ALYSON F. BROKAW
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EDUCATION

Texas A&M University — College Station, TX
Ph.D., Ecology and Evolutionary Biology — Expected Sumer 2020
Dissertation: Olfactory Ecology of Bats

Humboldt State University — Arcata, CA
M.S., Department of Biology — May 2015
Thesis: Assessing the Use of Social Calls to Attract Bats to Artificial Roost Sites

Cornell University — Ithaca, NY
B.S., Department of Biological Sciences — May 2011
Concentration in Ecology and Evolutionary Biology
Distinction in Research
Honors Thesis: Ontogeny of Thermoregulation and Feather Development in Tree Swallow (*Tachycineta bicolor*) Nestlings

GRANTS AND AWARDS

Ernst Mayr Short-Term Fellowship, Smithsonian Tropical Research Institute 2019

Theodore Roosevelt Memorial Grant, American Museum of Natural History 2016

Grant-in-Aid of Research, American Society of Mammalogists 2016, 2014

Student Research Scholarship, Bat Conservation International 2014

Student Research Grant, California North Coast Chapter, The Wildlife Society 2014

Master's Student Grant, Humboldt State University 2014, 2013

PUBLICATIONS

Brokaw, AF, Smotherman, M. 2020. Role of ecology in shaping external nasal morphology in bats and implications for olfactory tracking. *PloS ONE* 15(1): e0226689.

Brokaw, AF, Clerc, JC, Weller, TJ. 2016. Another Account of Interspecific Aggression Involving a Hoary Bat (*Lasiurus cinereus*). *Northwestern Naturalist.* 97(2): 13-134.

Brokaw, AF, Weller, TJ, Szewczak, JM. Assessing the Use of Social Calls to Attract Bats to Artificial Roost Sites. In preparation.

Macias, S., Bakshi, K, **Brokaw AF,** Smotherman, M. Tuning to sound frequency in multi-unit activity and local field potentials of the auditory cortex of the free-tailed bat Tadarida brasiliensis. In preparation.

RESEARCH AND FIELD EXPERIENCE

Texas A&M University College Station, TX
Graduate Student with Dr. Michael Smotherman 2015 – present
Olfactory Ecology of Bats

- Measured and compared bat nasal anatomy using phylogenetic comparative method
- Developed behavioral assay to measure bat olfactory behavior
- Obtained permits to conduct research abroad in Mexico, Belize and Panama
- Analyzed data using mixed models in R

Operation Wallacea Calakmul Biosphere Reserve, Campeche, Mexico
Bat Scientist Summer 2015

- Surveyed bat diversity using mist-nets in Calakmul Biosphere Reserve
- Instructed undergraduate and high school students on proper bat handling and research techniques
- Mentored undergraduate students in conducting wildlife field research

Humboldt State University Arcata, CA
Graduate Student with Dr. Joseph M. Szewczak 2012 – 2015
Social calls and roost use by *Myotis* bats

- Recorded bat echolocation and social calls using a bat detector
- Processed and analyzed social calls using multivariate techniques
- Obtained California state permits to capture live bats and enter roost sites
- Presented results of study at local and national research conferences

U.S. Forest Service Pacific Southwest Research Station Arcata, CA
Research Assistant with Theodore Weller 2013 – 2015

- Conducted mist-net surveys for bats in redwood-dominated ecosystems
- Processed captured bats (*Lasiurus* species, silver haired bats, *Myotis* species)
- Collected biological samples from live bats (wing biopsy, hair samples, fecal samples)
- Trained undergraduate student volunteers proper bat handling and research techniques

Utah State University Dugway Proving Grounds, UT
Coyote-Kit Fox Field Technician 2012

- Used radio telemetry to track collared coyote and kit fox to establish home ranges
- Trapped and collared coyote and kit fox adults and pups
- Conducted lagomorph spotlight and small mammal trapping surveys

Southern Sierra Research Station Lake Havasu City, AZ
Yellow Billed Cuckoo Field Technician Summer 2011

- Conducted Yellow-billed cuckoo call-playback surveys, nest searching and monitoring
- Assisted with mist-netting and color banding adult and nestling Yellow-billed Cuckoos
- Conducted vegetation/habitat sampling and arthropod surveys in Lower Colorado River riparian area.

Cornell University Ithaca, NY
Undergraduate Research with Dr. David Winkler 2009 – 2011
Thermoregulation in nestling tree swallows

- Mist-netted and banded adult and nestling tree swallows.
- Used dataloggers to evaluate nestling thermoregulatory abilities at a low temperature.
- Processed and analyzed data using Mathematica, R and SPSS.

School for International Training Arusha, Tanzania
Study Abroad Program: Wildlife Conservation and Political Ecology 2010

- Field studies in national parks and wildlife reserves.
- Designed and implemented independent field research.

Golondrinas de las Americas, Cornell University Ithaca, NY
Field Research Intern in Santa Fe, Argentina Winter 2009

- Captured, banded and collected biological samples from adult white rumped swallows.
- Performed daily nest checks and banded swallow nestlings.
- Drafted prototype nest boxes to overcome problems with site flooding.

CONFERENCE PRESENTATIONS

Brokaw, A.F. Oral presentation. "Finding Fruit: Olfactory Tracking Strategies of Foraging Bats". 18th International Bat Research Conference, Phuket, Thailand. July 2019.

Brokaw, A.F. Smotherman, M. Oral presentation. "Behavioral Strategies for Olfactory Tracking in Bats". 48th North American Symposium on Bat Research, Puerto Vallarta, Jalisco, Mexico. October 2018.

Brokaw, AF, Smotherman, M. Oral presentation. "Does the Nose Know? The link between nose morphology and olfactory tracking capabilities in bats". 19th Annual Ecological Integration Symposium, College Station, TX. April 2018.
***2nd place, Graduate Oral Presentation**

Brokaw, AF, Smotherman, M. Oral presentation. "Does the Nose Know? The link between nose morphology and olfactory tracking capabilities in bats". 47th North American Symposium on Bat Research, Knoxville, TN. October 2017.

Brokaw, AF, Smotherman, M. Oral presentation. "Bats are not rats: new method for testing olfactory discrimination in bats". American Society of Mammalogist Annual Conference, Moscow, ID. June 2017.

Brokaw, AF, Smotherman, M. Poster presentation. "Roosting habits, home range and echolocation call characteristics of *Sturnira parvidens*". 46th North American Symposium on Bat Research, San Antonio, TX. October 2016

Brokaw, AF, Smotherman, M. Poster presentation. "Breathing rate as measure of emotional response to social calls in Brazilian Free-tailed bats (*Tadarida brasiliensis)*" 17th Annual Ecological Integration Symposium, College Station, TX. March 2016.
***1st Place, Graduate Poster Presentation**

Brokaw, AF., Szewczak, J.M. Oral presentation. "Yuma myotis social calls attract bats to artificial roosts". 45th North American Symposium for Bat Research, Monterey, CA. October 2015.

Brokaw, AF, Szewczak J.M. Oral presentation. "Social calls in Yuma myotis (*Myotis yumanensis*)". 2nd Annual Wildlife and Fisheries Symposium, Arcata, CA. May 2015.

Brokaw, AF, Szewczak, J.M. Oral presentation. "Assessing the use of social calls to attract bats to artificial roost sites". The Wildlife Society – Western Section Annual Meeting, Reno, NV. January 2014.

SCIENCE COMMUNICATION & OUTREACH

Bat Conservation International Austin, TX
Bat Content Specialist 2018 – present

- Review content for scientific accuracy for Bat Conservational International materials.
- Provide and maintain sources for verification for commonly used information about bats.
- Collaborate on targeted conservation campaigns or outreach about bats and conservation.

Skype-A-Scientist
Presenter 2018 – 2019

- Video outreach presentations about bat ecology to elementary and middle school classrooms.
- Hosted a live question and answers session about bats in 2019. Video available: https://tinyurl.com/BrokawScientist.

Texas A&M University
Biology Outreach Committee, Department of Biology 2015 – present

- Design and lead grade-school students in biology themed activities at community science outreach events.

Workshop Leader, Expanding Your Horizons 2016 – 2018

- Presented "Batty for Science" workshop at annual event, teaching 6th grade girls about bat biology.

Graduate Mentor, Aggie Graduate and Professional Community Mentorship Program 2016

- Paired with an undergraduate mentee to discuss research, graduate opportunities, and professional goals.

Cornell University
Naturalist Outreach Speaker Bureau 2010 - 2011

- Presented on bat ecology in local classrooms.
- Developed teaching materials on bat ecology.
- Video version of presentation available online: https://tinyurl.com/brokawbats.

ACADEMIC SERVICE

North American Symposium for Bat Research 2017 - 2019
Student Representative to Board of Directors, elected

Ecological Integration Symposium
Organizing Committee 2018

Ecology and Evolutionary Biology Interdisciplinary Student Organization
President, elected 2016 – 2019
Journal Club Coordinator 2015 – 2016

TEACHING EXPERIENCE

Texas A&M University
Graduate Teaching Assistant, Human Anatomy and Physiology I Fall 2017, Spring/Fall 2016
Graduate Teaching Assistant, Introductory Biology Fall 2015

Humboldt State University
Graduate Teaching Assistant, Introductory Zoology Spring 2015, Spring/Fall 2014
Graduate Teaching Assistant, Principles of Biology Fall 2013, Fall 2012
Graduate Teaching Assistant, Principles of Ecology Spring 2013

MENTORING

Operation Wallacea Calakmul Biosphere Reserve, Mexico
Emma B. Jarlbaek, student at Copenhagen International School 2015
Project title: Effect of corridor width and vegetation height on bat species diversity in Calakmul Biosphere Reserve
Outcome: Fulfilling the Extended Essay requirement for the IB Diploma Programme

Humboldt State University Arcata, CA
Katelyn Southall, undergraduate student at Humboldt State University 2014 – 2015
Project title: Effects of Social Calls on Silver-haired Bat (*Lasionycteris noctivagans*) Activity
Outcome: Awarded 2nd place in HSU Wildlife Department undergraduate research poster competition

SKILLS AND TECHNIQUES

- Proficient in statistical analysis in R (mixed models, multivariate, phylogenetic comparative methods)
- Experienced in mist-netting capturing bats and birds
- Managing animal care (bats) for captive research colony
- Basic use of Geographic Information Systems and related software (ArcGIS)

RELEVANT COURSEWORK

- Multivariate Statistics, Linear Regression Analysis, Experimental Design.
- Chemical Ecology, Organic Chemistry, Animal Physiology.
- Applied Conservation Biology, Behavioral Ecology, Mammalogy

REFERENCES

Michael Smotherman, Ph.D.
Professor of Biology
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