

# Grace Smith-Vidaurre

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## **New Mexico State University**

2013 – present

PhD Candidate in Ecology & Evolutionary Biology

**PhD Mentor:** Dr. Timothy Wright

## **Haverford College**

2007 – 2011

B.S. in Biology and Spanish, with honors in Spanish

**B.S. Mentors:** Dr. Robert Fairman, Dr. Roberto Castillo-Sandoval

## RESEARCH INTERESTS AND GOALS

1) Signaling of social information in vocal learners, 2) Epigenetic underpinnings of vocal learning, 3) Interactions among broad-sense epigenetic processes, 4) Bridging research between the U.S. and countries underrepresented in science

## PUBLICATIONS, ACCEPTED MANUSCRIPTS, PREPRINTS

7. **Smith-Vidaurre, G.**, Perez, V., & T.F. Wright. (2020). *Individual vocal signatures show reduced complexity following invasion*. Preprint. BioRxiv doi: 10.1101/2020.09.02.280297. Under review.

6. **Smith-Vidaurre, G.**, Araya-Salas, M., & T.F. Wright. (2020). *Individual signatures outweigh social group membership in contact calls of a communally nesting parrot*. Behavioral Ecology, 31: 448-458.

5. Araya-Salas, M., **Smith-Vidaurre, G.**, González-Gómez, P., Mennill, D. & T.F. Wright. (2019). *Social group signatures in hummingbird displays provide evidence of co-occurrence of vocal and visual learning*. Proceedings of the Royal Society B, 286: 20190666.

4. Wright, T. F., Lewis, T. C., Lezama-López, M., **Smith-Vidaurre, G.**, & Dahlin, C. R. (2018). *Yellow-naped Amazon (Amazona auropalliata) populations are markedly low and rapidly declining in Costa Rica and Nicaragua*. Bird Conservation International, 29(2): 291-307.

3. Araya-Salas, M., **Smith-Vidaurre, G.** & M. Webster. (2017). *Assessing the effect of sound file compression and background noise on measures of acoustic signal structure*. Bioacoustics 28: 57-73.

2. Hobson, E.A., **Smith-Vidaurre, G.** & A. Salinas-Melgoza. (2017). *History of nonnative Monk Parakeets in Mexico*. PLOS ONE 12(9): e0184771.

1. Araya-Salas, M. & **G. Smith-Vidaurre**. (2016). *warbleR: an R package to streamline analysis of animal acoustic signals*. Methods in Ecology and Evolution 8: 184-191.

## MANUSCRIPTS IN PREP

**Smith-Vidaurre, G.**, Perez, V., Hellmich, D. L., Hobson, E.A., Salinas-Melgoza, A. and T.F. Wright. *Hierarchical mapping patterns are retained post-invasion in monk parakeets*. In prep.

**Smith-Vidaurre, G.**, Veale, A., Russello, M., Mudge, J., Sundararajan, A., and T.F. Wright. *Signatures of shared demographics and parallel adaptation to selection pressures in a biological invader*. In prep.

**Smith-Vidaurre, G.**, Hobson, E.A., and T.F. Wright. Review: *The social environment is key to rapid adaptation through epigenetic processes*. In prep.

**Smith-Vidaurre, G.**, Araya-Salas, M., and T.F. Wright. *Evidence of a tradeoff in signaling social group membership in vocal learning species*.

Dahlin, C.R., **Smith-Vidaurre, G.**, Hellmich, D., Dupin, M., and T.F. Wright. *Long term monitoring of cultural evolution in parrot vocal dialects*. In prep.

## BOOK CHAPTERS

Russello, M.R., **Smith-Vidaurre, G.**, and T.F. Wright. Genetics of Invasive Parrot Populations. In review (editor Dr. Stephen Pruett-Jones), *Naturalized Parrots of the World*

## SOFTWARE

Araya-Salas, M., **Smith-Vidaurre, G.**, and H. Zhong. 2015. *warbleR: an R package to streamline bioacoustic analysis*. URL: <http://cran.r-project.org/package=warbleR>.

## GRANTS & AWARDS

NSF Broadening Participation Postdoctoral Research Fellowship (start date 01 Feb 2021)

NMSU Biology Department Graduate Award for Excellence in Research (2019)

NMSU Whaley Fieldwork Award, Biology Department (2017)

Fulbright Study/Research grant for fieldwork in Uruguay (2016)

American Ornithologists' Union Carnes Award for fieldwork in Uruguay (2016)

NMSU Graduate School Merit-Based Enhancement Award (2016, 2019)

NMSU Biology Department Graduate Award for Excellence in Teaching (2016)

NMSU Biology Department Star, College of Arts & Sciences (A&S) Award (2016)

Private donation from Drs. Michael and Susan Achey to support PhD research (2014)

NMSU College of Arts & Sciences Graduate Tuition Scholarship (2013 – present)

Presentation Awards: NMSU Biosymposium Best Graduate Talk (2020), NMSU Biosymposium Best Graduate Poster (2015, 2018), NMSU Graduate Research and Arts Symposium (GRAS) Honorable Mention, Poster (2015)

Travel and Diversity Awards: Society for Integrative and Comparative Biology Travel & Housing Awards (SICB: 2016, 2019), Animal Behavior Society (ABS: 2015, 2019), NMSU A&S (2015, 2019), American Ornithologist's Society (AOS: 2018)

Nominee for Thomas J. Watson Fellowship at Haverford (2011)

Manuel J. and Elisa P. Asensio Prize for best senior thesis in Spanish (2011)

## ADDITIONAL RESEARCH EXPERIENCE

**Graduate research assistant**, The Ohio State University, *Assessing vocal variation over social scales and evidence of vocal learning in vampire bats*, with Dr. Gerry Carter (January 2020 – present).

**Graduate research assistant**, Jornada Basin Long-Term Ecological Research Station, *Employing a Big Data approach in R on cyclical spatiotemporal disease occurrence*, with Dr. Heather Savoy in Dr. Debra Peter's group (June 2018 – December 2019).

**Visiting researcher**, Santa Fe Institute, *Monk parakeet research collaborative visit*, with Drs. Elizabeth Hobson and Alejandro Salinas-Melgoza (01 – 07 Nov 2016).

**Graduate research assistant**, NMSU, *Evaluating quasispecies diversity in dengue virus strains*, Dr. Kathryn Hanley (21 May – Oct 2016).

**Field research technician**, Pacific coast of Nicaragua, *Assessing spatiotemporal variability in parrot vocal dialects*, Drs. Tim Wright, Christine Dahlin (22 Jun – 12 Jul 2016).

**Bioinformatics intern**, National Center for Genome Resources, Santa Fe, NM. *Research internship in cutting-edge genomics and bioinformatics* (16 Jun – 10 Jul 2015).

**Visiting researcher**, University of British Columbia-Okanagan, Kelowna, BC, Canada. *Restriction enzyme associated DNA sequencing (RAD-seq) bioinformatics, library prep*, Drs. Andrew Veale, Michael Russello (7 Jul – 5 Aug 2014, 15 Jan – 26 Jan 2015).

**Avian field research technician**, La Selva Biological Station, Sarapiquí, Costa Rica. *Social learning in long-billed hermit hummingbirds*, Dr. Tim Wright (Jan – Apr 2013) and RI Department of Environmental Management, Kingston, RI. *Management research with 3 native duck species* (Nov 2011 – Mar 2012).

**Undergraduate senior thesis**, Haverford College Biology Department. *Using acrylodan to probe oligomeric structures formed by the huntingtin N-terminus during aggregation*, Dr. Robert Fairman (Sep 2010 – Apr 2011).

**Undergraduate senior thesis**, Haverford College Spanish Department. *Esta criatura no es de aquí: constelaciones de transformaciones y la invasión de la barbarie en 2666*, Dr. Roberto Castillo-Sandoval (Sep 2010 – Apr 2011).

## PRESENTATIONS

**Smith-Vidaurre, G.**, Russello, M.A., Wright, T.F. *Genetics of invasive parrots: insights into origins, invasion patterns and adaptation*. Given COVID-19, may deliver talk virtually for symposium *The global rise of naturalized parrots: status, lessons learned, and emerging issues* at North American Ornithological Conference (NAOC), Aug 2020

**Smith-Vidaurre, G.**, Perez, V., and T.F. Wright. *Patterns of vocal variation are conserved between a parrot's native and invasive range*. Talk, NMSU Biosymposium, 07 Mar 2020.

**Smith-Vidaurre, G.**, Araya-Salas, M., and T.F. Wright. *Social information differs among contact calls of three vocal learning species*. Talk, ABS, 26 Jul 2019.

**Smith-Vidaurre, G.**, Araya-Salas, M., and T.F. Wright. *Distinct social information in contact calls of three vocal learning species*. Poster, Songbird & Animal Communication, 28 Jul 2019.

**Smith-Vidaurre, G.**, Araya-Salas, M., and T.F. Wright. *Monk parakeets exhibit low acoustic convergence across social scales in their native range*. Talk, SICB, 04 Jan 2019.

**Smith-Vidaurre, G.**, and T.F. Wright. *Mapping patterns of vocal variation in the native range of an invasive parrot*. Poster, AOS, Apr 2018.

**Smith-Vidaurre, G.**, and T.F. Wright. *Mapping patterns of vocal variation in the native range of an invasive parrot*. Poster, NMSU Biosymposium 24 Feb 2018.

Hobson, E.A, **Smith-Vidaurre, G.**, and A. Salinas-Melgoza. *History of nonnative Monk Parakeets in Mexico*. Talk, Ornithological Congress of the Americas, 11 Aug 2017.

Araya-Salas, M., **Smith-Vidaurre, G.**, Mennill, D. and T.F. Wright. 2015. *Social group signatures provide evidence of learning in visual displays*. Talk, ABS, 11-14 Jun 2015.

**Smith-Vidaurre, G.**, A. Veale, M.A. Russello and T.F. Wright. *Identifying genomic evidence of adaptation to novel environments in an invasive parakeet* (*Myiopsitta monachus*). Poster presented at various conferences/symposia: SICB 05 Jan 16, NMSU Biosymposium 31 Oct 2015 and 11 Apr 2015, New Mexico IDeA Networks of Biomedical Research Excellence Symposium 28 Mar 2015, and NMSU GRAS 18 Mar 2015.

## TEACHING & OTHER GRADUATE ASSISTANTSHIPS

**Guest Lecturer for R course**, Principal Components Analysis and Mantel tests in R, BIOL 550 with Scott Ferrenberg, NMSU Biology Department (April 3<sup>rd</sup>, 2019)

**Teaching Assistant**, NMSU Biology Department:

*BIOL 211: Cellular and Organismal Biology Lecture* (Spring 2018), *BIOL 309 (HHMI): Guided Biological Research* (Fall 2016), *BIOL 350 (HHMI): Guided Biological Research* (Spring and Fall 2015), *BIOL 211: Cellular and Organismal Biology Lab* (Fall 2013, Spring 2014)

**HHMI Graduate Assistant**, NMSU (Fall 2015, Spring 2017)

**Sanger DNA Sequencing Graduate Assistant**, NMSU (Spring 2016)

**Substitute Teacher**, Moses Brown School, Providence, RI (Fall 2012)

**Teaching Assistant**, Haverford College, Spanish Department (Fall 2010)

## PROFESSIONAL DEVELOPMENT

**Accepted to attend** competitive NextProf Science 2020 workshop at University of Michigan

**Will co-deliver** workshop *Rigorous and flexible acoustic analysis in R* at NAOC with Dr. Marcelo Araya-Salas, August 2020 (may be virtual, pending COVID-19)

**Co-delivered** workshop *Packages for streamlined bioacoustics analyses in R*, AOS annual meeting, Tucson, AZ with Dr. Marcelo Araya-Salas, 10 Apr 2018

**Delivered** workshop *An introduction to coding and bioacoustics analyses in R*, Wright Lab, NMSU, 01 Mar 2018 – 16 May 2018 (weekly sessions)

**Delivered** workshop *warbleR: a package for streamlined bioacoustic analyses in R*, 1<sup>st</sup> Ornithological Congress of the Americas, Puerto Iguazú, Argentina, 7 Aug 2017

**Co-delivered** workshop *Taller de Bioacústica: análisis de sonidos animales en R*, UCA, Managua, Nicaragua, with Dr. Marcelo Araya-Salas, 13-17 Jul 2017

**Attended** *UCLA/La Kretz Center for California Conservation Science Workshop in Conservation Genomics*, La Kretz Field Station, 20-24 Mar 2016

**Organized & delivered 1 session** of *Biology Graduate Student Organization R workshop*, NMSU Biology Department, 08 - 09 Nov 2015

**Co-delivered** workshop *Taller de Bioacústica: análisis de sonidos animales en R y la aplicación en la biología de la conservación*, Organization for Tropical Studies Palo Verde Research Station, with Dr. Marcelo Araya-Salas, 14-19 Jul 2015

**Attended** *NIMBioS Graduate Workshop on Current Issues in Statistical Ecology*, National Institute for Mathematical and Biological Synthesis (NIMBioS), Knoxville, 15 – 17 Apr 2015

## PROFESSIONAL AFFILIATIONS

Animal Behavior Society (2015, 2019), American Ornithologists' Union (2014, 2018), Society for the Study of Evolution (2018), American Genetic Association (2016, 2018, 2019), SICB (2016, 2018, 2019), Graduate Women in Science (2018), Sigma Xi (2016), RLadies (2019)  
Biology Graduate Student Organization: VP (2016), Secretary (2015, 2016), President (2014)

## RECENT OUTREACH

**Making DNA bracelets to link structure and function**, Vista Middle School and Hillrise Elementary, Las Cruces, NM with Dr. Michèle Shuster (8 Jan 2018, 14 Mar 2019)

**Student panelist** at Research Panel for New Mexico Alliance for Minority Participation (12 Oct 2018), Fulbright Workshops with NMSU Honors College (02 Feb, 13 Nov 2018)

**Evolution and bioacoustics**, Sierra Middle School students, organized by Dr. Tim Wright, delivered by lab, NMSU Biology Dept. (29 Jan 2016, 30 Jan 2015, 31 Jan 2014)

**Science fair judge**, Desert Hills Elementary, Las Cruces, NM (23 Nov 2015), Asombro Institute for Science Education, Las Cruces, NM (30 Apr 2015)

## SKILLS

**Bioinformatics**: Bioacoustics, population genetics, geospatial analyses in R, interactive data collection and analysis interfaces with RShiny. Genomics and geospatial command line.

**Fieldwork**: Field experience in different countries and habitats with different species (monk parakeets, yellow-naped amazons, long-billed hermit hummingbirds, black ducks).

**Wet lab**: DNA and RNA extraction, PCR, Sanger sequencing, RAD-seq library preparation.

**Mentoring and teaching**: Mentored 4 undergraduate students (3 Latin@s). Experience teaching basic biology, as well as advanced fieldwork and genetics techniques for classes of 7 – 25 students. Designed workshops to teach basic R coding for bioacoustics.

**Languages and international experience:** Fluent in English and Spanish (speaking, reading, writing). Lived periodically in Nicaragua since 1989 with family. Lived, studied in Chile. Carried out fieldwork and workshops in various countries.