

Annie Elizabeth Newell-Fugate

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EDUCATION

2012	Ph.D., University of Illinois-Urbana-Champaign Focus: Animal Science/Reproductive Physiology
2008	M.Sc., University of Pretoria, Republic of South Africa Focus: Production Animal Studies/Wildlife Reproduction
2004	D.V.M., North Carolina State University College of Veterinary Medicine
2000	B.S. with Honors, University of North Carolina at Chapel Hill Major: Biology; Minor: Chemistry

VETERINARY MEDICAL LICENSURES AND OTHER CERTIFICATIONS

2013	Oncofertility Consortium Training, Northwestern University
2008	Licensed Veterinarian, Illinois
2004	Licensed Veterinarian, North Carolina
2004	USDA accredited veterinarian
2000	Certification in bovine artificial insemination, Select Sires

PROFESSIONAL RESEARCH EXPERIENCE

11/2014-present	Assistant Professor Department of Veterinary Physiology and Pharmacology, Texas A&M University, College Station, TX <u>Member:</u> Texas A&M Nutrition and Obesity Research Center Texas A&M Interdisciplinary Faculty for Reproductive Biology
9/2012-10/2014	NIH K01 Career Development Award Postdoctoral research fellow Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, IL <u>Mentors:</u> Drs. Janice Bahr, Romana Nowak, and Robert Rosenfield <u>Reproductive Physiology/Endocrinology:</u> 75% research; 25% teaching

NIH Division of Comparative Medicine ORIP K01 Awarded Research:
Examination of follicular and endometrial pathology in polycystic ovary syndrome using the Ossabaw mini-pig animal model
Other research projects: Assessment of baseline reproductive hormone profiles and the effect of pheromones on mating success in non-breeding pairs of Red River Hog

8/2011-8/2012

Graduate Research Assistant

Department of Animal Sciences, University of Illinois at Urbana-Champaign, Urbana, IL

Advisors: Drs. Janice Bahr and Romana Nowak

Research focus: Development of the Ossabaw mini-pig model of the obese phenotype of polycystic ovary syndrome

6/2010-7/2010

Graduate Research Assistant

Wildlife Biological Resource Center, South Africa

Joint research project between the wBRC and the Krisher laboratory.

Research focus: Development of in vitro oocyte maturation and fertilization techniques for native South African wild ungulate species

7/2003

Veterinary epidemiologic study

Khao Pratubchang Breeding Center, Thailand

Project: A study of endoparasite loads and management of wild felids at this breeding center in Ratchaburi, Thailand was conducted for a senior year epidemiology rotation.

11/2003

Veterinary Externship

Center for Conservation and Research of Endangered Wildlife, Cincinnati Zoo and Botanical Garden, Cincinnati, OH

Project: A study of post-thaw sperm traits in Pallas' cats.

7/2002-8/2002

Veterinary Researcher

NCSU CMV, Raleigh, NC and Conservation and Research Center (now Smithsonian Conservation Biology Institute) Front Royal, VA

Project: Examine affects of artificial lighting on testosterone and sperm production during normal breeding season in the Pallas' cat.

7/2001

Volunteer Researcher

National Marine Fisheries Service, SC and NC

Projects: Southeastern assessment of bottlenose dolphin populations and sea turtle health survey diagnostic sampling.

PROFESSIONAL CLINICAL EXPERIENCE

2009-2013

Relief Veterinarian

Banfield The Pet Hospital of Champaign, Champaign, IL

2008-2009

Associate Veterinarian

Banfield The Pet Hospital of Champaign, Champaign, IL

2007-2008	Associate Veterinarian Banfield The Pet Hospital of Brier Creek, Raleigh, NC
6/2006	Chemical Immobilization of Wildlife Course Northern Province, South Africa
2004	Associate Veterinarian Banfield The Pet Hospital of Brier Creek, Raleigh, NC
4/2004	Veterinary Externship North Carolina Zoological Park, Asheboro, NC
1/20014-3/2004	Veterinary Preceptorship Fossil Rim Wildlife Center, Fossil Rim, TX
12/2001	Fish Medicine Course North Carolina State University College of Veterinary Medicine, Raleigh, NC

HONORS AND AWARDS

July 2015	3 rd place in the AVMA/AVMF Young Investigator Award competition; invited attendee at the Burroughs Wellcome 'Becoming Faculty' Workshop
2015	Texas A&M Open Access Knowledge Fund Award
2011, 2013	Larry Ewing Memorial Trainee Travel Fund Award, SSR
2008-2011	Jonathan Baldwin Turner Fellowship (UIUC)
2006	Postgraduate Bursary (University of Pretoria)
2004	District 7710 Rotary Ambassadorial Scholar 2004-2005
2003	Phi Zeta Veterinary Honor Society (NCSU)
2003	Sigma Iota Rho International Honor Society (NCSU)
2002	Phi Kappa Phi Honor Society (NCSU)
	Geraldine R. Dodge Frontiers in Veterinary Medicine Research Award (NCSU) <u>Project:</u> Assessment of optimal storage medium osmolality for the preservation of sperm morphology and motility in captive Central American small felids ocelot, Profelis, Costa Rica and Conservation and Research Center, (now Smithsonian Conservation Biology Institute), Front Royal, V.A
	Association for Women Veterinarians Scholarship (NCSU)
	Martin Litwack Award (NCSU)
2000	Fulbright Scholarship (UNC-Ch Hill, award declined due to difficulty with receipt of proper local permits in Tanzania) Phi Beta Kappa (UNC-Ch Hill) Honors Undergraduate Research: Dominance Hierarchies in the Northern Cardinal
1999	Burch Fellowship Award (UNC-Ch Hill) <u>Project:</u> Aggression patterns in Zanzibar Red Colobus monkey inhabiting fields versus protected forest habitat in Zanzibar, Tanzania

TEACHING/MENTORSHIP EXPERIENCE

TEACHING EXPERIENCE

Texas A&M University

Fall 2015

Instructor of Record

Physiology I (VTPP 423; students)

Texas A&M University, College of Veterinary Medicine and Biomedical Sciences

Spring 2015

Co-Instructor of Record

Physiology I (VTPP 423; 58 students)

Texas A&M University, College of Veterinary Medicine and Biomedical Sciences

Co-Instructor of Record

Systemic Veterinary Physiology II for Non-Thesis Masters Degree (VTPP 606; 38 students)

Texas A&M University, College of Veterinary Medicine and Biomedical Sciences

University of Illinois

Fall 2014

Co-Instructor of Record

Advanced Reproductive Biology (ANSC 431; 73 students)

University of Illinois at Urbana-Champaign, College of ACES

Fall 2013

Assistant Instructor

Advanced Comparative Theriogenology (VCM 522)

University of Illinois at Urbana-Champaign, College of Veterinary Medicine

Co-Instructor of Record

Advanced Reproductive Biology (ANSC 431; 70 students)

University of Illinois at Urbana-Champaign, College of ACES

Spring 2013

Guest Lecturer

Growth and Development (ANSC 224)

"Puberty and Seasonal Reproduction", "Endocrine Disruptors"

University of Illinois at Urbana-Champaign, College of ACES

Fall 2013

Guest Lecturer

Advanced Reproductive Biology (ANSC 431)

"Canine and Feline Reproductive Physiology", "Seasonal Reproduction in the African Wild Dog"

University of Illinois at Urbana-Champaign, College of ACES

Spring 2012

Graduate Teaching Assistant

Growth and Development (ANSC 224), laboratory section
University of Illinois at Urbana-Champaign, College of ACES

MENTORSHIP EXPERIENCE

Texas A&M University

Fall 2015

Dameriss Silva, PhD Student (Committee Chair)

-Recipient of the Texas A&M University College of Veterinary
Medicine and Biomedical Sciences Diversity Fellowship (2015-
2019)

Cassandra Skenadore, PhD Student (Committee Chair)

Alex Hu, Graduate Student, Department of Animal Sciences (Committee
Member)

Briana Bryson, Honors Undergraduate Student (VTPP 491-3 hrs),
Department of Animal Sciences

Mariana Mund, Undergraduate Student Researcher (VTPP 485-4 hrs),
Department of Animal Sciences

Arturo 'Alex' Espinoza, Undergraduate Student Researcher (VTPP 485-
2 hrs), Department of Animal Sciences

Heather Speck, Undergraduate Student Researcher (VTPP 485),
Department of Animal Sciences

Carol Ann Wackerlin, Undergraduate Student Researcher (VTPP 485-
2hrs)

Summer 2015

Alex Espinoza, Undergraduate Student Volunteer, Ossabaw project

Heather Speck, Undergraduate Student Volunteer, Ossabaw project

Mariana Mund, Undergraduate Student Volunteer, Ossabaw project

Carol Ann Wackerlin, Undergraduate Student Volunteer, Ossabaw
project

Spring 2015

Julia Wiatrek, BIMS Non-thesis Masters Student Researcher (VTPP 685,
3 hrs)

University of Illinois

2014

Mentored one undergraduate, **A.J. Patsavas**, in cell culture and western
blotting techniques.

2012-2014

Mentored two James Scholar undergraduates, **Monica Jarboe and
Cassidy Cassello**, who each garnered the Agriculture, Consumer and
Environmental Sciences Undergraduate Research Scholarship for
research on "Assessment of baseline reproductive hormone profiles and
the effect of pheromones on mating success in non-breeding pairs of Red

River Hog”; students worked in the lab under my supervision for ANSC 398 Experiential Learning course credit. Monica and Cassidy are currently seniors in the Animal Sciences Department.

Mentored one undergraduate, **Naomi Cooper**, in protein extraction and assay, radioimmunoassay, western blot and real time qPCR; student worked in the lab under my supervision for ANSC 398 Experiential Learning course credit. Naomi is currently a senior in the Animal Sciences Department.

- 2011-2012 Mentored one undergraduate, **Katherine Schultz**, in fecal steroid extraction and radioimmunoassay; student worked in the lab under my supervision for ANSC 398 Experiential Learning course credit. Katherine is currently a Masters Student in the Medical Sciences Program at Loyola University.
- 2009-2010 Mentored one undergraduate, **Sophie Warner (né: Somers)**, in serum steroid extraction and radioimmunoassay. Sophie is currently pursuing a Masters in Education from Illinois State University.

SERVICE

Editorial Service

- 2015-present Plos One
- 2014-present Human Reproduction, Animal Reproduction Science, Biology of Reproduction, Journal of Zoo and Wildlife Medicine
- 2013-present Animal Biotechnology

Professional Affiliations

- 2013-2014 Society for Comparative Endocrinology
- 2013-present The Obesity Society
- 2012-present Association of Zoos & Aquariums
 Reproductive Advisor to the Wild Pig, Peccary and Hippo Taxon Advisory Group (2015-2018)
- 2011-present The Endocrine Society
- 2011-present International Wildlife Endocrinology Society
 ISWE Communications Subcommittee (2012)
 ISWE Antibody Development Subcommittee (2013-2014)
- 2009-present Society for the Study of Reproduction
 Founding member of the sub-committee, Women in Reproductive Sciences (2015-present)
 Annual Meeting Advisory Committee Member (2014-2015)
 Trainee Affairs Committee Co-Chair and representative to the Board of Directors (2013-2015)
- 2008-present International Embryo Transfer Society
- 2004-present Wildlife Disease Association
- 2004-2014 Society for Theriogenology
- 2003-present American Association of Zoo Veterinarians

2000-present American Veterinary Medical Association

Student organization involvement

University of Illinois at Urbana-Champaign

2011-2014 Illini Wildlife and Conservation Club Advisor
2011-2013 Companion Animal Club Advisor
2010 INTERLINK International Student Mentor Program

Community Service

2015 Future Farmers of America, Texas, Veterinary Science State Exam
2014 Future Farmers of America, Illinois, Veterinary Science State Exam
2010-2012 Central Illinois Animal Welfare Coalition
2001-2003 Pot Bellied Pig Pals
2001-2002 Operation Catnip
2000-2003 Turtle Rescue Team

College of Veterinary Medicine and Biomedical Sciences Service

2015 Assistant Professor Learning Communities Steering Committee (VTPP representative)

RESEARCH SUPPORT

Active Research Support

9/2011-7/2016 **National Institutes of Health**
Office of Research Infrastructure Programs
Award Number: K01OD011177
Follicular and endometrial pathology in polycystic ovary syndrome
\$474,908 (direct costs, \$390,9630)
Current year: \$72,000 (total costs; 8% indirect cost rate)
Principal Investigator: **A. E. Newell-Fugate**

Completed Research Support

8/2005-8/2006 **South African Veterinary Foundation**
The effects of two formulations of deslorelin on the reproduction of male African wild dogs (*Lycaon pictus*)
\$25,000 (all direct costs)
Principal Investigator: H. Bertschinger
Co-Investigator: **A. E. Newell-Fugate**

RESEARCH GRANT APPLICATIONS

Searle Scholars Program-TAMU Limited Submission Application (July 2015)	Selected
Mallinkrodt Grants-TAMU Limited Submission Application (May 2015)	Not Selected
Pew Medical Scholars-TAMU Limited Submission Application (May 2015)	Not Selected

RESEARCH PUBLICATIONS

Refereed manuscripts

2015

Newell-Fugate, A.E., Taibl, J.N., Alloosh, M., Sturek, M. Bahr, J.M., Nowak, R.A., Krisher, R.L. (2015) The effect of diet induced obesity on folliculogenesis and steroidogenesis in the female Ossabaw mini-pig. *PlosOne*. 10(6): e0128749. doi:10.1371/journal.pone.0128749.

2014

Newell-Fugate, A.E., Taibl, J.N., Clark, S.G. Alloosh, M., Sturek, M., Krisher, R.L. (2014) The effect of diet induced obesity on metabolic parameters and reproductive function in the female Ossabaw mini-pig. *Comparative Medicine*. 64(1): 1-6.

2012

Newell-Fugate, A.E., Nöthling, J.O., Bertschinger, H. (2012) Seasonal changes in steroid hormone profiles, body weight, semen quality, and the reproductive tract in captive African wild dogs (*Lycaon pictus*) in South Africa. *General and Comparative Endocrinology*. 178(2): 272-281.

2009

Newell-Fugate, A., Lane, E. (2009) Adenomyosis and coincidental intra-partum uterine rupture in an African wild dog (*Lycaon pictus*). *Journal of Zoo and Wildlife Medicine*. 40(4): 791-5.

Newell-Fugate, A., Lane, E. (2009) Peri-aortic hemangiosarcoma in an African wild dog (*Lycaon pictus*). *Journal of South African Veterinary Association*. 80(2): 108-110.

2007

Newell-Fugate, A., Kennedy-Stoskopf, S., Levine, J., Brown, J., Swanson, W. (2007) Seminal and endocrine characteristics of male Pallas' cats (*Otocolobus manul*) maintained under artificial lighting with simulated natural photoperiods. *Zoo Biology*. 26(3): 187-199.

2006

Swanson, W., Maggs, D., Clarke, H., **Newell, A.**, Bond, J., Bateman, H., Kennedy-Stoskopf, S. (2006) Assessment of Viral Presence in Semen and Reproductive Function of Frozen-Thawed Spermatozoa from Pallas' Cats (*Otocolobus manul*) Infected with Feline Herpesvirus. *Journal of Zoo and Wildlife Medicine*. 37(3): 336-346.

Invited Presentations

2016

Newell-Fugate, A.E. (2016) The use of urine pheromones for estrous cycle induction and synchronization in female Red River Hogs, Seminar, Dallas Zoo, Dallas, Texas

2014

Newell-Fugate, A.E. (2014) What's the big tadoo about zoo animal poo? Mini-course, ExlporeACES Open House, University of Illinois at Urbana-Champaign, College of ACES

Invited Presentations-National Conferences

2015

Newell-Fugate, A.E. (2015) Breeding manipulation and fertility preservation in the Red River Hog. In: AZA Ungulate TAG Research Symposium at the Mid-year AZA meeting, Columbia, SC.

2014

Newell-Fugate, A.E. (2014) The relationship between husbandry and reproductive success in captive Red River Hog. In: AZA Ungulate TAG Research Symposium at the Mid-year AZA meeting, Memphis, TN.

Scientific Presentations and Abstracts

2015

Jarboe, M., Adams, C. Bahr, J.M., Penfold, L., **Newell-Fugate, A.E.** (2015) Boar urine pheromone exposure modifies estrous cycle length and regularity in same-sex housed female Red River Hogs (*Potamochoerus porcus*). In: Proceedings of the 5th Meeting of the International Society for Wildlife Endocrinology, Berlin, Germany.

Lenz, K., **Newell-Fugate, A.E.**, Nowak, R.A., White, B., Braundmeier-Fleming, A. (2015) The effects of obesity in female Ossabaw mini-pigs on the microbiome of the urogenital tract. In: Proceedings of the Society for the Study of Reproduction's 48th Annual Meeting, San Juan, Puerto Rico.

Cruz, A., **Newell-Fugate, A.E.**, Adur, M., Krisher, R.L., Nowak, R.A. (2015) The Effects Of A High Fat Diet On The Morphology Of The Small Intestine In The Ossabaw Mini- Pig Model. In: Proceedings of the Society for the Study of Reproduction's 48th Annual Meeting, San Juan, Puerto Rico.

Newell-Fugate, A.E., Jarboe, M., Bromfield, C., Braundmeier, A.G., Clark, S.G., Rosenfield, R.L., Bahr, J.M., Nowak, R.A. (2015) Virilizing concentrations of serum testosterone in female pigs may differentially affect insulin signaling in visceral and subcutaneous adipose tissue. In: Proceedings of Proceedings of the Endocrine Society's 97th Annual Meeting and Expo, San Diego, CA.

2014

Newell-Fugate, A.E., Jarboe, M., Bromfield, C., Clark, S.G., Rosenfield, R.L., Bahr, J.M., Nowak, R.A. (2014) Testosterone Administration to Female Pigs Causes Dose- and Time-Related Changes in Serum Insulin and Differentially Up-Regulates *INSR* and *IRS1* Gene Expression in Adipose Tissue. In: Proceedings of Proceedings of the Endocrine Society's 96th Annual Meeting and Expo, Chicago, IL.

Newell-Fugate, A.E., Poldermans, M., Padmos, L., Bertschinger, H.J. (2014) Effects of Age, Parity, Season, and Contraception Status on Litter Size and Reproductive Health in Female African Wild Dogs in South Africa. African Painted Dog Conference, Chicago, IL.

Ahamed, K.A., Holscher, H.D., Kil, D.Y., **Newell-Fugate, A.E.**, Krisher, R.L., Swanson, K.S. (2014) Gastrointestinal Morphology, Tight Junction Gene Expression, and Microbiota of the Ossabaw Obese Pig Model. In: Proceedings of Experimental Biology, San Diego, CA.

2013

Newell-Fugate, A. E., Taibl, J.N., Alloosh, M.A., Sturek, M., Bahr, J.M., Nowak, R.A., Krisher, R.L. (2013) The effect of an excess caloric and high fat diet on follicular dynamics and steroidogenesis in the female Ossabaw mini-pig. In: Proceedings of the Annual Meeting of the Society for the Study of Reproduction, Montreal, Canada

2012

Newell-Fugate, A.E. (2012) A proposal to assess baseline reproductive hormone profiles and the effect of pheromones on mating success in non-breeding pairs of Babirusa and Red River Hog. In: AZA Ungulate TAG Research Symposium at the Mid-year AZA meeting, Palm Springs, CA.

2011

Newell-Fugate, A.E., Bertschinger, H., Nöthling, J. (2011) Seasonal changes in steroid hormone profiles, body weight, semen quality, and accessory sex organs in captive African wild dogs (*Lycaon pictus*) in South Africa. In: Proceedings of the Annual Meeting of the International Society for Wildlife Endocrinology, Toronto, Canada

Newell-Fugate, A.E., Taibl, J.N., Alloosh, M., Sturek, M., Nowak, R.A., Krisher, R.L. (2011) Follicular dynamics and estrous cycle features of the Ossabaw pig model of polycystic ovary syndrome (PCOS). In: Proceedings of the Annual Meeting of the Society for the Study of Reproduction, Portland, OR.

Newell-Fugate, A.E., Taibl, J.N., Clark, S.G., Alloosh, M., Sturek, M., Krisher, R.L. (2011) Baseline and superovulation hyperandrogenism and follicular dynamics in the Ossabaw pig suggest an animal model for polycystic ovary syndrome (PCOS). *Reproduction, Fertility and Development*. 23(1): 256-257.

2006

Newell-Fugate, A., Bertschinger, H., Nöthling, J. (2006) Reproductive effects of a long-acting deslorelin implant or injection in male African wild dogs (*Lycaon pictus*)-a preliminary report of the first 7 months post-treatment. In: proceedings of the American Association of Zoo Veterinarians, Tampa, FL. 286-287.

Newell-Fugate, A., Lane, E. (2006) Adenomyosis and intra-partum uterine rupture in an African wild dog (*Lycaon pictus*). In: proceedings of the American Association of Zoo Veterinarians, Tampa, FL. 47-48.

2004

Lamberski, N., **Newell, A.**, Radcliffe, R. (2004) Thirty immobilizations of captive giraffe (*Giraffe camelopardalis*) using a combination of medetomidine and ketamine. In: proceedings of the American Association of Zoo Veterinarians, San Diego, CA. 121-122.

2003

Newell, A., Kennedy-Stoskopf, S., Levine, J., Brown, J., Swanson, W. (2003) Analysis of testosterone and cortisol fecal metabolites in male Pallas' cats (*Otocolobus manul*) housed under artificial lighting conditions. In: proceedings of the American Association of Zoo Veterinarians, Minneapolis, MN. 294-295.

1999

Newell, A., Vondrasek, J. (1999) Site-related winter dominance in the Northern Cardinal. In: Proceedings of the American Ornithologists' Union, Ithaca, NY. 130.