

# Brian C. Leavell

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## Education

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### PURDUE UNIVERSITY

West Lafayette, Indiana

PhD in Biological Sciences | 2016-2023

- Dissertation: "Dynamic effects of an eavesdropping micropredator on the sexual signal of its victim"
- Ecology & Evolutionary Biology
- Advisor: Dr. Ximena Bernal

### BOISE STATE UNIVERSITY

Boise, Idaho

Post-baccalaureate courses in STEM | 2011-2015

### BERKLEE COLLEGE OF MUSIC

Boston, Massachusetts

Bachelor of Music, Music Production & Engineering | 2009

## Experience

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2023 - Present	<b>Postdoctoral Research Fellow</b> Boise State University, Boise, Idaho
2022 - 2023	<b>National Science Foundation INTERN</b> The Peregrine Fund, Boise, Idaho
2019	<b>Smithsonian Graduate Research Fellow</b> Smithsonian Tropical Research Institute, Gamboa, Panamá
2017 - 2022	<b>National Science Foundation Graduate Research Fellow</b> Purdue University
2013 - 2016	<b>Laboratory Manager</b> Dr. Barber Sensory Ecology Lab, Boise State University
2011 - 2012	<b>Research Assistant</b> Dr. Barber Sensory Ecology Lab, Boise State University

## Publications

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12) **Leavell BC**, Pantoja-Sánchez H, Valez V, Hemingway CT, Wilhite K, Halfwerk W, Bernal XE. Ripple effects in communication networks: anti-eavesdropper defense elicits elaborated sexual signals in rival males. *Proc. R. Soc. B Biol. Sci.* 290: 20231910.

11) Pantoja-Sánchez H, **Leavell BC**, Rendon B, de Silva P, Zhou J, Menda G, Hoy RR, Miles RN, Sanscrainte ND, Bernal XE. Tiny spies: mosquito antennae are sensitive sensors for eavesdropping on frog calls. *J. of Exp. Biol.* 226 (24): jeb245359.

Underlining indicates undergraduate mentee

- 10) Kikuchi DW, et al. (including **Leavell BC**) (2023) The evolution and ecology of multiple antipredator defences. *J. Evol. Biol.* 36(7):975-991.
- 9) Bernal XE, **Leavell BC**, Page RA (2023) Assessing patterns of eavesdropper risk on sexual signals and the use of meta-analysis in behavioural ecology. *Proc. R. Soc. B Biol. Sci.* 290(1998):20221866.
- 8) Drinkwater E, et al. (including **Leavell BC**), Umbers KDL (2022) A synthesis of deimatic behaviour. *Biol. Rev.* 97(6):2237-2267.
- 7) Barber JR, et al. (including **Leavell BC**), Kawahara AY (2022) Anti-Bat Ultrasound Production in Moths is Globally and Phylogenetically Widespread. *Proc. Natl. Acad. Sci. U.S.A.* 119(25) e2117485119.
- 6) **Leavell BC**, Beaty LE, McNickle GG & Bernal XE (2022) Eavesdropping micropredators as dynamic limiters of sexual signal elaboration and intrasexual competition. *Am. Nat.* 199(5):653-665.
- 5) **Leavell BC** and Bernal XE (2019) The cognitive ecology of stimulus ambiguity: a predator-prey perspective. *Trends Ecol. Evol.* 34(11):1048-1060.
- 4) **Leavell BC**, Rubin JJ, McClure CJW, Miner KA, Branham MA and Barber JR (2018) Fireflies thwart bat attack with multisensory warnings. *Sci. Adv.* 4(8):eaat6601.
- 3) Measor KM, **Leavell BC**, Brewton DH, Rumschlag J, Barber JR, Razak KA (2017) Matched behavioral and neural adaptations for low sound level echolocation in a gleaning bat, *Antrozous pallidus*. *eNeuro* 4:1-17.
- 2) Zlotnik S, **Leavell BC**, Peniston JH (2017) *Indotyphlops braminus* (Brahminy Blind Snake) Predation. *Herpetol. Rev.* 48(3):675.
- 1) Barber JR, **Leavell BC**, Keener AL, Breinholt JW, Chadwell BA, McClure CJW, Hill GM, Kawahara AY (2015) Moth tails divert bat attack: Evolution of acoustic deflection. *Proc. Natl. Acad. Sci. U.S.A.* 112, 2812-2816.

## Grants & Awards

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Co-winner of the Journal of Experimental Biology Outstanding Paper Prize

2024 | £300

National Science Foundation INTERN

2022-2023 | \$19,898

Purdue College of Science Graduate Student International Travel Grant

2022 | \$800

Animal Behavior Society Student Research Grant

2022 | \$1,100

Alton A. Lindsey Graduate Fellowship in Ecology, Purdue University

2019 | \$2,000

NSF Graduate Research Fellowship

2018 | ~\$35,000/year (3 years)

Smithsonian Graduate Research Fellowship

2018 | \$7,500

Smithsonian Tropical Research Institute Internship

2018 | \$2,000 (Funding for intern to assist me during Smithsonian Fellowship)

National Science Foundation Graduate Research Fellowship

2016 | Honorable Mention

Ross Fellowship, Purdue University  
 2016 | \$24,000 (1 year)  
 Dr. P.T. Gilhem Graduate Award, Purdue University  
 2016 | \$3,000  
 Rosenberg Graduate Award, Purdue University  
 2016 | \$4,000  
 Cornell Fellowship  
 2016 | \$28,998 (1 year, declined offer)

## Outreach

### 2023-present; 2018-2019 | Letters to a Pre-Scientist

Pen-pal with students from elementary and middle schools in historically marginalized communities to demystify what it means to have a career as a scientist.

### 2021 - present | The Animal Behavior Podcast Sound Director

Volunteer Recording and Mixing Engineer for multi-season podcast associated with The Animal Behavior Society.

### 2022, 2018 | Regional Science Fair Judge (Lafayette, Indiana)

Volunteer judge of science presentations from regional elementary and middle school students.

### Fall 2020 | Charles Henry Turner coursework supplement

Developed an online coursework supplement with the Science Spotlight Initiative, which curates biographies from a diverse group of scientists so that all students can identify with science role models.

### Fall 2019 | Re-discovering our bats in Japan and Cuba

Personal videos and pictures from field work with Panamanian bats used in an exhibit on bats at the Museum of Natural History, Tohoku University, Japan.

### 2018-2019 | Purdue EEB Social Media Coordinator

Managed Purdue EEB's Twitter and Facebook profiles. Duties included promoting events and engaging with community members.

### Earth Day 2018 | Earth Day at West Lafayette, Indiana Library

Outreach to local community on native amphibians.

### Spring 2018 | Greater Lafayette Montessori School

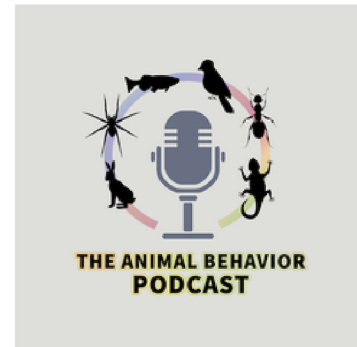
Presentation on amphibian biology to pre-kindergarten class

### Spring 2018, 2017 | West Lafayette Elementary School

Hands-on teaching of anuran biology and conservation, in the field and classroom.

### Spring 2017 | Purdue Spring Fest

As part of Purdue's annual Spring Fest, helped design and implement crafts and interactive modules to inform public of anuran biology and conservation.



## Teaching

### Animal Communication (UC, Berkeley)

- Spring 2022
  - Guest Lecture: "Bioacoustics"

### Ecology (BIOL 595 - Purdue University)

- Fall 2019
  - Guest Lecture:s "Predator-Prey Interactions", "Community Metrics & Patterns of Diversity"

- Fall 2018
  - Teaching Assistant
  - Guest Lecture:s "Predator-Prey Interactions", "Community Metrics & Patterns of Diversity"
- Fall 2017
  - Guest Lecture: "Predator-Prey Interactions"

#### **Evolution of Behavior** (BIOL 592 - Purdue University)

- Spring 2019
  - Teaching Assistant

#### **Lab in Anatomy & Physiology** (BIOL 442 - Purdue University)

- Spring 2019
  - Teaching Assistant
  - Guest Lecture: "Spinal Cord & Brain"

#### **Bioacoustics** (BIOL 597 - Boise State University)

- Spring 2015
  - Co-Instructor

## **Mentorship**

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I have mentored over 20 undergraduate and post-baccalaureate students across a variety of projects, both in the lab and field. My approach aims to encourage critical thinking and self-directed learning while guiding the development of goal-oriented tasks (though I supplement these strategies with my opinions and examples from past experiences as needed). In the end, my hope is for the mentee to have agency over their part of the project, be satisfied with their work, and develop transferable skills.

## **Oral presentations**

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**Leavell BC**, Bernal, XE. *Behavioral and fitness consequences of an eavesdropping micropredator on its prey communication system*. Jan 2024. Presented at the Gordon Research Seminar: Predator-Prey Interactions in Ventura, California.

**Leavell BC**, Bernal XE. *Effects of eavesdropping frog-biting midges on frog fitness in a multi-receiver communication system*. July 2023. Presented at the Animal Behavior Society conference in Portland, Oregon.

**Leavell BC**, *Investigating anti-predator defenses in sexual communication systems*. August 2022. Invited presentation as part of the STRI Virtual Science Seminars for the Smithsonian Tropical Research Institute.

**Leavell BC**, Bernal XE. *Though she be but little, she is fierce: the effects of frog-biting midges on communication systems*. July 2022. Presented at the Animal Behavior Society conference in San Jose, Costa Rica.

**Leavell BC**, Barber JR. *Fireflies thwart bat attack with multisensory warnings*. August 2021. ESEB Satellite Symposium: Evolution of Multiple Prey Defences. Online.

**Leavell BC**, Bernal XE. *The cognitive ecology of stimulus ambiguity: a predator-prey perspective*. March 2021. Animal Behavior Virtual Conference. Online through Indiana University Bloomington.

**Leavell BC**. *Dynamic effects of an eavesdropping micropredator on the sexual signal of its prey*. July 2020. Invited talk for Dr. Christine Miller's Lab, University of Florida.

**Leavell BC**, Kvifte G, Bernal XE. *A sensory side to community assembly: lessons from frog-biting midges and their frog victims*. Aug 2019. Ecological Society of America meeting. Louisville, Kentucky.

**Leavell BC**. *Adding fuel to the firefly: investigating a multisensory anti-bat defense*. January 2019. Presented at the Smithsonian Tropical Research Institute Behavior Seminar Series. Panama City, Panama.

**Leavell BC**. *Living (and dying) in times of uncertainty: stimulus ambiguity in predator-prey interactions*. December 2018. Presented at the Purdue EEB EcoLunch Seminar Series.

**Leavell BC**, Pantoja H, Valéz V, Halfwerk W, Bernal XE. *Supernormal false alarms: anti-midge swats elicit conspicuous displays in neighbor frogs via ripples*. Aug 2018. Presented at the 55th Annual Conference of the Animal Behavior Society in Milwaukee, Wisconsin.

**Leavell BC**, Pantoja H. *Biters and swatters: Exploring frog-biting midge audition and the effects of anti-midge swats on neighbor frog calling behavior*. June 2018. Presented at Smithsonian Tropical Research Institute's Frog Talk seminar series.

**Leavell BC**, Pantoja H. *From ear to ear: an exploration of hearing in mosquitoes and frog-biting midges*. April 2017. Presented at Seminars in Hearing Research at Purdue University.

**Leavell BC**. *A framework for understanding signal concealment*. April 2017. Presented at the Purdue EEB EcoLunch Seminar Series.

**Leavell BC**, Keener AL, Rubin JJ, Miner KAM, Branham MA, Barber JR. *Multimodal aposematism increases signal efficacy in bat-firefly interactions*. Oct. 2015. Presented at the 45th Annual Symposium on Bat Research, Monterey, CA. Oral Presentation.

## Poster presentations

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**Leavell BC**, Bernal, XE. *Behavioral and fitness consequences of an eavesdropping micropredator on its prey communication system*. Feb 2024. Presented at the Gordon Research Conference: Predator-Prey Interactions in Ventura, California.

**Leavell BC**, McNickle GG, Bernal, XE. *Assessing the relative impacts of eavesdropping enemies and male-male competition on signal dynamics*. Aug 2019. Presented at the 56th Annual Conference of the Animal Behavior Society in Chicago, Illinois.

Kvifte GM, **Leavell BC**, Bernal XE. *Acoustic baits reveal non-random community network structure in frog-biting midges (Diptera: Corethrellidae) and their frog hosts*. Presented at the 2018 Sensorium Conference in West Lafayette, Indiana.

Whitmore FJ, **Leavell BC**, Bernal XE. *Spiders as predators of amphibians: a review*. Aug 2018. Presented at the 55th Annual Conference of the Animal Behavior Society in Milwaukee, Wisconsin.

**Leavell BC**, Page RA, Bernal XE. *A framework for understanding predator-driven signal concealment*. June 2017. Presented at the 54th Annual Conference of the Animal Behavior Society in Toronto, Canada.

Wolfe D, Tinkle Z, Pauli BP, Sun E, Mukuna R, **Leavell BC**, Heath JA, Forbey JS. *Personality, Habitat, and Sound Effects on the Recreational Shooting of Piute Ground Squirrels*. 2015. Presented at the 12th Annual Undergraduate Research and Scholarship Conference. Boise State University, Boise, ID.

Olvera R, Bunkley JP, Mroz Z, **Leavell BC**, Keener AL, Barber JR. *Effects of Anthropogenic Noise on the Foraging Efficiency and Echolocation Characteristics of the Pallid Bat, *Antrozous pallidus**. 2014. Presented at the 11th Annual Undergraduate Research and Scholarship Conference. Boise State University, Boise, ID.

Keener AL, **Leavell BC**, Mroz Z, Barber JR. *The Bat-Moth Arms Race: Acoustic Innovations in Anti-Predator Tactics*. 2013. Presented at 10th Annual Undergraduate Research and Scholarship Conference. Boise State University, Boise, ID.

Underlining indicates undergraduate mentee

## References

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Dr. Ximena Bernal  
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Dr. Jesse Barber  
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