

Curriculum Vitae

Jessie C. Tanner

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PROFESSIONAL EXPERIENCE

2018-present **NSF Postdoctoral Research Fellow in Biology**, Advised by Dr. Leigh W. Simmons, Centre for Evolutionary Biology, University of Western Australia, Crawley, WA, Australia
Project title: "Evolution of the Mammalian Baculum"

EDUCATION

2012-2018 **Ph.D. Ecology, Evolution, and Behavior**, University of Minnesota
Co-advisers: Dr. Mark Bee and Dr. Marlene Zuk
Dissertation Title: "Sexual Selection Constrained: The Expression of Mating Preferences in Acoustically Communicating Animals"

2007-2012 **B.S. Zoology and Biomedical Sciences**, *magna cum laude*, University of Oklahoma
Thesis title: "Precopulatory Interactions in a *Hyalella* Amphipod"

2007-2012 **B.A. French**, *magna cum laude*, University of Oklahoma
Thesis title: « *Observation et allégorisation: le comportement des animaux et des images de renouvellement dans les bestiaires médiévaux* » ("Observation and Allegory: Animal Behavior and Images of Renewal in the Medieval Bestiaries")

2009-2010 Academic year abroad studying Linguistics, French History and Literature, Université Michel-de-Montaigne, Bordeaux, France

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

Society for the Study of Evolution, International Society for Behavioral Ecology, Animal Behavior Society, Australasian Evolution Society, Australian Mammal Society, Orthopterists' Society, American Society of Ichthyologists and Herpetologists

GRANTS AND FELLOWSHIPS

Amounts in US dollars

External Awards

2018-present NSF Postdoctoral Research Fellowship in Biology (\$207,000)
+1 year extension for 2021-2022 (\$69,000)
2013-2018 NSF Graduate Research Fellowship (\$132,000)
2013-2018 Ford Foundation Pre-Doctoral Fellowship (\$66,000)
2018 Animal Behavior Society Travel Grant (\$500)
2017 NSF Doctoral Dissertation Improvement Grant – IOS (\$17,222)
2016 Theodore J. Cohn Research Grant – Orthopterists' Society (\$1,492)

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2016	Animal Behavior Society Student Research Grant (\$2,500)
2013	Helen T. and Frederick M. Gaige Award – American Society of Ichthyologists and Herpetologists (\$500)
2013	Research Grant – Minnesota Herpetological Society (\$997)

University of Minnesota

2017	Joyce Davenport Fellowship in Natural History – Bell Museum (\$2,500)
2016	Dayton Family Fellowship in Natural History – Bell Museum (\$1,343)
2016	UMN Graduate School Thesis Research Travel Grant (\$2,500)
2014	Travel Grant – Minnesota Graduate and Professional Student Association (\$200)
2014	Travel Grant – University of Minnesota Council of Graduate Students (\$800)

PUBLICATIONS

Author order policy: authors are presented in descending order of the magnitude of their input, except that the principal investigator of the lab or senior author is listed last.

Manuscripts Currently in Progress

1. **Tanner, JC** and LW Simmons. *In review*. Spoiled for Choice: Number of signallers constrains the expression of female mating preferences for acoustic signals.
2. **Tanner, JC**, ER Johnson, and M Zuk. *In revision*. Population-specific plasticity in cricket phonotaxis behavior is mediated by song quality.
3. **Tanner, JC** and LW Simmons. *In preparation*. Postcopulatory sexual selection drives the evolution of baculum (*os penis*) shape in muroid rodents.
4. Jaya, FR, **JC Tanner**, MR Whitehead, P Doughty, JS Keogh, CC Moritz, and RC Catullo. *In preparation*. Reproductive interference causes reproductive character displacement between populations of Toadlet (*Uperoleia*: Myobatrachidae: Anura).
5. **Tanner, JC** and LW Simmons. *In preparation*. Morphology of the Mammalian Baculum: 2D and 3D methods for shape analysis.

Peer-Reviewed Journal Articles

1. **Tanner, JC** and MA Bee. 2020. Species recognition constrained by chorus noise, but not within-individual variation in signal production, in Cope's gray treefrog (*Hyla chrysoscelis*). *Frontiers in Ecology and Evolution* 8:256. Doi: 10.3389/fevo.2020.00256
2. **Tanner, JC** and MA Bee. 2020. Inconsistent sexual signaling degrades optimal mating decisions in animals. *Science Advances* 6: eaax3957. Doi: 10.1126/sciadv.aax3957
3. **Tanner, JC**, J Justison, and MA Bee. 2020. SynSing: a graphical user interface for design of synthetic animal signals in MATLAB. *Bioacoustics* 29(6): 731-752. Doi: 10.1080/09524622.2019.1674694

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4. **Tanner, JC**, E Swanger, and M Zuk. 2019. Sexual signal loss in field crickets maintained despite strong sexual selection favoring singing males. *Evolution* 73(7): 1482-1489.
5. **Tanner, JC** and MA Bee. 2019. Within-individual variation in sexual displays: signal or noise? *Behavioral Ecology* 30(1): 80-91.
6. **Tanner, JC**, LM Garbe, and M Zuk. 2019. When virginity matters: age and mating status affect measures of female responsiveness in crickets. *Animal Behaviour* 147: 83-90.
7. Ditmer, MA, LK Werden, **JC Tanner**, JB Vincent, PA Iazzo, TG Laske, and DL Garshelis. 2019. Bears habituate to the repeated exposure of a novel stimulus, unmanned aerial vehicles. *Conservation Physiology* 7(1): coy067.
8. **Tanner, JC**, JL Ward, RG Shaw, and MA Bee. 2017. Multivariate phenotypic selection on a sexual signal. *Evolution* 71(7): 1742-1754.
9. Zuk, M, **JC Tanner**, E Schmidtman, MA Bee, and S Balenger. 2017. Calls of recently introduced coquí frogs do not interfere with cricket phonotaxis in Hawaii. *Journal of Insect Behavior* 30(1): 60-69.
10. Ward, JL, EK Love, AT Baugh, NM Gordon, **JC Tanner**, and MA Bee. 2015. Progesterone and prostaglandin F₂ α induce species-typical female preferences for male sexual displays in Cope's gray treefrog (*Hyla chrysoscelis*). *Physiology & Behavior* 152(2015): 280-287.
11. Werden, LK, JB Vincent, **JC Tanner**, and MA Ditmer. 2015. Not quite free yet: clarifying UAV regulatory progress for ecologists. *Frontiers in Ecology and Evolution* 13(10): 534-535.
12. Ditmer, MA, JB Vincent, LK Werden, **JC Tanner**, TG Laske, PA Iazzo, DL Garshellis, and JR Fieberg. 2015. Bears show a physiological but limited behavioral response to unmanned aerial vehicles. *Current Biology* 25: 1-6.
13. Makowicz, AM, **JC Tanner**, E Dumas, and I Schlupp. 2015. Pre-existing biases for swords in mollies (*Poecilia*). *Behavioral Ecology* 27(1): 175-184. doi:10.1093/beheco/arv130

Invited Commentaries

1. **Tanner, JC** and JP Tumulty. 2020. The signals and category boundaries that enable categorical perception: a comment on Green et al. *Behavioral Ecology*: aara053.

Book Chapters

1. Olzer, RM, R Ehrlich, JL Heinen-Kay, **JC Tanner**, and M Zuk. 2018. Insect Reproductive Behavior. In *Insect Behavior: from mechanisms to ecological and evolutionary consequences*. Alex Córdoba-Aguilar, Daniel González-Tokman, and Isaac González-Santoyo, eds. Oxford: Oxford University Press.

Published Abstracts

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1. **JC Tanner** and MA Bee. 2018. Within-individual variation in signal production limits female choice in noisy treefrog choruses. *The Journal of the Acoustical Society of America* 143(3): 1899.
2. **JC Tanner** and MA Bee. 2017. Sources of noise-induced communication errors in *Hyla chrysoscelis*, Cope's gray treefrog. *Integrative and Comparative Biology* 57: E426.

Published Software

1. SynSing, a MATLAB-based graphical user interface for generation of acoustic stimuli in studies of bioacoustics: <https://github.com/jessietanner/SynSing/releases>

PRESENTATIONS

Invited Seminars

1. **Tanner, JC.** Sexual Signal Evolution and the Noise that Reshapes Receiver Preferences. University of Tennessee Knoxville Psychology Seminar (remotely via Zoom). September 8, 2021.
2. **Tanner, JC.** Sexual Signal Evolution and the Noise that Reshapes Receiver Preferences. Regis University Biology (remotely via Zoom). April 20, 2021.
3. **Tanner, JC.** Sexual Signal Evolution and the Noise that Reshapes Receiver Preferences. University of Missouri Biological Sciences (remotely via Zoom). April 15, 2021.
4. **Tanner, JC.** Sexual Signal Evolution and the Noise that Reshapes Receiver Preferences. Kellogg Biological Station at Michigan State University (remotely via Zoom). February 15, 2021.
5. **Tanner, JC.** Sexual Selection Constrained: The Expression of Mating Preferences in Acoustically Communicating Animals. Ball State University Biology, Muncie, IN (remotely via Zoom). November 13, 2020.
6. **Tanner, JC,** ER Johnson, and M Zuk. Does plasticity in the expression of mating preferences facilitate the rapid loss of a sexual signal? Centre for Evolutionary Biology Seminar, University of Western Australia, Perth. October 24, 2018.
7. **Tanner, JC.** Sexual Selection Constrained: within-individual variation and behavioral plasticity affect female preference expression in treefrogs and field crickets. University of Wisconsin, Milwaukee, EEB Journal Club. February 9, 2018.
8. **Tanner, JC.** Measuring multivariate selection on animal signals. Hamline University Mathematics Seminar, Saint Paul, MN. November 7, 2017.
9. **Tanner, JC** and MA Bee. The expression of female preferences in natural signaling contexts. International Bioacoustics Congress, Haridwar, India. October 4, 2017. Invited talk in symposium: "Acoustic Communication, Reproductive Systems, and Sexual Selection."

10. **Tanner, JC.** Sexual Selection Constrained. University of Nebraska Ecology, Evolution, and Behavior Seminar, Lincoln, NE. September 15, 2017.

Contributed Talks at Professional Meetings

1. **Tanner, JC,** and LW Simmons. The Evolution of Genital Morphology: Baculum Shape Diversification in Muroid Rodents. The Australian Mammal Society. Perth, WA. *Scheduled:* October 1, 2021.
2. **Tanner, JC,** ER Johnson, and M Zuk. Does plasticity in the expression of mating preferences facilitate the rapid loss of a sexual signal? International Society for Behavioral Ecology. Minneapolis, MN. August 12, 2018.
3. **Tanner, JC** and MA Bee. Within-individual variation in sexual displays limits female choice in noisy treefrog choruses. Animal Behavior Society, Milwaukee, WI. August 5, 2018.
4. **Tanner, JC** and MA Bee. Within-individual variation in signal production limits female choice in noisy treefrog choruses. Acoustical Society of America, Minneapolis, MN. May 10, 2018.
5. **Tanner, JC** and MA Bee. Sources of noise-induced error in animal communication. 4th International Symposium on Acoustic Communication in Animals. Omaha, NE. July 20, 2017.
6. **Tanner, JC** and MA Bee. Sources of noise-induced error in animal communication. Society for Integrative and Comparative Biology, New Orleans, LA. January 7, 2017.
7. **Tanner, JC** and MA Bee. Sources of noise-induced error in *Hyla chrysoscelis*, Cope's gray treefrog. Animal Behavior Society, Columbia, MO. August 3, 2016.
8. **Tanner, JC** and MA Bee. Multivariate phenotypic selection on a sexual signal. Society for the Study of Evolution, Austin, TX. June 19, 2016.
9. **Tanner, JC,** JL Ward, and MA Bee. Multivariate selection on the advertisement call of the gray treefrog, *Hyla chrysoscelis*. American Society of Ichthyologists and Herpetologists, Reno, NV. July 17, 2015.

Contributed Posters at Professional Meetings

1. **Tanner, JC** and LW Simmons. The evolution of genital morphology: baculum shape diversification in muroid rodents. Australasian Evolution Society, Sydney, NSW, Australia. November 26, 2019.
2. Bee, MA, KM Schrode, N Lee, and **JC Tanner.** Vocalizations as auditory objects: cues for perceptual binding in treefrogs. International Congress on Neuroethology, Brisbane, QLD, Australia. July 16, 2018.

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3. **Tanner JC**, JL Ward, and MA Bee. Measuring non-linear selection on the advertisement call of the gray treefrog, *Hyla chrysoscelis*. Animal Behavior Society, Princeton, NJ. August 13, 2014.
4. **Tanner JC**, JL Ward, and MA Bee. Multivariate selection on the advertisement call of a North American treefrog. International Society for Behavioral Ecology, New York, NY. August 2, 2014.

TEACHING AND ADVISING

Laboratory Instructor Positions

2019	ANIM 3365: Behavioural Ecology Tutorial, School of Biological Sciences, University of Western Australia, Crawley, WA, Australia
Fall 2017	EEB 3411: Animal Behavior, College of Biological Sciences, University of Minnesota Twin Cities, Saint Paul, MN
2015-2016	BIOL 1003: Evolution and Biology of Sex, College of Biological Sciences, University of Minnesota Twin Cities, Minneapolis, MN
Fall 2012	BIOL 2002: Foundations of Biology, College of Biological Sciences, University of Minnesota Twin Cities, Saint Paul, MN

Guest Lectures and Workshops

2021	U of Western Australia Honours In Biological Sciences Research Presentation Skills: Writing for Non-Scientific Audiences Workshop (with Dr. Heather Bray), Sept. 16 and 23
2020	U of Western Australia ANIM 3365: Behavioural Ecology, Professor Jon Evans, August 21
2017	U of Minnesota EEB 3411: Animal Behavior, Professor Mark Bee, November 15
2016	Saint Catherine University: Animal Behavior, Professor Susan Balenger, April 5
2015	U of Minnesota EEB 3412W: Animal Behavior, Professor Emilie Snell-Rood, April 15
2014	U of Minnesota EEB 3412W: Animal Behavior, Professor Mark Bee, November 17

Formal Pedagogical Training

Fall 2015	GRAD 8101: Teaching in Higher Education (University of Minnesota)
Fall 2007	AVIA 4113: Certified Flight Instructor Seminar (University of Oklahoma)

Honors and Master's Thesis Mentees

*Denotes master's student

2020	Liesel Morgan (Murdoch University), thesis title: "The Evolution and Systematics of the Western Australian spoontail lacewing genus <i>Chasmoptera</i> " (co-supervisor, with Nikolai Tatarinic and Kate Bryant)
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- 2019 Hwei Ling Chan* (UWA), thesis title: “Do male crickets adjust the quality of their ejaculates in response to sperm competition risk by alternating their macronutrient intake?” (co-supervisor, with Leigh W. Simmons)
- 2016-2017 Sachin Rao, thesis title: “Evaluating the Effects of Multiple Types of Noise on Error Rates in Female *Hyla chrysoscelis*”
Laura Garbe, thesis title: “Mating Experience and Female Choice in Pacific Field Crickets”
- 2015-2016 Matthew LaPrade, thesis title: “Noise Induces Errors in Communication”
- 2013-2014 Margaret Tierney, thesis title: “Multivariate Selection Analysis of Female Choice in Cope’s Gray Treefrog (*Hyla chrysoscelis*)”

Directed Research and Undergraduate Research Opportunities Program Mentees

- 2016-2018 Joshua Justison, project title: “SynSing: A Graphical User Interface for Design of Synthetic Animal Signals in MATLAB”
- 2016-2018 Emily Johnson, project title: “Does song quality during development influence adult mating preferences in *Teleogryllus oceanicus*?”
- 2016 Alec Scollard, thesis title: “Effects of Ambient and Signaler Noise on Call and Pulse Rate Discrimination Errors in *Hyla chrysoscelis*”
- 2014-2015 Kelia Axler, project title “Quantifying Variation in Advertisement Signals in the spring peeper (*Pseudacris crucifer*)”
- 2013-2017 Recruited, trained, and supervised 73 undergraduates from UMN and other institutions who worked as field and research assistants on various studies of acoustic communication in treefrogs. Each student committed to working between 12 and 40 hours per week for 6 weeks on all aspects of the project, including conducting experiments, curating data, and collecting and caring for animals. I mentored some of these students for multiple treefrog seasons.
- 2013-2014 Undergraduate Research Opportunities Program Mentor: Margaret Tierney

PROFESSIONAL SERVICE

Ad hoc Reviewer

American Naturalist, Animal Behaviour, Evolution, Proceedings of the Royal Society B, Behavioral Ecology and Sociobiology, Bioacoustics, Biological Journal of the Linnean Society, Journal of Herpetology, Journal of Zoology, Scientific Reports

Committee Service

- 2018 International Society for Behavioral Ecology conference organizing committee member
- 2014-2018 UMN EEB Ethics and Aesthetics Committee – Collaboratively organized 4-6 seminars or workshops per year on the responsible conduct of research, with a focus on issues of equity, diversity, and inclusion in academic research and graduate education
- 2015 UMN Undergraduate Research Opportunity Program Proposal Review Panel
- 2013-2014 UMN Behavior Group Coordinator
President, EEB Graduate Students

Public Outreach and Engagement

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- 2019-2021 **Ongoing collaboration with the UWA School of Indigenous Studies** to promote Indigenous participation in STEM and enrollment in higher education. All participants identify as Indigenous (Aboriginal or Torres Strait Islander). All lessons involve hands-on animal communication activities, and some additionally include some element of career path exploration. Individual events and specific audiences listed below.
- August 23, 2021. Career Week. Introduction to academic research and biology-related career paths, plus hands-on science activity. Audience: 10 14-15-year-olds in the Geraldton Follow the Dream program, which supports aspiring university students through after-school academic programs.
- April 14, 2021. Year 12 Leadership Summit. Audience: 33 high school seniors nominated by their schools as emerging Indigenous leaders.
- November 17-19, 2020. Year 8 Discovery Days. Audience: 6 groups of 30 Indigenous students from across Western Australia.
- November 18-19, 2019. Year 8 Discovery Days. Audience: 30-40 eighth graders daily.
- November 21-22, 2019. Year 8 Discovery Days. Audience: 30-40 eighth graders daily.
- December 10, 2019. School excursion to UWA. Audience: 35 high school students.
- June 2019 Published SynSing, free open-source MATLAB code for generating synthetic signals for use in studies of acoustic communication
- April 2018 Judge: Minnesota State Science & Engineering Fair
- Feb. 2017 Elementary school outreach, Southside Family School (Minneapolis) 1st graders: Amphibian Communication and Life Cycle
- Feb. 2016 STEM Fair Mentor: one-on-one science fair mentorship (design, data collection, analysis, and presentation) over three weeks, with five 4th and 5th grade students at Chelsea Heights Elementary School (Saint Paul)
- Aug. 2014 Animal Behavior Society Outreach Fair Presentations – “Rapid Evolution and Sexual Signaling in Crickets” and “The Ear of the Beholder: Hearing in Non-Human Animals”
- Feb. 2014 Anoka-Hennepin County STEM Fair Judge
- Aug. 2013 Animal Behavior Society Outreach Fair Presentation: “The Ear of the Beholder: Hearing in Non-Human Animals”
- Spring 2013 Teaching SMART Volunteer and Session Leader: Pratt Community School 5th graders – Animal Communication and Treefrogs in Minnesota
- April 2013 "Save the Frogs Day" presentation at Woodlyn Heights Healthcare Center, Inver Grove Heights, MN – Conserving Amphibians and Minnesota Wetlands
- Jan. 2013 Anoka-Hennepin County (MN) STEM Fair Judge
- 2008-2012 Members’ Nights at the Sam Noble Oklahoma Museum of Natural History – Discussed museum collections and answered visitor questions with the Herpetology and Recent Invertebrates departments.
- Aug. 2009 Intro to STEM Scavenger Hunt and Picnic – As President of AΣK - Women in Technical Studies chapter at OU, led collaborative effort to introduce 30 underprivileged girls aged 7-11 from Boys and Girls Clubs of Oklahoma County to STEM fields and women in STEM role models during the AΣK national convention.

AVIATION TEACHING AND CERTIFICATION

- 2008-2009 **Flight Instructor,**

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Riverside Flight Center, Tulsa, OK.

Taught procedures and maneuvers pertinent to the private and commercial pilot licenses and instrument ratings in classrooms, airplanes, and simulators.

- 2008 Certified Flight Instructor – Airplane, Single-Engine Land (ASEL)
Certified Flight Instructor Instrument Rating
Advanced Ground Instructor
Instrument Ground Instructor
- 2007 Commercial Pilot with Instrument Rating (ASEL)