**JACQUELYN K. GRACE**

Dept. of Wildlife and Fisheries Sciences jkgrace7@gmail.com

Texas A&M University https://sites.google.com/site/jacquelynkayegrace/

College Station, TX 77840

**EDUCATION**

*Wake Forest University* **Ph.D. Biology, 2014**

Advisor: Dr. David J. Anderson

Dissertation: Endocrine-mediated organizational effects on personality and stress in Nazca boobies

*Willamette University*

Advisor: Dr. David P. Craig **B. A. Biology, Magna Cum Laude, 2007**

Senior Thesis: The development and lateralization of prey delivery in a bill-load holding bird

Secondary Senior Project: Habitat use of Western scrub-jays along a suburban-rural gradient

*Study abroad:* University of Chester, United Kingdom, Spring Semester 2006

**ACADEMIC APPOINTMENTS**

Assistant Professor, Dept. of Wildlife and Fisheries Sciences, Texas A&M Univ. 2016-present

Postdoctoral Fellow, Centre d'Etudes Biologiques de Chizé 2014-2016

Centre National de la Recherche Scientifique, Université de la Rochelle

 Mentor: Dr. Frédéric Angelier

Adjunct Professor, Department of Biology, Wake Forest University Spring 2014

Graduate Teaching Assistant, Department of Biology, Wake Forest University 2012-2014

Graduate Teaching Assistant, University of Michigan Biological Station 2009, 2011

NSF Graduate Research Fellow in Animal Sciences, Wake Forest University 2008-2012

Dean’s Graduate Research Fellow, Wake Forest University 2007-2008

Laboratory Teaching Assistant, Wake Forest University 2004-2007

**GRANTS and AWARDS ($248,100 including fellowships)**

International Society for Behavioral Ecology Congress, travel award 2016, $700

Fyssen Foundation, Postdoctoral Fellowship, Centre d’Etudes Biologique de Chizé, 2014, 50,000€

Society for Integrative and Comparative Biology, DAB Best Student Oral Presentation finalist, 2014

Elton C. Cooke Award, Outstanding Graduate Student, Wake Forest Univ. Biology Dept., 2013

National Science Foundation Dissertation Improvement Grant, June 2011, $14,974

National Science Foundation Graduate Research Fellowship, begun Fall 2008

Wake Forest University, Vecellio Award, 2009, 2011

Wake Forest University, Alumni Travel Award, 2010, 2011

Wake Forest University, Tuttle-Newhall Travel Award, 2010, 2011, 2012

American Ornithologist’s Union Research Award, 2008

Dean’s Fellowship, Wake Forest University Graduate School, 2007-08

North American Ornithological Conference Travel Award, 2006

Council on Undergraduate Research, Biology Division Travel Award, 2006

Willamette University Travel Award, 11th International Behavioral Ecology Congress, 2006

Phi Beta Kappa Order of Omega Honor Society

Hallie Ford Trustee Scholar Robert C. Byrd Scholar

Joan Bartlett Wickman Award (Science Depts.) Tri-Beta Biological Honor Society

Cecile R. Monk Scholar (Biology Dept.) Hatfield Library Research Award

**PUBLICATIONS**

Angelier, F.., Meillère, A., **Grace, J. K.**, Trouvé, C., Brischoux, F. 2016. No evidence for an effect of

traffic noise on the development of the corticosterone stress response in an urban exploiter. *General and Comparative Endocrinology* 232: 43-50. doi:10.1016/j.ygcen.2015.12.007

Liang, A., **Grace, J. K.,** Tompkins, E. M., Anderson, D. J. 2015*.* Yawning, acute stressors, and arousal reduction in Nazca booby adults and nestlings. *Physiology and Behavior* 140: 38-43. doi:10.1016/j.physbeh.2014.11.029

**Grace, J. K.*,*** Anderson, D. J. 2014. Corticosterone stress response shows long-term repeatability and predicts personality in free-living Nazca boobies. *General and Comparative Endocrinology* 208: 39-48*.* doi: 10.1016/j.ygcen.2014.08.020

**Grace, J. K.**, Anderson, D. J. 2014*.* Personality correlates with contextual plasticity in a free-living, long-lived seabird. *Behaviour* 151(9): 1281 – 1311. doi: 10.1163/1568539X-00003185

**Grace, J. K.**, Tompkins, E. M., Anderson, D. J. 2013. Leucistic adult large cactus-finch (*Geospiza conirostris*)

on Española Island, Galápagos: a potential continuation of nestling beak color. *Wilson Journal of Ornithology* 125(1): 201-204. doi: http://dx.doi.org/10.1676/12-093.1

**Grace, J. K.**, K. Dean, M. A. Ottinger, D. J. Anderson. 2011. Hormonal effects of maltreatment in Nazca booby nestlings: implications for the “cycle of violence.” *Hormones and Behavior* 60(1):78-85. doi: 10.1016/j.yhbeh.2011.03.007

Müller, M.S., Porter, E.T., **Grace, J.K.**, Awkerman, J.A., Birchler, K.T., Gunderson, A.T., Schneider, E.G., Westbrock, M.A., Anderson, D.J. 2011. Maltreated nestlings exhibit correlated maltreatment as adults: evidence of a “cycle of violence” in Nazca boobies (*Sula granti). Auk* 128(4): 615. doi: 10.1525/auk.2011.11008.

**Grace, J. K.** and D. J. Anderson. 2009. Masked Booby (*Sula dactylatra).* *The Birds of North America Online*

(A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/073, doi:10.2173/bna.73

**Grace, J. K.**, and D. P. Craig. 2008. The development and lateralization of prey delivery in a bill load holding

bird. *Animal Behaviour*, 75: 2005-2011, doi:10.1016/j.anbehav.2007.11.009.

Anderson, D. J., K. P. Huyvaert, J. A. Awkerman, C. B. Proaño, W. B. Milstead, G. Jiménez-Uzcátegui, S.

Cruz, **J. K. Grace.** 2008. Population Status of the Critically Endangered Waved Albatross (*Phoebastria irrorata*), 1999 to 2007. *Endangered Species Research* 5: 185-192, doi: 10.3354/esr00089.

*Submitted and in preparation:*

**Grace, J. K.,** and D. J. Anderson. Sex-specific fitness consequences of personality and stress response may

maintain variation in those traits in Nazca boobies. *In prep.*

**Grace, J. K.,** and D. J. Anderson. Early-life experiences influence personality and the stress-response in adult,

long-lived seabirds. *In prep.*

**Grace, J. K.,** A. Meillère, F. Brischoux, F. Angelier. A single annual perturbation in environmental

conditions influence reproductive success for multiple years in house sparrows. *In prep.*

**PRESENTATIONS**

**Grace, J. K.,** F. Angelier. Aug. 2016. 16th Congress of the International Society for Behavioral Ecology.

Exeter, UK. Oral presentation.

**Grace, J. K.,** F. Angelier. Nov. 2015. Colloque de Ecophysiologie Animale. La Rochelle, France. Oral

presentation.

**Grace, J. K.,** D. J. Anderson. Jan. 2014. Society for Integrative and Comparative Biology Annual Meeting.

Austin, TX. Oral presentation.

**Grace, J. K.,** D. J. Anderson. Aug. 2013. Joint meeting of American Ornithologists’ Union and Cooper Ornithological Society. Chicago, IL. Oral presentation.

**Grace, J. K.,** D. J. Anderson. Jan. 2013. Society for Integrative and Comparative Biology Annual Meeting.

San Francisco, CA. Oral presentation.

**Grace, J. K.,** K. Dean, M. A. Ottinger, D. J. Anderson. Feb. 2012. Annual Meeting of the Pacific Seabird

Group. Turtle Bay, HI. Oral presentation.

**Grace, J. K.,** K. Dean, M. A. Ottinger, D. J. Anderson. 2011. 27th Perspectives in Biology

Symposium. Wake Forest University. Poster.

**Grace, J. K.**, K. Dean, M. A. Ottinger, D. J. Anderson. 2011. Joint Meeting of the Animal Behavior Society and the International Ethological Conference. Indiana University, Bloomington, IN. Poster.

**Grace, J. K.**, K. Dean, M. A. Ottinger, D. J. Anderson. 2010. 26th Perspectives in Biology

Symposium. Wake Forest University. Poster.

**Grace, J. K.,** D.J. Anderson. 2008. 24th Perspectives in Biology Symposium. Wake Forest University. Poster.

**Grace, J. K.**,and D.P Craig. 2006. IV North American Ornithological Conference. Veracruz, Mexico. Oral

presentation.

**Grace, J. K.**,and D.P. Craig. 2006. 11th International Behavioral Ecology Congress. Tours, France. Poster.

**Grace, J. K.**,and D.P Craig. 2006. 15th M.J. Murdock Conference. Portland, OR. Oral presentation.

**Grace, J. K**., P. Swenson, and D. P. Craig. 2005. 15th Annual Student Collaborative Research Program Research Symposium. Willamette University. Oral presentation.

**Grace, J. K.**, P. Swenson, and D. P. Craig. 2005. 14th Regional Conference on Undergraduate Research of the Murdock College Science Research Program. Northwest Nazarene University. Poster.

Allen, J., D.P. Craig, and **J. K. Grace**. 2008. 35th Annual Meeting of the Pacific Seabird Group. Oral

presentation.

Craig, D.P, J. Shinn, P. Swenson, and **J. K. Grace**. 2008. 35th Annual Meeting of the Pacific Seabird Group.

Oral presentation.

Swenson, P., **J. K. Grace**, and D. P. Craig. 2005.15th Annual Student Collaborative Research Program

Research Symposium. Willamette University. Oral presentation.

**INVITED SEMINARS and LECTURES**

**Grace, J.K.** 2015. Centre d’Etudes Biologique de Chizé, Centre National de la Recherche Scientifique.

Invited seminar.

**Grace, J.K.** 2014. Wake Forest University: Department of Biology. Seminar.

**Grace, J. K.,** D.J. Anderson. 2010. Darwin Research Station, Galápagos, Ecuador. Invited seminar.

**Grace, J. K**.. 2012, 2013. Wake Forest University: Animal Behavior. Invited lecture.

**Grace, J. K**. 2011. High Point University: Animal Physiology. Invited lecture.

**Grace, J. K**. 2010. Davidson University: Introduction to Biology. Invited lecture.

**Grace, J. K.,** D. J. Anderson. 2010. University of Hawaii at Manoa: Ecology, Evolution, and Conservation

Biology Program. Invited seminar.

**Grace, J. K.**. 2008, 2009, 2010, 2011. Grant and fellowship writing. Wake Forest University School of

Medicine, GRAD700; and Wake Forest University scholarship workshop. Invited lecture.

**SOCIETY MEMBERSHIPS**

Pacific Seabird Group Phi Beta Kappa

American Ornithologists’ Union Tri Beta Biological Honor Society

Society for Integrative and Comparative Biology Order of Omega Honor Society

**RESEARCH EXPERIENCE**

***Postdoctoral Research:*** Centre d'Etudes Biologiques de Chizé, Centre National de la Recherche Scientifique, Université de la Rochelle, France, 2014 – 2016

* Supported by an independent fellowship from the Fyssen Foundation to investigate long-term behavioral and physiological consequences of acute early-life stressors in House Sparrows (*Passer domesticus*).
* Captive and field-based experimental study investigating adaptive tuning of the individual phenotype (behavior, hormone profile, basic immunity, morphometrics, reproductive strategy) to early-life cues that could provide information about the expected frequency of stressors in the adult environment.
* Population consequences of environmental perturbations and short-term declines in reproduction
* Trained Masters and undergraduate internship students in experimental protocols, avian field and captive methods, avian blood sampling and processing, biostatistics, and scientific writing.
* Developed protocol for captive rearing of house sparrow nestlings and maintenance of juveniles and adults in captivity.
* Designed non-invasive method of hormone manipulation of wild nestlings, based on protocols for captive species.

***Doctoral Research:***Biology Department, Wake Forest University, 2007-2014

* Long-term effects of early-life experiences on individual adult behavior (personality), fitness (reproductive strategy), and hormonal response to stressors in the Nazca booby (*Sula granti*).
* Experimental and observational field study in Galápagos, Ecuador that took advantage of an extensive dataset of reproductive and nestling histories for thousands of birds spanning the last 30 years.
* Determined hormone candidates to explain intergenerational transmission of maltreatment behavior (the “cycle of violence”) at the proximate level.
* Designed genetic primers, cloned, sequenced, and analyzed regions of the Nazca booby genome to investigate polymorphisms that may influence maltreatment of chicks through gene by environment interactions.
* Trained volunteers and directed research on seabird movement ecology, including deployment of geolocators, GPS units, and time-depth recorders, collection and preliminary analysis of spatial data.
* Participated in conservation studies for the endangered Waved Albatross, including population monitoring, banding of chicks, and determining if plastic consumption is occurring in this population.
* Led ten field crews over five years, composed of Ecuadorian and American undergraduate and graduate students.

***Undergraduate Research:***Biology Department, Willamette University, 2003-2007

* Development of prey-manipulation skills and the influence of lateralization of prey-delivery by parents on chick learning, in Caspian Terns (*Sterna caspia*).
* Field-based observational study of tern behavioral ecology, including monitoring of population dynamics, diet, behavior, and development of chicks.
* Participated in tern movement ecology research involving deployment of satellite transmitters, collection and preliminary analysis of spatial telemetry data.
* Developed ArcGIS mapping system to evaluate the influence of anthropogenic structures on territory size and reproductive success in the suburban Western scrub-jay population
* Monitored local Western scrub-jay populations for reproductive history, territory ownership, immigration, and survivorship.

**TEACHING EXPERIENCE**

Adjunct Professor, **Avian Biology,** Wake Forest University, Spring 2014

* Sole instructor for lecture and laboratory components of this upper-level biology major course.
* Designed, organized, and led a five day birding trip to Florida, including a hands-on visit with field researchers at Archbold Biological Station

Teaching Assistant. **Comparative Physiology**, **Ecology and Evolution**, Wake Forest University, 2010-11, 2012-13, Fall 2013

* Responsible for two laboratory sections each semester for these required courses for Biology majors
* Sole instructor present during laboratories, and entirely responsible for laboratory grades (including 3-4 scientific reports for each course)
* Conducted lectures on course material, scientific writing, experimental design, and statistics
* Facilitated active student learning using inquiry-based labs and employing both informal (group discussions, mini presentations, etc.) and formal (quizzes, lab reports, oral presentations, etc.) assessment strategies.

Teaching Assistant. **Behavioral Ecology**, University of Michigan Biological Station, Summer 2009, 2011

* Assisted in both lecture and laboratory components of this field-based course
* Conducted formal two hour lectures and informal laboratory lectures
* Tutored students during and outside of class, aided in grading exams and research papers

Laboratory Teaching Assistant. **Physiological Dynamics of Animals and Plants**, **Principles of Biology**, Willamette University, Fall semesters 2004, 2006, Spring 2007

* Assisted in laboratory components of both a required course for majors and a non-majors course
* Graded lab reports and daily assignments, conduct informal teaching, and mentored peers

**EDUCATIONAL TRAINING**

**“Vision, Change, and the Case Studies Approach”** workshop, Animal Behavior Society, 2011

* National Science Foundation funded, day-long workshop consisting of animal behavior educators at the national Animal Behavior Society meeting.
* Provided recommendations to the NSF regarding professional development and education support needed to advance animal behavior education.
* Discussed central topics in science education, including student-centered learning, cultural commitment to change, integrating core concepts into the curriculum, education outside the classroom, and integrating education and research.
* Participated in training for using case studies in biological education

**“Teaching with the Socratic Method”**, Professional Development Center workshop, Wake Forest University, 2010

* Workshop on using the Socratic Method in undergraduate teaching

**“Who am I?:** **Identity in Teaching and Evaluation”**, Professional Development Center workshop, Wake Forest University, 2010

* Workshop on integrating personal identity and fairness to students in undergraduate teaching and assessment.

**“Scientific Communication”,** Biology Department, Wake Forest University, Spring 2011

* Two day-long tutorial on the use of online resources and social media outlets for teaching and communicating science to the public.

“**Undergraduate Research and Teaching**”, Biology Department, Wake Forest University, Spring 2011

* Workshop by Dr. Connie Rogers-Lowery (Catawba College) on integrating undergraduate research and teaching to enhance student learning and promote active research programs at smaller, teaching-focused colleges.

**PROFESSIONAL SERVICE**

**Reviewer** for the journal Behaviour and the Wilson Journal of Ornithology

Graduate Student Rep. to the **Committee for Information Technology**, Wake Forest University, 2012-13

* Voting member of the committee, representing all graduate students of Wake Forest University
* Provided input on graduate student computing (software, hardware) needs for both teaching and research.

Graduate Student Representative to the **Biology Department Faculty**, Wake Forest University, 2010-11

* Represented the graduate student population to the faculty of the Biology Department

Forsyth County **Science Fair Judge**, 2008, 2009, 2010, 2012, 2013

* County Science Fair judge for grades 3-5
* Elementary school judge for both Ward Elementary and Walkertown Elementary

Student Representative to the **Faculty Search Committee**, Willamette University, 2006-07

* A voting member of the Search Committee for a new tenure-track faculty
* Ranked applicants based on application materials and interview performance
* Attended phone and personal interviews, lectures, and seminars by applicants

**MENTORING and SCIENTIFIC OUTREACH**

**Research Mentor**, Centre d’Etudes Biologique de Chizé, Centre National de la Recherche Scientifique, France, 2015-2016

* Primary mentor for Masters students and senior undergraduate students conducting semi-independent research on stress and avian behavior during two month internships
* Trained students in avian field methods (trapping, banding, monitoring of nests, blood sampling, hematocrit measurement, collection of morphometric data), captive rearing and care for small birds, and methods for behavioral testing.
* Instructed students in biostatistics, experimental design, and scientific writing.

**Fernbank Natural History Museum*,*** volunteer, 2014, Atlanta, GA

* Introduced museum visitors to current exhibits and educated visitors on fossils and specimens on display.

**Boys and Girls Club Gardening Project,** volunteer, 2009-2014, Winston-Salem, NC

* Instructed at-risk students, ages 8-12, at the Winston-Salem Boys and Girls Club on gardening techniques, healthy eating habits, and the role of birds and insects in gardens
* Developed two working, student-run gardens from which students took home fresh fruits, vegetables, flowers, and herbs on a weekly basis

**Developer, Coordinator, and Primary Instructor** for local high school outreach, Winston-Salem, NC, 2013

* Collaborated with two local high schools to develop and present curriculum including lectures, worksheets, hands-on activities, and small group sessions for over 500 students (ranging from 9th grade General Biology to AP Biology).
* Material was presented by myself and undergraduate students that I had trained in the material and teaching techniques. This resulted in undergraduates having a greater understanding of the concepts, and provided an introduction to teaching and community outreach.
* Curriculum focused on connecting animal behavior, evolution, the hormonal stress response, and the interaction between genes and environment, to provide a holistic picture of biological research with real world applications, using my active research in the Nazca booby as a model system

**Invited mentor** and "authentic audience"*,*Challenger Early College, Hickory, NC, 2013

* Mentored rural middle and high school students on the scientific method, using my research as a model system
* Provided professional feedback (authentic audience) for biodiversity research project poster presentations

Forsyth County **Science Fair Judge**, 2008, 2009, 2010, 2011, 2012

* Ward Elementary, Walkertown Elementary, Forsyth County, and Regional Science Fairs

WFU Biology Department Representative, **Science & Technology Access for Rural Students**, October 2008, 2011

* Conducted several short workshops on research being conducted by the Wake Forest University Biology Department for Watauga Co. High School students.

**Research Mentor**, Biology Department, Wake Forest University, Spring semester 2008, 2010-11, 2011-12

* Mentored senior undergraduate students conducting independent research investigating impacts of abusive behavior in the Nazca booby on nestling growth, and the evolution and physiological function of avian yawning.

**Invited Mentor**, Garcia Elementary 5th Grade, Houston, TX, April 2008

* Tutored children on the theory of adaptation and its role in evolution with case studies from personal research

**Naturalist**, Willamette University 2006-07

* Lecturer at Student Scholarship Recognition Day and leader of the Campus Nature Walk
* Mentored undergraduates conducting ecological research