

# CATHERINE F. FROCK

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## CAREER INTERESTS

- **Conservation research:** landscape ecology, movement ecology, animal behavior, climate change
- **Science communication:** layout and design, public marketing, presentations/booths
- **Environmental outreach:** underprivileged groups, children, informal settings

## EDUCATION

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- Jan. 2016–  
present      **Ph.D. Candidate in Wildlife Ecology and Conservation (WEC)**  
**University of Florida (UF) – Gainesville, FL**  
Co-Advisers: Dr. Robert McCleery (UF) and Dr. Mike Conner (Jones Center at Ichauway)  
Dissertation: An integrative study in the behavioral landscape ecology of fox squirrels:  
implications for animal conservation in a changing world
- Aug. 2013–  
Dec. 2015      **M.S. in Zoology**  
**University of Wisconsin-Madison (UW-Madison) – Madison, WI**  
Adviser: Dr. Monica Turner  
Thesis: Microhabitat conditions rather than landscape patterns affect post-dispersal seed  
removal in burned and unburned lodgepole pine (*Pinus contorta* var. *latifolia*) forests
- Aug. 2005–  
Dec. 2009      **B.S. in Biological Sciences, graduated summa cum laude**  
**North Carolina State University (NCSU) – Raleigh, NC**  
Concentration: Ecology, Evolution, and Conservation Biology  
Adviser: Dr. Nick Haddad  
Honors thesis: The effects of human landscape modification on amphibian movement and  
habitat choice

## PUBLICATIONS

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Sovie, A.R., D.A. Greene, **C.F. Frock**, A.D. Potash, and R.A. McCleery. 2019. Ephemeral temporal partitioning may facilitate coexistence in competing species. *Animal Behaviour* 150: 87-96.  
<https://doi.org/10.1016/j.anbehav.2019.01.020>

**Frock, C.F.** and M.G. Turner. 2018. Microhabitat rather than landscape pattern affects post-dispersal seed removal by rodents in burned and unburned lodgepole pine forests. *Landscape Ecology* 33(11): 1895-1909.  
<https://doi.org/10.1007/s10980-018-0717-x>

## MANUSCRIPTS (underline = undergraduate mentees)

Braun de Torrez, E.C., **C.F. Frock**, W.W. Boone IV, A.R. Sovie, and R.A. McCleery. Seasick: Why value ecosystems severely threatened by climate change? In review at *Estuaries and Coasts*.

**Frock, C.F.**, R.A. McCleery, and L.M. Conner. GPS sampling frequency and timing affect space use inferences for a small mammal species. In preparation for *Movement Ecology*.

A.D. Potash, **Frock, C.F.**, W.W. Boone IV, L.M. Conner, and R.A. McCleery. Should you put a ring on it? An untested technique to identify characteristic spatial scale(s) of ecological data. In preparation for *Landscape Ecology*.

**Frock, C.F.**, A.D. Potash, **S.J. Ryburn**, **S. Shiver**, R.A. McCleery, and L.M. Conner. Effects of an extreme weather event on the movement behavior of a GPS-collared small mammal. In preparation for *Journal of Mammalogy*.

#### **RESEARCH-RELATED GRANTS AND AWARDS (\* = declined)**

2020	African Safari Club of Florida Scholarship	\$1,000
2020	UF Doris Lowe and Earl and Verna Lowe Scholarship	\$1,000
2020	UF Courtney A. Tye Memorial Graduate Student Scholarship	\$2,000
2019	UF Graduate Student Council Travel Grant	\$350
2019	UF WEC Department Travel Award	\$250
2018	UF Graduate Student Council Travel Grant	\$350
2018	UF WEC Department Travel Award	\$250
2013–2018	NSF Graduate Research Fellowship Program	~\$132,000
2016	UF WEC Department Travel Award	\$250
2016	UF Institute of Food and Agricultural Sciences Travel Award	\$250
2015	UW-Madison John Jefferson Davis Travel Award*	\$600
2015	U.S. Agency for International Development Research and Innovation Fellowship*	\$11,500
2015	NSF Graduate Research Opportunities Worldwide Award*	\$5,000
2014	UW-Madison Department of Zoology Graduate Student Summer Research Award	\$2,500
2009	NSF Research Experience for Undergraduates at the University of Alaska Southeast	\$4,950
2007-2009	Howard Hughes Research Scholars Program at NCSU	\$14,620
2008	Phi Kappa Phi Study Abroad Scholarship	\$1,000
2008	NCSU Study Abroad Office Scholarship	\$1,750

#### **TEACHING AND MENTORING EXPERIENCE**

Spring 2020,	Teaching Assistant
2019, 2018	Wildlife Techniques (WIS 4945) undergraduate course - WEC, UF, Gainesville, FL
Fall 2018- Spring 2019	Mentor 4 UF undergraduates and 1 high school student – Gainesville, FL
Fall 2017	Guest lecturer Mammalogy undergraduate course - WEC, UF, Gainesville, FL
Fall 2016	Guest lecturer Wildlife Techniques (WIS 4945) undergraduate course - WEC, UF, Gainesville, FL
Fall 2016	Guest lecturer Mammalogy course - Jones Center at Ichauway, Newton, GA
Fall 2015	Lab Instructor Introductory Biology (BIO 152) undergraduate course - Zoology Department, UW-Madison
Jul. 2015	Co-Leader

Science Club - Adult Role Models in Science Program, Biology Outreach Club, Madison, WI

- Apr. 16, 2015 Guest Instructor  
UW-Preschool Laboratory – Madison, WI
- Sep.-Dec. 2014 Mentor  
2 Introductory Biology (BIO 152) Independent Project undergraduates - UW-Madison
- Jan.-Apr. 2011 Instructor  
Mad Science of the Bay Area – San Francisco Bay area, Newark, CA
- Spring 2010 Teaching Assistant  
Ecology, Evolution, and Behavior course - Biology Department, NCSU, Raleigh, NC

### **TECHNICAL REPORTS AND MEMOS**

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**Frock, C.** and S. Euing. U.S. Fish and Wildlife Service. 2011. Lange’s metalmark butterfly annual survey report. *Memo to the files.*

**Frock, C.** and S. Euing. U.S. Fish and Wildlife Service. 2011. Contra Costa wallflower annual survey report. *Memo to the files.*

**Frock, C.** and S. Euing. U.S. Fish and Wildlife Service. 2011. Antioch Dunes evening primrose annual survey report. *Memo to the files.*

Thurgate, N. Y., W. Fields, N. Haddad, and **C. Frock**. 2009. Status and ecology of the eastern tiger salamander and Carolina gopher frog on Fort Bragg, NC. *Final report to the Army.* 33 pp.

**Frock, C.** 2009. The effects of human landscape modification on amphibian movement and habitat choice. *Howard Hughes Research Scholars Program thesis.* 12 pp.

Thurgate, N. Y., W. Fields, N. Haddad, **C. Frock**, J. MacAllister, and M. Chesser. 2008. Status and ecology of the eastern tiger salamander and Carolina gopher frog on Fort Bragg, NC. *Final report to the Army.* 30 pp.

### **MANUSCRIPT REVIEWS**

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Urban Naturalist

### **SELECTED PROFESSIONAL EXPERIENCE**

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May-Aug. 2013 **Biological Science Technician (Wildlife) - Crew Leader** *Sierra National Forest*  
U.S. Forest Service – Oakhurst, CA

Oct. 2012 **Contractor: Naval Air Weapons Station China Lake**  
TOSS Inc. – Ridgecrest, CA

Apr.-Sep. 2012 **Lab Assistant I** *Carrizo Plain National Monument*  
University of California, Berkeley – Berkeley, CA

Jan.-Mar. 2012 **Wildlife Management Intern** *The Farallon Islands*  
U.S. Fish and Wildlife Service – Fremont, CA

Apr. 2011- **Field Biology Intern** *San Francisco Bay area*

Jan. 2012	U.S. Fish and Wildlife Service – Fremont, CA	
Oct. 2010- May 2011	<b>Volunteer: Edgewood County Park and Natural Preserve</b> Edgewood Weed Warriors - Redwood City, CA	
Nov. 2010- Mar. 2011	<b>Volunteer/Fish Data Collection Intern</b> Marine Science Institute – Redwood City, CA	<i>San Francisco Bay area</i>
May-Sep. 2010	<b>Biological Science Technician (Wildlife)</b> U.S. Forest Service – Camptonville, CA	<i>Tahoe National Forest</i>
Aug. 2007- May 2010	<b>Research and Laboratory Technician</b> NCSU Biology Department – Raleigh, NC	<i>Fort Bragg military installation</i>
May 2007, 2008, 2009; Mar. 2010	<b>Field Technician</b> NCSU Zoology Department - Raleigh, NC	<i>Savannah River Site, SC</i>
May-Aug. 2009	<b>Undergraduate Researcher: NSF REU Program</b> University of Alaska Southeast – Juneau, AK	<i>Southeast Alaska</i>
May-Aug. 2007, 2008	<b>Field Technician in Conservation Biology</b> NCSU Zoology Department - Raleigh, NC	<i>Fort Bragg military installation</i>
May-Jun. 2008	<b>Study Abroad Program Participant</b> NCSU Study Abroad Office – Raleigh, NC	<i>Namibia</i>

***PROFESSIONAL ORAL PRESENTATIONS (\* indicates presenter)***

Sovie, A.R., D.U. Greene\*, **C.F. Frock**, A.D. Potash, R.A. McCleery. April 10-12, 2019. Ephemeral temporal partitioning may facilitate coexistence in competing species. The Florida Chapter of The Wildlife Society. 2019 Spring Conference. Melbourne, FL.

Sovie, A.R., D.U. Greene\*, **C.F. Frock**, A.D. Potash, R.A. McCleery. 2018. Ephemeral temporal partitioning may facilitate coexistence in competing species. The Wildlife Society. 2018 Annual Conference. Cleveland, OH.

**Frock, C.F.\***, R.A. McCleery, and M. Conner. Aug. 9, 2018. Effects of GPS sampling frequency and timing on space use inferences of a small mammal species. Ecological Society of America, New Orleans, LA. *20 minutes.*

**Frock, C.F.\*** and M.G. Turner. Oct. 18, 2016. Microhabitat conditions rather than landscape patterns affect post-dispersal seed removal in burned and unburned lodgepole pine forests. The Wildlife Society's 23<sup>rd</sup> Annual Conference, Raleigh, NC. *20 minutes.*

Fields, W.R.\*, **Frock, C.**, Haddad, N.M., and N. Thurgate. Aug. 9, 2011. Testing assumptions about amphibian movement behavior with field experiments. 96<sup>th</sup> Annual Ecological Society of America Annual Meeting, Austin, TX.

**Frock, C.\*** Nov. 7, 2009. Movement studies of the impacts of human disturbance on amphibian habitat quality. 32<sup>nd</sup> Annual Fall Conference and General Meeting of the North Carolina Herpetological Society, Raleigh, NC. *20 minutes.*

**PROFESSIONAL POSTER PRESENTATIONS (\* indicates presenter)**

**Froock, C.F.\***, R.A. McCleery, and L.M. Conner. Mar. 12-13, 2019. GPS sampling frequency and timing affect space use inferences for a small mammal species. Movement Ecology of Animals Gordon Research Conference, Barga, Lucca, Italy.

**Froock, C.F.\***, R.A. McCleery, and L.M. Conner. Mar. 2, 2019. GPS sampling frequency and timing affect space use inferences for a small mammal species. Movement Ecology of Animals Gordon Research Seminar, Barga, Lucca, Italy.

Hudgens, B.\*, N. Haddad, W. Fields, N.Y. Thurgate, **C. Froock**, D. Kuefler, B. Morris, and T. Jobe. Jul. 6, 2010. Using movement behaviors to assess dispersal routes in complex landscapes. 24<sup>th</sup> Annual International Congress for Conservation Biology, Edmonton, Alberta, Canada.

**Froock, C.\*** Jul. 4, 2010. The effects of human landscape modification on the movement behavior of common and rare amphibian species. 24<sup>th</sup> Annual International Congress for Conservation Biology, Edmonton, AB.

Hudgens, B.\*, N. Haddad, W. Fields, N. Y. Thurgate, **C. Froock**, D. Kuefler, T. Jobe. Dec. 1, 2009. Using movement behaviors to determine connectivity in complex landscapes. Partners in Environmental Technology Technical Symposium and Workshop, Washington, D.C., U.S.A.

**OTHER ORAL PRESENTATIONS (\* indicates presenter)**

**Froock, C.F.\***. Nov. 14, 2019. Can invisible light advance our understanding of animal habitat selection? Forest Ecology class of ~30 undergraduates, UF, Gainesville, FL. *30 minutes. Invited speaker.*

**Froock, C.F.\*** Sept. 26, 2019. A study in behavioral landscape ecology: forests, fires, small mammals, and seeds. Seminar for ~30 biology undergraduates and faculty, Lenoir-Rhyne University, Hickory, NC. *45 minutes. Invited speaker.*

**Froock, C.F.\***. Nov. 9, 2017. Behavioral landscape ecology of fox squirrels: implications for animal conservation in a changing world. Forest Ecology class of ~30 undergraduates, UF, Gainesville, FL. *20 minutes. Invited speaker.*

**Froock, C.F.\*** Dec. 17, 2015. A study in behavioral landscape ecology: Forests, fires, small mammals, and seeds. Master's defense talk, UW-Madison, Madison, WI. *20 minutes.*

**Froock, C.\*** May 7, 2015. Spatial variation in animal behavior: causes and effects. "12 Ecological Research Stories in 1 Hour" by Science Communication For Ecologists Seminar Graduate Students, UW-Madison, Madison, WI. *5 minutes.*

**Froock, C.\*** Mar. 13, 2014. Could granivory influence local plant recruitment patterns in a fire-dominated landscape? Student Association for Fire Ecology (UW-Madison chapter), Madison, WI. *5 minutes.*

**Froock, C.\*** Aug. 5, 2009. Distribution and infection patterns of the chytrid fungus affecting boreal toads of southeast Alaska. REU Student Research Seminar, Juneau, AK. *20 minutes.*

**Froock, C.\*** Mar. 20, 2009. The effects of habitat management on amphibian movement behavior. Howard Hughes Research Scholars Program Seminar, Raleigh, NC. *15 minutes.*

**Froock, C.\*** Dec. 20, 2007. The effects of habitat management on salamander movement behavior. Howard Hughes Research Scholars Program Seminar, Raleigh, NC. *15 minutes.*

### **OTHER POSTER PRESENTATIONS (\* indicates presenter)**

**Frock, C.\***, A. Potash\*, and E. Webb\*. Nov. 28, 2017. To donut or not to donut: a comparison of methods for analyzing spatial scale. Landscape Ecology project poster session, University of Florida, Gainesville, FL.

Potash, A\*., Conner, L. M., McCleery, R. A., **Frock, C.** 2017. Fox Squirrel (*Sciurus niger*) behavioral response to multiple predators. Joseph W. Jones Center Scientific Advisory Committee. Newton, GA.

**Frock, C.\*** Apr. 1, 2008. How do wildfires affect the terrestrial movement behavior of amphibians? 17<sup>th</sup> Annual NC State University Undergraduate Research Symposium, Raleigh, NC.

Cash, J.D.\*, **Frock, C.F.\***, Henry, A.B., Herbold, M.A., Maynard, B.P., Morgan, S.M., Sheikh, A.T., and S.L. Wray. Apr. 17, 2007. What about global warming? Learning experiences in topics related to global warming. 9<sup>th</sup> Annual NC State University & College of Agriculture and Life Sciences Undergraduate Teaching Symposium, Raleigh, NC.

### **WORKSHOPS**

Jan. 2018 Conservation Leaders for Tomorrow: <https://clft.org/> - Mansfield, GA (~\$1,000 value)

### **SELECTED SCIENCE COMMUNICATION AND OUTREACH EXPERIENCE**

Apr. 3, 2019 Presenter, “3 Ways That Technology Can Help Scientists Learn About Squirrel Behavior,” 4<sup>th</sup> Annual Suds and Science hosted by the UF’s Wildlife Graduate Student Association, Cypress and Grove Brewery – Gainesville, FL

Jun. 13, 2018 Instructor, “Animal Foraging” 2-hour lesson, Wildwood Girl Scouts Camp – Wildwood, FL

Jun. 2018-present Member, Natural Resources Diversity Initiative, UF

Jan. 2014-Dec. 2015 Member, Biology Outreach Club, UW-Madison

Sep. 2014-May 2015 Outreach Committee Co-Chair, Zoology Graduate Student Organization, UW-Madison

Mar. 3, 2009 Speaker, “Studying abroad in Namibia”, Valley Springs Middle School – Asheville, NC

Dec. 2007-May 2008 Graphic Designer and Newsletter Editor: *The Leaflet*, Wolfpack Environmental Student Association, NCSU

Aug. 2007-May 2008 Co-Founder, Secretary, Webmaster, Wolfpack Environmental Student Association, NCSU

Apr. 15, 2008 Invited Speaker, “Fire & fluorescent dye: how habitat management techniques affect amphibian movement behavior.” *60-minute talk*. Encore Program for Lifelong Enrichment

### **SELECTED UNIVERSITY ACTIVITIES AND SERVICE**

Jan. 2016-present Member, Wildlife Graduate Students Association, UF

Jul. 2016- Jun. 2018 Travel Grants Committee Chair, Wildlife Graduate Students Association, UF

Sep. 2013- Dec. 2015 Member, Wisconsin Ecology, UW-Madison

Feb. 2014- May 2015 Secretary, Student Association for Fire Ecology – UW-Madison chapter, UW-Madison

Dec. 2013- May 2014 Representative, Zoology Graduate Student Organization, UW-Madison

Sep. 30, 2013 & May 5, 2014 Workshop Leader, “NSF Application Overview and Panel”, Graduate Student Professional Development, UW-Madison

### **SELECTED SKILLS**

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Software: R, RStudio, QGIS, ArcGIS, PostgreSQL, ENVI, MATLAB, SAS  
Driving: 4WD, manual transmission

### **SELECTED CERTIFICATIONS**

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- 15-Person Van Training Course, University of Florida
- Defensive Driving Course 9<sup>th</sup> Edition (USDA)
- Heartsaver First Aid CPR AED, American Heart Association
- Wilderness First Aid (WFA)