

# KATHRYN C. GRABENSTEIN

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## EDUCATION

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<b>PhD</b>	<b>University of Colorado Boulder</b> , Ecology & Evolutionary Biology Advisor: Dr. Scott A. Taylor	<b>2016 - 2022</b>
<b>B.A.</b>	<b>Cornell University</b> , Biological Sciences (Neurobiology & Behavior), <i>cum laude</i> Honors Thesis Advisors: Drs. Michael S. Webster & Irby J. Lovette	<b>2010 - 2014</b>

## REFEREED PUBLICATIONS \*Denotes undergraduate mentee

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<b>2022</b>	6) <b>Grabenstein, K.C.</b> , Otter, K., Burg, T., & Taylor, S.A. Sympatry leads to lower body condition for two closely related taxa. <i>Ecology &amp; Evolution</i> .
<b>2021</b>	5) Theodosopoulos, A.N., Bensch, S., <b>Grabenstein, K.C.</b> , & Taylor, S.A. A highly invasive malaria parasite has expanded its range to non-migratory birds in North America. <b><i>Biology Letters</i></b>
	4) *Feldmann, K., <b>Grabenstein, K.C.</b> , & Taylor, S.A. Achromatic plumage variation between and within closely-related hybridizing chickadees. <b><i>The Journal of Field Ornithology</i></b> .
<b>2019</b>	3) *Feldmann, K., Funk, E., <b>Grabenstein, K.</b> , Jackson, D., Theodosopoulos, A., Wagner, D. N. and Taylor, S. A. 2019. Book Review: The Ascent of Birds. <b><i>The Journal of Field Ornithology</i></b> . 90: 101-102.
	2) Schroeter, I., Forrester, C., Brigham, L., Fried, E., <b>Grabenstein, K.</b> , Karban, C., McDermott, M. 2019. Diverging from the Dogma: A Call to Train Creative Thinkers in Science, <b><i>Bulletin of the Ecological Society of America</i></b> , 100(1) 1-7.
<b>2018</b>	1) <b>Grabenstein, K.C.</b> & Taylor, S.A. 2018. Breaking barriers: causes, consequences, and experimental utility of human-mediated hybridization. <b><i>Trends in Ecology &amp; Evolution</i></b> , 33(3), 198-212.
<b>In Revision</b>	1) <b>Grabenstein, K.C.</b> , Otter, K., Burg, T., & Taylor, S.A. Disturbance drives hybridization in closely-related chickadees.
<b>In Prep</b>	1) <b>Grabenstein, K.C.</b> <sup>†</sup> , Kaiser, S.A. <sup>†</sup> , Sillett, T.S., and Webster, M.S. No experimental support for resource-dependent offspring sex allocation in a migratory songbird.
	2) <b>Grabenstein, K.C.</b> , Theodosopoulos, A.N., & Taylor, S.A. Extensive backcrossing elevations population wide hybrid ancestry in Boulder County chickadees despite rare hybridization.

## NON-REFEREED PUBLICATIONS

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<b>2019</b>	3) <b>Grabenstein, K.C.</b> "The Boulder Chickadee Study: Establishing a long-term research framework" Colorado Birds, Colorado Field Ornithologists Quarterly Publication.
<b>2014</b>	2) <b>Grabenstein, K.C.</b> "Seven Ways of Looking at a Fairywren: Student Research in Australia." All About Birds, 13 Aug. 2014. <a href="https://www.allaboutbirds.org/seven-ways-of-looking-at-a-fairywren-student-research-in-australia/">https://www.allaboutbirds.org/seven-ways-of-looking-at-a-fairywren-student-research-in-australia/</a>
<b>2012</b>	1) <b>Grabenstein, K.C.</b> "Research News: Can Clark's Nutcrackers help keep white bark pine forests alive?" Project FeederWatch, 5 Mar. 2012. <a href="http://feederwatch.org/blog/research-news-can-clarks-nutcrackers-help-keep-whitebark-pine-forests-alive/">http://feederwatch.org/blog/research-news-can-clarks-nutcrackers-help-keep-whitebark-pine-forests-alive/</a>

## FELLOWSHIPS AND GRANTS

### Total Fellowships: \$147,870

<b>2020</b>	<b>Summer Graduate Fellowship</b> , Ecology & Evolutionary Biology, University of Colorado, Boulder	<b>\$8,370</b>
	<b>Figuroa Family Fellowship</b> , Graduate School, University of Colorado, Boulder	<b>\$1,500</b>
<b>2017</b>	<b>Graduate Research Program Fellowship (GRFP)</b> , National Science Foundation	<b>\$138,000</b>

### Total Grants: \$141,651

<b>2022</b>	<b>Graduate Student Travel Grant</b> , Department Ecology & Evolutionary Biology, CU Boulder	<b>\$1,000</b>
	<b>Student Travel Grant</b> , American Ornithological Society	<b>\$530</b>
	<b>Graduate and Professional Student Government Travel Grant</b> , University of Colorado	<b>\$300</b>
<b>2020</b>	<b>Paddon/Gelhorn Grant</b> , Indian Peaks Wilderness Alliance	<b>\$2,000</b>
	<b>NSF INTERN Supplement</b> , National Science Foundation	<b>\$50,220</b>
	<b>Student Research Grant</b> , Department Ecology & Evolutionary Biology, CU Boulder	<b>\$1,700</b>
	<b>Cynthia H. Schultz Graduate Student Grant</b> (awarded to top applicants), Graduate School, University of Colorado, Boulder	<b>\$2,000</b>
<b>2019</b>	<b>Microgrant Outreach Award</b> , Office for Outreach and Engagement, University of Colorado, Boulder	<b>\$1,000</b>
	<b>Undergraduate Research Opportunities Program Team Grant</b> , University of Colorado	<b>\$3,000</b>
	<b>Francis M. Peacock Scholarship</b> , Garden Club of America	<b>\$4,500</b>
	<b>Project Grant</b> , Colorado Field Ornithologist Society	<b>\$1,075</b>
	<b>Education &amp; Conservation Grant</b> , Denver Field Ornithologists	<b>\$1,000</b>
<b>2018</b>	<b>Undergraduate Research Opportunities Program Team Grant</b> , University of Colorado (declined)	<b>\$3,000</b>
	<b>CU RIO Seed Grant</b> , Pls: Dr. Scott Taylor, Dr. Mariana Kassianidou, & Dr. Alexandra Rose, <b>Co-written by Kathryn Grabenstein</b> , Research & Innovation Office, University of Colorado, Boulder	<b>\$49,576</b>
	<b>Hesse Award</b> , American Ornithological Society	<b>\$2,300</b>
	<b>Student Research Grant</b> , Department Ecology & Evolutionary Biology, CU Boulder	<b>\$2,300</b>
	<b>Frank Chapman Memorial Award</b> , American Museum of Natural History	<b>\$2,000</b>
	<b>Beverly Sears Research Grant</b> , Graduate School, University of Colorado, Boulder	<b>\$1,000</b>
	<b>Museum Grant</b> , University of Colorado Museum of Natural History	<b>\$1,000</b>
<b>2017</b>	<b>Rosemary Grant Award</b> , Society for the Study of Evolution	<b>\$2,500</b>
	<b>Research Grant Award</b> , Boulder County Naturalist Association	<b>\$2,100</b>
	<b>Student Research Grant</b> , Department Ecology & Evolutionary Biology	<b>\$2,000</b>
	<b>Graduate Student Research Grant</b> , Society of Systematic Biologists	<b>\$1,300</b>
	<b>Project Grant</b> , Colorado Field Ornithologist Society	<b>\$750</b>
<b>2014</b>	<b>Undergraduate Research Program Award</b> , College of Arts and Sciences, Cornell University	<b>\$500</b>
	<b>Office of Undergraduate Biology Travel Award</b> , Cornell University	<b>\$500</b>
<b>2013</b>	<b>Office of Undergraduate Biology Travel Award</b> , Cornell University	<b>\$500</b>
<b>2012</b>	<b>Redhead Fund Travel Award</b> , Cornell Lab of Ornithology	<b>\$2,000</b>

## HONORS AND AWARDS

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- 2021**     **General Council Talk Award**, American Ornithological Society  
**Graduate Student Teacher Award**, Ecology & Evolutionary Biology Department, University of Colorado-Boulder
- 2018**     **Graduate Student Teacher Award**, Ecology & Evolutionary Biology Department, University of Colorado-Boulder  
**Best Graduate 12-minute Talk**, Spring Student Research Symposium, University of Colorado-Boulder
- 2014**     **Runner-up in Genesis Award for Outstanding Undergraduate Poster Presentation**, Animal Behavior Society  
**Cynthia Kagarise Sherman Award for Best Undergraduate Thesis in Behavior**, Department of Neurobiology & Behavior, Cornell University  
**Honorable Mention in Knight Prize for Writing in the Majors**, Cornell University  
**Dean's List**, College of Arts and Sciences, Cornell University, Fall 2013, Spring 2014

## INVITED PRESENTATIONS

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- Grabenstein, K.C.**, Theodosopolous, A.N., & Taylor, S.A. Annual Boulder Chickadee Symposium, Boulder, CO. April 2022, **Invited Talk**.
- Grabenstein, K.C.**, Theodosopolous, A.N., & Taylor, S.A. Human-mediated hybridization in common backyard birds. INSTAAR Colloquium Series, Boulder, CO, April 2022, **Invited talk**.
- Grabenstein, K.** & Taylor, S.A. The Boulder Chickadee Study: Insights from backyard birds, Wild Bear Mountain Ecology Center, Nederland, CO, July 2021, **Invited Virtual Talk**.
- Grabenstein, K.** & Taylor, S.A. Combining research, teaching, and community science in CU Boulder's Urban Forest. Tree City USA quarterly meeting, CU Boulder, Boulder, CO, July 2019, **Invited Talk**.
- Grabenstein, K.** & Taylor, S. Little Birds, Big Data. Talks at Google, Google, Boulder, CO, February 2019, **Invited Talk**.
- Grabenstein, K.**, Burg, T., Otter, K. and Taylor, S. Experimental utility of hybridization following human landscape disturbances. American Ornithological Society, Tucson, AZ, April 2018, **Invited Talk**.

## PRESENTATIONS \*denotes undergraduate/high school student mentee

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- Grabenstein, K.**, Burg, T., Otter, K. and Taylor, S. Exploring disturbance mediated hybridization in backyard songbirds. American Ornithological Society, Virtual, June 2021, **Talk**.
- Grabenstein, K.**, Burg, T., Otter, K. and Taylor, S. Exploring disturbance mediated hybridization in backyard songbirds. Evolution, Virtual, June 2021, **Talk**.
- Grabenstein, K.**, Burg, T., Otter, K. and Taylor, S. Evaluating how human land disturbances influence species barriers at continent-wide and regional scales. American Society of Naturalists, Asilomar, CA January 2020, **Talk**.
- Grabenstein, K.**, Burg, T., Otter, K. and Taylor, S. Exploring chickadee hybridization in the face of human disturbances. Joint Evolutionary Biologists Lab Retreat, Nederland, CO November 2019, **Talk**.

\*Arnold, V., **Grabenstein, K.**, Theodosopolous, A. & Taylor, S.A. Chickadees prefer south-facing nest boxes. Summer Researcher Poster Session, UCAR Boulder, CO. August 2019. Poster.

**Grabenstein, K.C.** & Taylor, S.A. Understanding species boundaries in Colorado backyard birds. Front Range Student Ecology Symposium, Fort Collins, CO, February 2019. **Talk**.

\*Feldmann, K., **Grabenstein, K.**, Funk, E., & Taylor, S. Plumage patterns in chickadees: quantifying plumage variation between and within *Poecile atricapillus* and *Poecile gambeli*. Front Range Student Ecology Symposium, Colorado State University, Fort Collins, CO, February 2019, Poster.

Brackett, A., Frankel-Goldwater, L., **Grabenstein, K.**, Nocito, E., Roberts, V. Bolstering the front lines: Empowering educators to make excellence inclusive. The University of Colorado Diversity Summit, Boulder, CO, November 2018. **Workshop.**

\*Rose, K., \*Pineda, A., **Grabenstein, K.**, Hansen, A., & Taylor, S. Chickadees hybridizing in Boulder County, CU Science Discovery & Nature Kids Lafayette Research Experience Symposium, August 2018, Poster.

\*Pineda, A., \*Rose, K., **Grabenstein, K.**, Hansen, A., & Taylor, S. Chickadees in Boulder County, CU Science Discovery & Nature Kids Lafayette Research Experience Symposium, August 2018, Poster.

**Grabenstein, K.**, Burg, T., Otter, K. and Taylor, S. Experimental utility of hybridization following human landscape disturbances. Spring Student Research Symposium, Boulder, CO April 2018, **Talk.**

**Grabenstein, K.C.** and Taylor, S.A. Breaking barriers: anthropogenic hybridization in disturbed habitats. Guild of Rocky Mountain Ecology and Evolutionary Biologists Society, Nederland CO, 2017, **Talk.**

**Grabenstein, K.C.**, Kaiser, S.A., and Webster, M.S. No experimental support for resource-dependent sex allocation in a migratory songbird, The 51st Annual Conference of the Animal Behavior Society, Princeton, NJ August 2014, Poster.

**Grabenstein, K. C.**, Kaiser, S.A., & Webster, M.S. No experimental support for resource-dependent offspring sex allocation in a migratory songbird. Neurobiology & Behavior Thesis Symposium, Cornell University, May 2014, Poster

O'Toole, K. E., **Grabenstein, K. C.**, Hinton, M. G., Swaddle, J. P., Karubian, J., Webster, M. S. Post-fire vegetation structure and food availability may impact habitat preference for a tropical passerine. Annual Meeting of the Wilson's Ornithological Society, The College of William & Mary, March 2013, Poster.

## PROFESSIONAL TRAINING/WORKSHOPS

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<b>2019</b>	<b>Genomics &amp; Bioinformatics</b> , Quantitative Exploration Discussion SuperGroup, 1 hr Workshop <b>Course-based Undergraduate Research (CURE) Design &amp; Implementation</b> , Semester Course
<b>2018</b>	<b>Inclusive pedagogy</b> , Semester Course
<b>2017</b>	<b>Best Practices in Science Education</b> , Semester Course <b>Pedagogy</b> , Semester Course
<b>2016</b>	<b>Basics of Supercomputing Bootcamp</b> , Supercomputing Facility CU-Boulder, 3 day workshop <b>Planning and Managing STEM Labs</b> , 1 hr Workshop
<b>2012</b>	<b>How to Teach Everyone: The Kolb LSI</b> , 1 hr Workshop <b>National Geographic Young Explorer's Grant Writing Workshop</b> , 1 day Workshop

## TEACHING EXPERIENCE

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<b>Ornithology</b> , Graduate Teaching Assistant, CU Boulder	<b>Jan 2021-May 2021</b>
<b>Ornithology</b> , Graduate Teaching Assistant, CU Boulder Designed laboratory component of new Ornithology course: Using inclusive pedagogy techniques, created weekly labs and wrote laboratory manual. Collected pre- and post-survey data to improve course in future iterations.	<b>Jan 2018-May 2018</b>
<b>Animal Behavior</b> , Graduate Teaching Assistant, CU Boulder	<b>Aug 2017-Dec 2017</b>
<b>General Biology I and II</b> , Graduate Teaching Assistant, CU Boulder	<b>Aug 2016-May 2017</b>

Updated: 14 April 2022

**Invited Guest Lectures:**

Life History & Timing of Breeding, Ornithology, 2018

**QUANTITATIVE SKILLS**

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**Coding Language & Program Proficiency:** R, SQL, Linux/Unix environment, Python, Git & ArcGIS

**Computational Proficiency:** Big Data curation & manipulation, multivariate statistical analyses, data visualization, & bioinformatics

**Relevant Graduate Coursework:** Computational Biology, Biometry, Genomics, & Practical Computing for Biologists

**PROFESSIONAL EXPERIENCE**

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**Intern,** Embark Veterinary, Inc.

**Aug 2020 - Dec 2021**

Secured NSF funding to complete a 6 month internship at fast-growing canine genomics company where I developed a canine paternity test for dog breeders to resolve breed pedigrees using whole-genome methods, which improved accuracy of microsatellite-based paternity tests by 60%.

**Intern,** Climate Change Science Institute, Oak Ridge National Laboratory

**Aug 2014 - May 2015**

Combined large vegetation phenology datasets from satellites and 605 on-the-ground observational sources using R & SQL to 1) resolve space and time limitation trade-offs and 2) refine resolution of remote sensing sources, resulting in a 200% improvement (from 2km to 500m pixels) in imaging tools for future research.

**Field Biologist,** Southern Sierra Research Station

**Jun 2014 - Aug 2014**

Monitored breeding population of Yellow-billed Cuckoos using radio telemetry, nest searching/monitoring, behavioral observations, point count surveys, canopy mist netting, and data analysis with ArcGIS.

**Undergraduate Research Assistant,** Fuller Evolutionary Lab

**Jan 2011 - May 2014**

Conducted 1000+ genetic analyses to sex individuals and assign paternity using DNA extraction & PCR. This work generated nestling paternity data for graduate students assessing breeding success in their study populations.

**Student Liaison/Fellow,** NSF International Research Experience for Students (IRES)

**Jan 2012 - Dec 2013**

Developed independent project during 8-week field component in Northern Territory, Australia using active mist netting, color band re-sighting, banding, jugular/brachial bleeding, hormone assays, point counts, survey transects, vegetation surveys, song analysis in Raven software, data entry, and data management. *Invited to return as Student Liaison in second year to assist with logistics of running IRES program (i.e. trip planning, data management).*

**Undergraduate Field Researcher,** Webster Lab

**Dec 2010 - Jan 2011**

Performed behavioral observations on color banded population of Red-backed Fairy wrens in Brisbane, Australia to explore potential behavioral differences between sexually manipulated and control males

**OUTREACH**

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**Nest Box building Workshop,** Cal-wood Education Center, Jamestown, CO, March 2020

Day long nest building workshop with 50+ middle school children from greater Denver Area.

**Boulder Watershed Exhibit,** Museum of Boulder, Boulder, CO January 2020

Contributed invited materials to the Museum of Boulder's Exhibit

**CU Science Café,** CU Science Discovery, November 2019

Nominated by CU Science Discovery group to lead in 2 hr event with 10 high school students

**NSF GRFP Panel Participant,** Graduate School, CU Boulder, September 2019

Updated: 14 April 2022

Served as invited panelist during Q&A session led by Graduate School for GRFP preparation

**Boulder Chickadee Study End-of-Season Symposium**, Boulder, CO, October 2019

Garnered funding, planned, advertised, and executed 3 hour symposium to connect current & future Boulder Chickadee Study participants with senior, graduate, and undergraduate researchers and to discuss research findings.

**Genomics Exhibit, CU Natural History Museum**, Boulder, CO, September 2019

Contributed materials to CU Boulder's Natural History Museum Exhibit

**Nature Camp Research Instructor**, Wild Bear Mountain Ecology Center, Nederland, CO, July 2019

Developed research activities, led bird banding demonstration, and implemented full-day camp for 11 students, age ranges 8-15 yr old.

**Nest Box Building Workshop**, Dharma's Garden, May 2019

Led day long nest box building workshop for community garden

**Citizen Science Day**, CU Science Discovery & Boulder Public Library, April 2019

Invited to prepare exhibit on Community Science Projects for the Boulder public

**Nest Box Building Workshop**, Dharma's Garden, March 2019

Led day long nest box building workshop for community garden

**Nature Walk Biologist**, Americas for Conservation and the Arts, Evergreen, CO, September 2018

Participated as bird biologist on nature walk focused on connecting ~20 Latino families with local Colorado biodiversity

**Science Camp Research Instructor**, CU Science Discovery Mountain Research Experience, Boulder, CO, July 2018

Led bird banding demonstration, guided bird walk, and delivered educational presentation for 4 high school students funded through Nature Kids/Jóvenes de la Naturaleza Lafayette that serves a predominantly latinx population.

**Nature Camp Research Instructor**, Wild Bear Mountain Ecology Center, Nederland, CO, July 2018

Developed research activities, led bird banding demonstration, and implemented full-day camp for 11 students, age ranges 8-15 yr old.

**Invited Keynote Speaker**, Inaugural CU Boulder Nerd Night, Boulder, CO, February 2018

Delivered keynote address for first ever Boulder Nerd Night to 50+ audience members

**Graduate Student Panel Member**, Undergraduate Research Expo, University of Colorado-Boulder, SASC (Student Academic Success Center), March 2018 for 100+ undergraduates from underserved groups

**Graduate Mentor for Teacher Professional Development Workshop**, Biological Sciences Initiative, CU Boulder, July 2018

Developed film, workshop, and associated curriculum featuring dissertation research for 20 middle school & high school teachers in Boulder County. Anticipated reach is 960 Boulder County K-12 students, July 2018

**Middle School Classroom Presentations**, Migration in North America, Ithaca, New York and Oak Ridge, Tennessee, 2014

**Educational Youtube Bird Migration Video**, Wrote and narrated informational video, **viewed 160,000+ times on YouTube**, Ithaca, NY 2014

**MENTORING** \*Denotes Honors Theses students

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Updated: 14 April 2022

2019-2020: Organized and ran undergraduate weekly roundtable and weekly scientific writing seminar for 5 undergraduates

Fall 2017: Organized Undergraduate Pedagogy weekly seminar for 6 undergraduate TAs

**Direct Mentor for Honors Thesis Students:**

**2) Cori Carver**, CU Boulder Undergraduate, *summa cum laude*  
*Chickadees Appear to Thrive on Urban Diets in Boulder Backyards*

**C. Carver Total Funding: \$9,850**

Biological Sciences Initiative - \$2,500

Denver Field Ornithologists Research Grant - \$1,350

Colorado Field Ornithologists Research Grant - \$1,500

Alexander and Verderber Undergraduate Research Grant - \$1,500

Undergraduate Research Opportunities Program Individual Grant - \$3,000

**1) Katherine Feldmann**, CU Boulder Undergraduate, *summa cum laude*  
*Achromatic plumage is morphologically distinct between sexually monochromatic chickadees*

**Total K. Feldmann Funding: \$15,567**

NSF Research Experience for Undergraduates Fellowship - \$7,067

Undergraduate Research Opportunities Program – Individual Grant - \$3,000

Marion and Gordon Alexander Memorial Fellowship Award - \$1,500

Biological Sciences Initiative Scholars Program - \$2,500

Undergraduate Research Opportunities Program – \$1,500

**Direct Mentor for Independent Study Students:**

2020-2021: Harriet Leeson, CU Boulder Undergraduate

**Indirect Mentor for Undergraduates in Laboratory:**

2019 - 2021: Vanessa Arnold, NSF REU, Front Range Community College (FRCC) Student

2019 - 2021: Shay Ding, CU Boulder Undergraduate

Spring 2019: Rachael Merkt, CU Boulder Undergraduate

Fall 2018: Torrey Davis, CU Boulder Undergraduate

Summer 2018: Heather Rose & Alex Pineda, Centaurus High School Students, CU Science Discovery & Nature Kids/ Jóvenes de la Naturaleza Lafayette

**SERVICE**

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**Graduate Student Space Committee, 2017-2018**

Created new graduate work space, managed graduate student departmental library, organized space reservation & maintenance logistics

**Graduate Orientation Improvement Committee, 2017**

**Diversity & Inclusion Seminar Member, 2016-2021**

Member of grassroots Diversity & Inclusion group that seeks to modify departmental culture and operations to become more inclusive and diverse. Developed amendment to remove GRE as departmental requirement for acceptance into graduate programs, which was implemented Fall 2018.

Researched & developed Best Hiring Practices document for EBIO faculty hiring, Spring 2019

**Inclusive Excellence Plan Development, Fall 2018**

*Co-authored* with two other graduate students a specific, long-term departmental 40+ page Inclusive Excellence Action Plan with actionable items to increase diversity and inclusion within the EBIO Department at the undergraduate, graduate, & faculty/staff level.

**CU Boulder Natural History Museum Collection Contributor, 2016 - present**

Worked closely with museum curators to utilize collections for research projects and also donated numerous specimens (adults, nests, eggs, & chicks) to museum collection to support collection-based science.