Workshop, Leuven, Belgium
- Assessed impacts on Antarctic biology under climate change scenarios; SCAR funded
- 2016 Getting to know geographic data, GIS Workshop, Geospatial Centroid, Colorado State Univ.
- 2016 Move beyond simple R scripts: an introduction to R Markdown workshop, Colorado State Univ.
- 2015 Story mapping workshop, Geospatial Centroid, Colorado State University
- 2014 Science Communication Workshop, Association for Polar Early Career Scientists  
Scientific Committee for Antarctic Research conference Auckland, New Zealand
- 2011 Nematode identification course (Instructor: T. Bongers), Wageningen Univ., The Netherlands
- Learned terrestrial soil/plant nematode species' morphology and taxonomy

**CONTRIBUTED ORAL PRESENTATIONS**

**Shaw, EA**, JR Lee, A Terauds, and DH Wall. 2018. Habitat suitability and conservation of McMurdo Dry Valley soil biodiversity. POLAR 2018: Scientific Committee for Antarctic Research Open Science Conference, Davos, Switzerland.

**Shaw, EA**, BJ Adams, JE Barrett, RA Virginia, and DH Wall. 2017. Does the stress gradient hypothesis apply to soil food webs? Testing the biotic interactions of soil nematodes along a salinity gradient at the McMurdo Dry Valleys Long Term Ecological Research site. Ecological Society of America annual meeting, Portland, OR.

**Shaw, EA**, BJ Adams, RA Virginia, and DH Wall. 2016. Identifying the carbon sources of the soil food webs in the McMurdo Dry Valleys, Antarctica, Scientific Committee for Antarctic Research Open Science Conference, Kuala Lumpur, Malaysia.

**Shaw, EA**, BJ Adams, RA Virginia, and DH Wall. 2016. Identifying the carbon sources of soil food webs in the McMurdo Dry Valleys, Antarctica, Ecological Society of America annual meeting, Fort Lauderdale, FL.

**Shaw, EA**, MF Cotrufo and DH Wall. 2013. Biomass estimates of nematode energy channels indicate carbon flow for decomposition studies. Society of Nematologists Annual Meeting, Knoxville, TN.

**Shaw, EA**, K Denef, MF Cotrufo, DH Wall. 2012. Tracing Carbon Flow through the Soil Nematode Food Web: Do Long-Term Burning Practices Affect Carbon Trophic Dynamics in Grasslands? Society of Nematologists Annual Meeting, Savannah, GA.

**Shaw, EA**, K Denef, MF Cotrufo, DH Wall. 2012. Following Carbon through the Soil Food Web: Do Long-Term Burning Practices Affect Carbon Trophic Dynamics in Grasslands? Ecological Society of America Annual Meeting, Portland, OR.

Vandeghechuchte, ML, UN Nielsen, **EA Shaw**, JL Soong, ZA Sylvain, CM Tomasel, MF Cotrufo, DH Wall. 2012. Variation in abundance of soil mesofauna trophic groups with depth, season, and litter quality: Implications for the study of decomposition. Ecological Society of America Annual Meeting, Portland, OR.

**Shaw, EA**, K Denef, MF Cotrufo, DH Wall. 2012. Following Carbon through the Soil Food Web: Do Long-Term Burning Practices Affect Carbon Trophic Dynamics in Grasslands? Front Range Student Ecology Symposium, Fort Collins, CO.

## CONTRIBUTED POSTER PRESENTATIONS

**Shaw, EA**, and DH Wall. 2018. Elevated soil salinity alters biotic interactions in the McMurdo Dry Valleys. POLAR 2018: Scientific Committee for Antarctic Research Open Science Conference, Davos, Switzerland.

**Shaw, EA**, A Thompson, Z Aanderud, BJ Adams, and DH Wall. 2017. The nematode, *Scottinema lindsayae*, rapidly incorporated a new source of carbon in a microcosm experiment in Taylor Valley, Antarctica. Scientific Committee for Antarctic Research Biology Meeting, Leuven, Belgium.

J Baron, SM Advani, J Allen, C Boot, K Denef, S Denning, E Hall, JC Moore, H Reuth, MG Ryan and **EA Shaw**. 2016. A Long-term Forest Fertilization Experiment to Understand Ecosystem Responses to Atmospheric Nitrogen Deposition. American Geophysical Union, San Francisco, CA.

**Shaw, EA**, BJ Adams, RA Virginia, and DH Wall. 2015. Exploring the soil food web structure and carbon dynamics of the McMurdo Dry Valleys LTER, Antarctica. Long Term Ecological Research All Scientist Meeting, Estes Park, CO.

**Shaw, EA**, BJ Adams, RA Virginia, and DH Wall. 2014. Dry valley soil food web structure and complexity is related to decadal trends in climate variation. Scientific Committee for Antarctic Research Open Science Conference, Auckland, New Zealand.

Cox, DJ, C Milano de Tomasel, **EA Shaw**, and DH Wall. 2013. Laboratory culture of nematode *Panagrolaimus davidi* from Cape Royds, Antarctica. Celebrate Undergraduate Research and Creativity, CSU, Fort Collins, CO.

Tomasel, CM., KL. Ivanovich, DJ Cox, **EA Shaw**, DH Wall. 2012. Establishing Standardized Methods For Analysis of Carbon in Soil Nematodes and Mites. Society of Nematologists Annual Meeting, Savannah, GA.

**Shaw, EA**, DH Wall, MF Cotrufo, JL Soong, and UN Nielsen. 2011. Do long-term burning practices affect carbon and nitrogen flow dynamics from grassland root litter through the soil food web? Ecological Society of America Annual Meeting, Austin, TX.

**Shaw, EA**, DH Wall, MF Cotrufo, JL Soong, and UN Nielsen. 2011. Do long-term burning practices affect carbon and nitrogen flow dynamics from grassland root litter through the soil food web? Grasslands in a Global Context Symposium, Konza Prairie Biological Station, Manhattan, KS.

## TEACHING AND ADVISING EXPERIENCE

Colorado State University, Biology Department, Fort Collins, CO Fall 2014 & 2015  
Graduate Teaching Assistant for course, "Animal Biology: Invertebrates" (Prof. Janice Moore)

- Taught two laboratory sections (~20 students per section) each fall on invertebrate anatomy, identification, and taxonomy; wrote and graded laboratory exams, quizzes, and assignments

Colorado State University, Soil and Crop Sciences Department, Fort Collins, CO

2012, 2014, 2015

*Guest Lecturer* for course, "Soils and Global Change: Science and Impacts" (Prof. Francesca Cotrufo)

- Gave lectures about global changes' impacts on soil biodiversity and their functions

Colorado State University, Fort Collins, CO

2010 & 2013

*Honors Thesis Co-advisor* for two undergraduate students on their senior honors theses

- Guided from study design to thesis write-up on soil fauna isotope project and nematode culturing project; both presented results at "Celebrate Undergraduate Research and Creativity Showcase"

Colorado State University, Biology Department, Fort Collins, CO

Fall 2010

*Graduate Teaching Assistant* for course, "Biology of Organisms, Animals and Plants"

- Taught two laboratory sections (~20 students per section) on animal and plant taxonomy and physiology; wrote and graded laboratory exams, quizzes, and assignments

Galen College of Nursing, Louisville, KY

2009-2010

*Assistant Lab Instructor* for Anatomy and Microbiology courses

- Prepared all laboratory materials; made sterile agar plates, maintained laboratory cultures; set up laboratory for student activities; edited assignments, proctored and graded exams

## OUTREACH ACTIVITIES

### **Blog contributor**

Global Soil Biodiversity Initiative's blog, "Beneath our feet," <https://bit.ly/2mzS6yW>

2018

Diana Wall's lab and Antarctic fieldwork blog, <https://nemablog.wordpress.com/>

2013-2017

### **Antarctic Lecture Series speaker**

2016

*Invited speaker*, gave lecture entitled, "The toughest creatures in the world: Soil life in the Antarctic Dry Valleys" at the Fort Collins Public Library, Fort Collins, CO

### **Antarctic Lecture Series coordinator**

2013

Organized three public lectures through the School of Global Environmental Sustainability, Colorado State University and the Fort Collins Public Library, Fort Collins, CO

## FIELD EXPERIENCE

McMurdo Dry Valleys Long Term Ecological Research site, Antarctica (2013, 2015, 2016, 2017) studied soil food web distributions in Antarctica, relationships with C sources, climate change effects

Loch Vale Watershed, Rocky Mountain National Park, Colorado, USA (2014, 2015): investigated the impact of elevated nitrogen deposition on soil nematode communities in a subalpine forest of Rocky Mountain National Park

Central Park, New York City, New York, USA: characterized the soil microbiome of Central Park

Shortgrass Steppe, Colorado Above-belowground project (led by Drs. Osvaldo Sala and Diana Wall): assisted with plant community and biomass assessments, identified soil nematode communities

Konza Prairie, Manhattan, KS (2010, 2011, 2012, 2013)

- traced stable isotopes  $^{13}\text{C}$  and  $^{15}\text{N}$  from decaying grasses into soil microbes and fauna
- collected all data from published papers for lab group meta-analysis on soil biota and global changes

### **Atlantic Ocean Research cruise, Savannah, Georgia, USA (2010) Skidaway Institute of Oceanography**

- surveyed pelagic upwellings to study effects on doliolid populations in Atlantic ocean

## PROFESSIONAL MEMBERSHIP

- Ecological Society of America (ESA)
- American Association for the Advancement of Science (AAAS)
- Association of Polar Early Career Scientists (APECS)
- Global Soil Biodiversity Initiative (GSBI), Participant
- Society of Nematologists (SON)
- Soil Ecology Society (SES)

## **POSTDOCTORAL ADVISOR**

Dr. Lauren Hallett, University of Oregon

## **PHD ADVISORS**

Advisor: Dr. Diana Wall, Colorado State University

Committee: Drs. Mary Stromberger (CSU), Jill Baron (USGS), Michael Gooseff (CU-Boulder)

## **MS ADVISORS**

Advisor: Dr. Diana Wall, Colorado State University

Committee: Drs. Francesca Cotrufo, Gene Kelly (CSU)