

# CAITLIN HODGES

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404 ASI Building  
University Park, PA 16802

## EDUCATION

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|-------------|--|-------------------|
| <b>PhD</b>  | Soil Science and Biogeochemistry<br>Pennsylvania State University<br>University Park, PA                   | Expected May 2021 |
| <b>MS</b>   | Ecology<br>University of Georgia<br>Athens, GA<br>Thesis: "Characterizing Iron Reduction in Upland Soils"  | May 2017          |
| <b>BSES</b> | Water and Soil Resources<br>University of Georgia<br>Athens, GA<br>Summa Cum Laude<br>First Honor Graduate | May 2014          |

## FUNDED RESEARCH GRANTS

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|--|-----------|
| <b>NSF CZO SAVI Summer Interns - \$5,500</b>   | 2018      |
| "A cross-CZO study examining the role of near-stream soils as regulators of terrestrial inputs." |           |
| <b>UGA CAES Undergraduate Research Initiative Grant - \$1,000</b>                                | 2013-2014 |
| "Developing a method to better-quantify iron reduction in the Southeastern Piedmont."            |           |
| <b>UGA CAES Undergraduate Research Initiative Grant - \$1,000</b>                                | 2012-2013 |
| "Iron isotopes as a means of understanding soil development"                                     |           |

## AWARDS AND HONORS

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| <b>McKenna Fellowship</b>  | Aug. 2017 - May 2019 |
| Pennsylvania State University, College of Agricultural Sciences Endowed Fellowship |                      |
| <b>Claypoole Distinguished University Fellowship</b>                               | Aug. 2017 - May 2019 |
| Pennsylvania State University  |                      |
| <b>UGA Plant and Soil Symposium</b>  | November 2016        |

3<sup>rd</sup> place oral presentation

**UGA Amazing Student**

May 2015

**Top-Up Graduate Scholarship**

Aug. 2014 - May 2015

University of Georgia, Odum School of Ecology Graduate Program

**International Soil Judging Competition**

June 2014

7<sup>th</sup> place individual finish, 1<sup>st</sup> place team finish

**CAES Undergraduate Research Symposium**

April 2014

5<sup>th</sup> place oral presentation

**Reaves Endowed Scholarship**

Aug. 2013 - May 2014

UGA College of Agricultural and Environmental Sciences

**Attie A. Fleming Scholarship**

Aug. 2012 - May 2013

UGA College of Agricultural and Environmental Sciences, Department of Crop and Soil Sciences

**Harold and Celestia Loden Scholarship**

Aug. 2011 - May 2013

UGA College of Agricultural and Environmental Sciences

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## RESEARCH APPOINTMENTS

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**Predoctoral Fellow**, Pennsylvania State University, University Park, PA 2017 - Present

Advisor: Jason Kaye

**Master's Student**, University of Georgia, Athens, GA

2014 - 2017

**Research Assistant**

Advisor: Aaron Thompson

**Undergraduate Research Assistant**, University of Georgia, Athens, GA 2012 to 2014

Environmental Soil Chemistry lab of Aaron Thompson

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## TEACHING AND MENTORING

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**Pennsylvania State University Soil Judging Team**

Fall 2018 – Present

Assistant Coach

**University of Georgia Soil Judging Team**

Fall 2014 – Fall 2016

Assistant Coach

**Intro to Soils and Hydrology**

Fall 2015

Laboratory Teaching Assistant

## PUBLICATIONS

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Hodges, C., H. Kim, S. L. Brantley, J. Kaye. 2018. Patterns of soil gas production and consumption indicate seasonal processes in shale and sandstone catchments. *In prep for submission January 2019*. Soil Science Society of America Journal.

Hodges, C., O.A. Chadwick, A. Thompson. 2018. Iron redox cycles as drivers of soil development along Hawaiian age and climate gradients. *In Prep for Submission Spring 2019*. Geoderma.

Hodges, C., J. Mallard, D. Markewitz, A. Thompson. 2018. Seasonal and spatial variability of iron reduction in the soils of the Southeastern Piedmont of the US. *Revision submitted January 2019*. Catena.

King, E.B., C. Hodges, M. Chapela Lara, A.A. Aguirre, M.A. Foster, M.M. McClintock, J.B. Richardson. 2018. Metals and Metalloids as a tracer of Critical Zone processes: a review of established and emerging systems. *In Review March 2018*. International Geology Review.

Hodges, C., E. King, J. C. Pett-Ridge, A. Thompson. 2018. Potential for iron reduction increases with rainfall in Montane Basaltic Soils of Hawaii. Soil Science Society of America Journal.

King, E., A. Thompson, C. Hodges, J. Pett-Ridge. 2014. Towards understanding temporal and spatial patterns of molybdenum in the critical zone. Proceedings of the tenth Geochemistry of the Earth's Surface Conference.

## NON-REFEREED PUBLICATIONS

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Hodges, C. 2018. How do Soil Microbes Influence Nutrient Availability? Soil Science Society of America Soils Matter Blog.

Hodges, C. 2018. What is Vermicompost? Soil Science Society of America Soils Matter Blog.

## PRESENTATIONS

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Hodges, C, H. Kim, S. Brantley, J. Kaye. Soil gas concentrations at the Susquehanna Shale Hills CZO indicate different physical and chemical drivers of gas production and consumption in shale and sandstone watersheds. International Soils Meeting. San Diego, CA. January 2019. (Oral)

- Hodges, C, H. Kim, S. Brantley, J. Kaye. Gas dynamics in Shale Hills and Garner Run watersheds reveal different drivers of gas production and consumption. Susquehanna Shale Hills CZO all Hands Meeting. State College, PA. May 2018. (Oral).
- Marcon, V, Q. Tang, C. Hodges, J. Del Vecchio, I. Szink. How to the critical zones of the Shale Hills and Garner Run watersheds Compare? Susquehanna Shale Hills CZO all Hands Meeting. State College, PA. May 2018. (Poster).
- Hodges, C, H. Kim, S. Brantley, J. Kaye. Gas dynamics in watersheds of the Shale Hills CZO reveal different drivers of gas production and consumption. Calhoun CZO all Hands Meeting. Glenwood, SC. May 2018. (Oral).
- Barcellos, D, C Hodges, and A. Thompson. Soil iron and carbon cycling during spring warm-up at the Calhoun CZO. Calhoun CZO all Hands Meeting. Glenwood, SC. May 2018. (Oral).
- Thompson, Aaron, Chunmei Chen, Nadia Noor, Caitlin Anne Hodges, Diego Barcellos, Daniel deB. Richter. The potential for iron reduction in upland soils in Calhoun Critical Zone Observatory. American Geophysical Union 2017 Fall Meeting, New Orleans, LA, 11-15 December 2017. (Oral).
- Barcellos, D, C Hodges, D Markewitz, E. Ardington, and A. Thompson. Field measurements of soil iron and carbon cycling during spring warm-up in an aggrading pine forest at the Calhoun CZO. Soil Science Society of America International Annual Meeting. Tampa, FL. October 2017. (Oral).
- Hodges, C. Capturing the spatial and temporal extent of low-oxygen microsites in upland soils. CZO Graduate Research Group Monthly Webinar. October 2017. (Oral).
- Thompson, Aaron; Meile, Christof; Wilmoth, Jared; Barcellos, Diego; Chen, Chunmei; Ginn, Brian; Hodges, Caitlin. Key features of redox fluctuating soils that influence iron cycling. American Chemical Society National Meeting, San Francisco, CA. April 2017. (Oral)
- Hodges. C., J. Mallard, D. Markewitz, A. Thompson. Water and carbon influence the distribution of iron reduction at the Calhoun CZO. University of Georgia Plant and Soil Symposium. Athens, GA. November 2016. (Oral).
- Hodges. C., J. Mallard, D. Markewitz, A. Thompson. Temporal variation of water and carbon influence the distribution of upland iron reduction in soils. Soil Science Society of America Annual Meeting. Phoenix, AZ. November 2016. (Oral)
- Hodges, C., D. Markewitz, A. Thompson. Variation of iron reduction with depth and time at the Calhoun CZO. Calhoun Summer Science Meeting, Union, SC. May 2016. (Oral).

- Thompson, A., C. Hodges, O. Chadwick. Delineating climactic regions of upland soil iron reduction. American Geophysical Fall Meeting. San Francisco, CA. December 2015. (Poster).
- Hodges, C., D. Markewitz, A. Thompson. Linking spatial and temporal patterns of soil moisture with iron reduction. American Geophysical Union Fall Meeting. San Francisco, CA. December 2015. (Poster)
- Thompson, A., C. Hodges. Probing iron reduction from cm to km scales in forested ecosystems. Soil Science Society of America Annual Meeting. Minneapolis, MN. November 2015. (Oral).
- Thompson, A., C. Hodges, E. King, J. Pett-Ridge, O. Chadwick. Measuring soil iron reduction potential across rainfall gradients. Hawaii Ecosystems Meeting. Hilo, HI. July 2015. (Oral).
- Mon, S., C. Hodges, A. Thompson. Elucidating environmental controls on the potential for soil iron reduction. Young Scholars Research Symposium. Athens, Ga. July 2015. (Poster).
- Hodges, C., D. Markewitz, A. Thompson. Exploring the spatial and temporal extent of soil iron reduction with *in situ* methods. Calhoun Summer Science Meeting. Union, SC. June 2015. (Poster)
- Hodges, C., A. Thompson, W. Silver. Using electromagnetic induction to determine spatial and temporal patterns of upland iron reduction at the Luquillo CZO. Luquillo CZO Annual Meeting. Luquillo, PR. June 2015. (Oral)
- Hodges, C., D. Markewitz, A. Thompson. Mapping the potential for iron reduction using electromagnetic induction at the Calhoun CZO. Agronomy Graduate Student Poster Session. Athens, GA. April 2015. (Poster).
- Hodges, C., D. Markewitz, A. Thompson. Mapping the potential for iron reduction using electromagnetic induction. Southeastern Biogeochemistry Symposium. Atlanta, GA. March 2015. (Poster).
- Hodges, C., E. King, J. Pett-Ridge, A. Thompson. Characterizing iron reduction along a Hawaiian climate gradient. Ecology Graduate Student Symposium. Athens, GA. January 2015. (Oral).
- Hodges, C., E. King, J. Pett-Ridge, A. Thompson. Characterizing iron reduction along a Hawaiian climate gradient. College of Agricultural and Environmental Sciences Undergraduate Research Symposium. Athens, GA. April 2014. (Oral).
- Hodges, C., and A. Thompson. Deploying passive redox samplers across Hawaiian climate gradients. Hawaii Ecosystems Meeting. Hilo, HI. July 2013. (Oral)

Hodges, C., and A. Thompson. Analyzing the influence of climate on the iron isotopes of Hawaiian soils. College of Agricultural and Environmental Sciences Undergraduate Research Symposium. Athens, GA. April 2013. (Poster)

#### **SERVICE AND AFFILIATIONS**

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**Environmental Chemistry and Microbiology Student Symposium**  
Co-chair 2019

**Susquehanna Shale Hills CZO Executive Committee**  
Graduate Student Representative August 2018 – August 2019

**Soil Science Society of America Science Communication Committee** 2017 - 2019

**Penn State Ecosystem Science and Management GSO** 2017 – Present

**CZO Graduate Research Group Site Representative** August 2017 – May 2018  
**CZO Graduate Research Group** 2015 – May 2018

**UGA Ecology Graduate Student Association** 2014 – 2017

**Agronomy Graduate Student Association** 2014 – 2017  
Social Event Coordinator 2015-2016  
Treasurer/Co-President 2016-2017

**American Geophysical Union** 2015 – Present  
Member

**ASSA/CSSA/SSSA** 2014 – Present  
Member

**Reviewed for following Journals:**

Wetlands, Soil Science Society of America Journal, Journal of Environmental Quality