WES FLYNN

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EDUCATION:

Ph.D. Candidate	Ecology; University of Georgia, Odum School of Ecology	2012 - Present
B.S.	Biology; Penn State Behrend	2009

PROFESSIONAL EXPERIENCE:

Aug 2012 – Present — Graduate Research Assistant: University of Georgia, Savannah River Ecology Laboratory Aiken, SC/Athens, GA

- Using quantitative genetic approaches to investigate the potential for local adaptation of amphibian populations to degraded habitats and the evolutionary consequences
- Investigating the genetics underlying variation in stressor tolerance in amphibians
- Determining the relative influences of genetics and the environment on amphibian gut microbiomes and how microbiome composition affects fitness-related traits.
- Assessing the quantitative genetic variation for the regulation of gene expression and its role in adaptive evolution
- Identifying candidate genes and genetic pathways associated with degraded habitats
- Determining how exposure to altered resources and contaminants in early-life stages affects reproduction, growth and survival in later stages

May 2010-Aug 2012 — Research Technician III: Savannah River Ecology Laboratory, Aiken, SC

- Investigated the biological impacts of heavy metal contamination on pond-breeding amphibians.
- Developed microsatellite loci for two species of amphibians
- Molecular techniques: DNA/RNA extraction, cDNA library construction, qPCR
- Analytical methods: acid digestion of tissue for metals analysis, image analysis, fragment analysis
- Husbandry of study animals, including water quality maintenance and paired breedings
- Data analysis and manuscript writing
- Supervised and trained personnel on field and laboratory study methodologies

May 2009-Aug 2009 — Botany Field Technician: Oregon State University, Burns, OR

- Assisted with vegetation surveys and sampling in sagebrush steppe ecosystems throughout Great Basin region

Mar. 2008-Apr. 2008 — Spotted Salamander Survey Field Assistant: Penn State-Behrend, Erie, PA

- Participated in field collections and molecular work for a project examining the impacts of road de-icing salts on spotted salamanders inhabiting vernal pools.

Jan. 2007-May 2009 — Undergraduate Research Assistant: Penn State-Behrend, Erie, PA

- Investigated the cellular and physiological effects of elevated homocysteine levels using the zebrafish (*Danio rerio*) as a model system.
- Histological methods, including tissue sectioning, antibody staining, and fluorescent microscopy, with animal husbandry and statistical analysis.
- Wrote four grant proposals, totaling $3800, to purchase research supplies for studies and presented results at two annual Sigma Xi undergraduate research conferences

PUBLICATIONS:

6) Flynn RW, Kuhne WW Scott DE, Lance SL. (2015) Chronic copper exposure delays development and reduces survival of eastern narrowmouth toads, *Gastrophryne carolinensis*. **Environmental Toxicology & Chemistry.** 34(3), 575-82.

5) Soteropoulos DL, Flynn RW, Lance SL, Scott, DE. (2014) Effects of copper exposure on hatching success and early larval survival in marbled salamanders, *Ambystoma opacum.* **Environmental Toxicology & Chemistry.** 33(7), 1631-7.

4) Lance SL, Love CN, Nunziata, S, O'Bryhim J, Scott DE, Flynn RW, Jones K. (2013) 32 species validation of a new Illumina paired-end approach for the development of microsatellites. **PLOS ONE.** 8(11)

3) Love CN, Flynn RW, Nunziata SO, Jones KL, Lance SL. (2013) Development of 31 polymorphic microsatellite markers for the mole salamander (*Ambystoma talpoideum*) using Illumina paired-end sequencing. **Conservation Genetic Resources.** 5:951-954.

2) Lance SL, Flynn RW, Erickson MR, Scott DE. (2013) Within and among population level differences in response to chronic copper exposure in southern toads, *Anaxyrus terrestris.* **Environmental Pollution**. 177, 135-142.

1) Lance SL, Erickson MR, Flynn RW, Mills GL, Tuberville TD, Scott DE. (2012) Effects of chronic copper exposure on development and survival in the southern leopard frog [*Lithobates (Rana) sphenocephalus*]. **Environmental Toxicology & Chemistry.** 31(7), 1587-94.

PROFESSIONAL TRAINING:

2015 Evolutionary Quantitative Genetics Workshop, NIMBioS, Knoxville, TN

2013 NSF Funded RAD-tag Bioinformatics Workshop, University of Colorado School of Medicine, Denver, CO

- Development of bioinformatics pipeline to analyze next generation RADseq data for SNPs
- Running Python, PERL, and STACKS jobs on computing clusters

2011 NSF funded workshop: Evolutionary Genomics of Non-Model Species: Next Generation Sequencing, Data Management & Hypothesis Testing, Irapuato, MX

- Exposed to different NGS platforms and their pros and cons
- Exposed to use of NGS for gene expression, reduced representation libraries and SNP development, population genetics, phylogeography, and species trees
- Hands on computer sessions for scripting in BioPython and R

GRANTS AND AWARDS:

2014 SICB Charlotte Mangum Student Support Award

2012 SICB Charlotte Mangum Student Support Award

2007-2009 The Behrend College Undergraduate Research Grant Program. "Analysis of folate metabolism and its effects on neural tube development in the early zebrafish (*Danio rerio*) embryo." Penn State Erie. Spring 2009 ($700), Summer 2008 ($1200), Spring 2008 ($700), Summer 2007 ($1200).

PROFESSIONAL PRESENTATIONS (* denotes presenter, # indicates invited talk)

Flynn RW*#, Welch AM, and Lance SL. How coal combustion waste influences phenotypic variation of an amphibian through genetic and maternal effects. Society for Environmental Toxicology and Chemistry, 36th Annual Meeting Salt Lake City, UT. (Platform)

Flynn RW* and Lance SL. 2014. Copper tolerance in the southern toad, *Anaxyrus terrestris*: a quantitative genetic approach. Society for Integrative and Comparative Biology. Austin, TX. (Platform)

Flynn RW*, Scott DE, and Lance SL. 2013. The genetic basis for the variation in response of southern toads to copper. Gordon Research Conference, Ecological and Evolutionary Genomics. Biddeford, ME. (Poster)

Flynn RW*, Scott DE, and Lance SL. 2013. Could an amphibian population be adapting in response to an anthropogenic stressor? Odum School of Ecology, Graduate School Symposium. Athens, GA. (Platform)

Flynn RW*, Scott DE, and Lance SL. 2012. An examination of the maternal and paternal contributions to responses of embryonic and larval southern toads (*Anaxyrus terrestris*) to copper. Society for Environmental Toxicology and Chemistry, 33rd Annual Meeting. Long Beach, CA. (Platform)

Flynn RW*, Erickson MR, Scott DE, Mills GL, Tuberville TD, Seaman JC, Lance SL. 2012. Intra- and interpopulation variation in response to copper in two amphibian species. Society for Environmental Toxicology and Chemistry, Carolina Regional Chapter. Aiken, SC (Poster)

Flynn RW*, Kuhne WW, Scott DE, Erickson MR, Mills GL, Tuberville TD, and Lance SL. 2012. The lethal and sublethal consequences of copper exposure for *Lithobates sphenocephalus* and *Gastrophryne carolinensis*. Society for Comparative and Integrative Biology Annual Meeting. Charleston, SC. (Platform)

Flynn RW*, Kuhne WW, Scott DE, Erickson MR, Mills GL, Tuberville TD, and Lance SL. 2011. The lethal and sublethal consequences of copper exposure for *Lithobates sphenocephalus* and *Gastrophryne carolinensis*. Southeastern Population Ecology and Evolutionary Genetics Meeting. Reidsville, NC. (Platform)

Flynn RW*, Scott DS, Jones K, Tuberville TD, and Lance SL. 2011. Lethal and sub-lethal effects of chronic copper exposure on southern toads, *Anaxyrus terrestris*. American Genetic Association Annual Symposium; Symposium on Genomics and Biodiversity. Guanajuato, Mexico. (Poster)

Lance SL, **Flynn RW***, Erickson MR, Mills GL, Tuberville TD, and Scott DE. 2010. Effects of copper on gene expression and population genetics of pond-breeding amphibians. Ecological Genomics Symposium. Kansas City, KS. (Poster)

Erickson MR, Lance SL*, **Flynn RW**, Mills GL, T Murphy, Tuberville TD, and Scott DE. 2010. Copper effects on pond-breeding amphibians. American Genetic Association Annual Symposium. Hilo, HI. (Poster)

Flynn RW*, Warren JT. 2009. Analysis of folate metabolism and its effects on neural tube development in the early zebrafish (*Danio rerio*) embryo. Eighteenth Annual Penn State Behrend Sigma Xi Undergraduate Research and Creative Accomplishment Conference. Erie, PA. (Poster)

Flynn RW*, Machuga D, Ober J, Everhart B, and Warren JT. 2008. A molecular genetic approach to studying folate metabolism in zebrafish (*Danio rerio*). Seventeenth Annual Penn State Behrend Sigma Xi Undergraduate Research and Creative Accomplishment Conference. Erie, PA. (Poster)

PROFESSIONAL AFFILIATIONS:

- Association of Ecosystem Research Centers, Graduate Student Board Representative (2014 – present)
- Savannah River Ecology Laboratory, Seminar Committee, Graduate Student Representative (2012 - present)
- Graduate Student Retreat Coordinator Committee, Odum School of Ecology, 2013-2014
- Member, Poster Session Committee, Odum School of Ecology Graduate Student Symposium, 2012

PROFESSIONAL ASSOCIATIONS:

- American Association for the Advancement of Science (AAAS)
- Society for Integrative and Comparative Biology (SICB)
- Society for the Study of Evolution (SSE)
- Society of Environmental Toxicology and Chemistry (SETAC)

ACTIVITIES AND OUTREACH:

- Judge, Georgia Science and Engineering Fair 2013
- Educator, 2011, 2014, and 2015 Savannah River Ecology Lab “Touch an Animal Day”
- Educator, 2014 “Savannah River Site Kid’s Day”
- Judge, Odum School of Ecology Graduate Student Symposium (2012, 2013, and 2014)
- Speaker, Paul Knox Middle School Career Day 2015