

Sarah Flanagan
Postdoctoral Research Associate
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EDUCATION

Texas A&M University, College Station, TX **Graduated August 2016**
PhD Program, Biology Department
Advisor: Adam Jones

Colby College, Waterville, ME **Graduated with Honors, May 2011**
Bachelor of Arts in Biology, with a Concentration in Environmental Science
Honors Thesis Advisor: Catherine Bevier

School for International Training, Tanzania: Zanzibar **Spring 2010**
Coastal Ecology and Natural Resource Management

AWARDS AND GRANTS

Postdoctoral Fellowship	2016
National Institute for Mathematical and Biological Synthesis (\$107,000)	
Roozbeh Arianpour Endowed Memorial Fellowship in Biology	2015
Biology Department at Texas A&M University (\$1,000)	
Travel Grant	2015
Texas A&M University Biology Department (\$1,200)	
Travel Grant	2015
Texas A&M University Graduate and Professional Student Council (\$500)	
Graduate Research Fellow Research Opportunities Worldwide Supplemental Grant	2014
National Science Foundation (\$5,000 in research funds plus \$7,600 stipend)	
Doctoral Dissertation Improvement Grant	2014
National Science Foundation (\$13,000 in research funds)	
Graduate Research Fellowship	2013
National Science Foundation (\$30,000 stipend per year for 3 years)	
Travel Grant	2013
Texas A&M University Office of Graduate Studies (\$500)	
Merit Fellowship	2011
Texas A&M University (\$25,000 stipend)	
Fund for Special Student Projects	2010
Colby College All College Dean of Faculty's Office (\$500)	
Presidential Scholar	2008
Colby College	

PEER-REVIEWED PUBLICATIONS

Published

- **Flanagan SP**, and Jones AG. *In press*. Genome-wide selection components analysis in a fish with male pregnancy. *Evolution*.
- **Flanagan SP**, Rosenqvist G, and Jones AG. Mate quality and timing of reproduction affects sexual selection in a sex-role-reversed pipefish. *Behavioral Ecology and Sociobiology*. 71(1): 1-10. doi: 10.1007/s00265-016-2255-3

- **Flanagan SP**, Rose E, and Jones AG. 2016. Population genomics reveals multiple drivers of population differentiation in a sex-role-reversed pipefish. *Molecular Ecology*. 25(20): 5043-5072. doi: 10.1111/mec.13794
- Titon SCM, de Assis VR, Titon Jr B, Barsotti AMG, **Flanagan SP**, and Gomes FR. 2016. Calling rate, corticosterone plasma levels and immunocompetence of *Hypsiboas albopunctatus*. *Comparative Biochemistry and Physiology: Part A*. 201: 53-60.
- Rose E, **Flanagan SP**, and Jones AG. 2015. The effects of synthetic estrogen on the sexually dimorphic liver transcriptome of the sex-role-reversed Gulf pipefish. *PLoS One*. 10(10): e0139401.
- **Flanagan SP**, and Jones AG. 2015. Identifying signatures of sexual selection using genome-wide selection components analysis. *Ecology and Evolution*. 5(13): 2722-2744. doi: 10.1002/ece3.1546.
- **Flanagan SP**, Johnson JB, Rose E, and Jones AG. 2014. Sexual selection on female ornaments in the sex-role-reversed Gulf pipefish (*Syngnathus scovelli*). *Journal of Evolutionary Biology*. 27 (11): 2457-2467.
- **Flanagan SP**, and Bevier CR. 2014. Do male activity and territory quality affect female association time in the Brown Anole, *Anolis sagrei*?. *Ethology*. 120 (4): 365-374.
- **Flanagan SP**, Wilson WH, Jones KL, and Lance SL. 2010. Development and characterization of twelve polymorphic microsatellite loci in the Bog Copper, *Lycaena epixanthe*. *Conservation Genetics Resources*. 2(1): 159-161.

In Review

- **Flanagan SP**, and Jones AG. *In revision*. Constraints on the heterozygosity- F_{ST} outlier approach. *Journal of Heredity*.

RESEARCH EXPERIENCE

Postdoctoral Research Associate

September 2016-Present

National Institute of Mathematical and Biological Sciences, *University of Tennessee*, Knoxville, TN

- Conduct independent research using bioinformatics to identify patterns in publicly-available genomics databases
- Create computer simulation models to link population genetics and quantitative genetics theory

Graduate Researcher

September 2011-August 2016

Biology Department, *Texas A&M University*, College Station, Texas

PhD Advisor: Dr. Adam G. Jones

- Elucidated genomic signatures of selection using theoretical and empirical approaches
- Implemented and optimized a restriction-site-associated DNA next-generation sequencing protocol and created an analysis pipeline
- Wrote computer programs to apply population genetics theory to large next-generation sequencing datasets
- Managed Doctoral Dissertation Improvement Grant budget of \$13,000 and secured two graduate fellowships
- Developed a citizen-science project to monitor populations of threatened Syngnathid fishes and communicated the importance of conservation to the public in four public outreach presentations
- Presented results at six international meetings and six local conferences
- Mentored two undergraduate students

Visiting Graduate Researcher

May-October 2014

Biology Department, *Norwegian University of Science and Technology*, Trondheim, Norway
Collaboration with Dr. Gunilla Rosenqvist

- Studied population genomics and sexual in pipefish species in the Baltic Sea
- Presented results at local meetings and seminars
- Mentored one master's student and one undergraduate student

Senior Honors Researcher

September 2010-May 2011

Biology Department, *Colby College*, Waterville, Maine
Advisor: Dr. Cathy Bevier

- Designed and conducted experiments testing female preferences for male physiological quality and male territory quality
- Published results in one peer-reviewed journal
- Presented results at one international meeting

Undergraduate Research Assistant

June-August 2010

Biology Department, *Colby College*, Waterville, Maine
Supervisors: Dr. W. Herbert Wilson, Dr. Stacey Lance

- Surveyed dragonflies, damselflies, and butterflies in the Belgrade Lakes region of Maine
- Developed and participated in the Belgrade Lakes Damselfly Survey, a citizen-science project using damselflies as an indicator of overall lake health, and contributed to the Maine Butterfly Survey, a state-wide citizen-science project

Independent Project Student

March-May 2010

School for International Training, Zanzibar, Tanzania

- Compared presence of elephant shrew nests in three forests, one that was protected from human development, another that was managed but was used to some degree by humans, and one forest that was entirely unprotected
- Managed four field guides and trained them on sampling along a transect

Undergraduate Research Assistant

June-August 2009

Savannah River Ecology Laboratory, Aiken, SC

Supervisors: Dr. W. Herbert Wilson, Dr. Stacey Lance

- Developed and optimized microsatellite markers for five different Maine bog butterflies

Undergraduate Research Assistant

September 2008-May 2009

Biology Department, *Colby College*, Waterville, Maine

Supervisor: Dr. W. Herbert Wilson

- Compiled migratory pattern data of native Maine bird populations

TEACHING EXPERIENCE

Co-Instructor of a Graduate Course

January 2016 – May 2016

Experimental Design in Biology (BIOL 689)

Biology Department, *Texas A&M University*, College Station, TX

- Contributed to the planning of in-class assignments
- Provided assistance to 20 students during class

Graduate Teaching Assistant **August 2012-May 2013**

Critical Writing in Biology (BIOL 401)

Biology Department, *Texas A&M University*, College Station, TX

- Assigned points and provided feedback on essays from approximately 50 students
- Met one-on-one with students to provide detailed feedback

Students Trained and Supervised

- Sander van Leeuwen (master's student, Wageningen University) **May – July 2014**
- Caroline Seger (bachelors student, Uppsala University) **May – July 2014**
- H. Alex Saucedo (bachelors student, Texas A&M University) **September 2012 – May 2013**
- Kevin Records (bachelors student, Texas A&M University) **September 2012 – May 2013**

OUTREACH ACTIVITIES

Letters to a Pre-Scientist **September 2016 – Present**

Pen pal to 7th grade student in Bronx, New York

Pipefish World (citizen science project) **May 2013-August 2016**

Founder and Leader

<http://www.bio.tamu.edu/USERS/ajones/Pipefish/Pipefish.html>

Belgrade Lakes Damsselfly Survey (citizen science project) **May – August 2010**

Developer and Participant

Belgrade Lakes Region, Maine

Maine Butterfly Survey (citizen science project) **May - August 2010**

Participant

Waterville, Maine

Maine Migratory Bird Project (citizen science project) **August 2008 – May 2009**

Data Analyst

Biology Department, *Colby College*, Waterville, Maine

PROFESSIONAL SERVICE

Peer Reviewer

Aquaculture Research, Biological Journal of the Linnean Society, Icelandic Research Fund,
International Journal of Molecular Sciences, Molecular Ecology, Molecular Ecology Resources

Graduate Recruiting and Admissions Committee **September 2015 – May 2016**

Student Representative

Ecology and Evolutionary Biology Program, *Texas A&M University*
College Station, Texas

Graduate Programs Council Graduate **September 2015 – May 2016**

Student Representative

Biology Department, *Texas A&M University*
College Station, TX

Ecological Integration Symposium

March 2015

Undergraduate Poster Presentation Judge

Ecology and Evolutionary Biology Program, *Texas A&M University*
College Station, Texas

Graduate Recruiting and Admissions Committee

August 2013-August 2014

Student Representative

Biology Department, *Texas A&M University*
College Station, Texas

PRESENTATIONS

Invited Research Talks

- Sarah P. Flanagan, September 2016, *Identifying signatures of selection on the genome: case studies using pipefish*, National Institute for Mathematical and Biological Synthesis Seminar Series, Knoxville, TN
- Sarah P. Flanagan, Emily Rose, Adam G. Jones, February 2016, *Population genomics reveals multiple drivers of population differentiation in a sex-role-reversed pipefish*, Texas A&M Ecology and Evolutionary Biology Seminar Series, College Station, TX
- Sarah P. Flanagan, September 2014, *Sexual selection and the genome*, Norwegian University of Science and Technology Centre for Biodiversity Dynamics Seminar, Trondheim, Norway
- Sarah P. Flanagan, Adam G. Jones, October 2013, *Identifying the genomic signature of selection using a simulation model*, Texas A&M Ecology and Evolutionary Biology Evolution Symposium, College Station, TX

Other Research Talks

- Sarah P. Flanagan, Emily Rose, Adam G. Jones, June 2016, *Population genomics reveals multiple drivers of population differentiation in a sex-role-reversed pipefish*, Evolution, Austin, TX
- Sarah P. Flanagan, Gunilla Rosenqvist, Adam G. Jones, September 2015, *Darwin's model explains sexual selection on females in a polygynandrous pipefish*, Texas A&M Biology Department Student/Post-doc Research Conference, College Station, TX
- Sarah P. Flanagan, Gunilla Rosenqvist, Adam G. Jones, June 2015, *The Darwin-Fisher hypothesis explains sexual selection pressures in a polygynandrous, sex-role-reversed pipefish*, Evolution, Guarujá, Brazil
- Sarah P. Flanagan, James B. Johnson, Emily Rose, Adam G. Jones, August 2014, *Sexual selection on female ornaments in the sex-role-reversed Gulf pipefish (Syngnathus scovelli)*, International Society for Behavioral Ecology, New York City, NY
- Sarah P. Flanagan, Adam G. Jones, March 2014, *Sexual selection on female ornaments in the sex-role-reversed Gulf pipefish (Syngnathus scovelli)*, Texas A&M Student Research Week, College Station, TX
- Sarah P. Flanagan, Adam G. Jones, March 2014, *Sexual selection on female ornaments in the sex-role-reversed Gulf pipefish (Syngnathus scovelli)*, Texas A&M Ecology and Evolutionary Biology Ecological Integration Symposium, College Station, TX
- Sarah P. Flanagan, Adam G. Jones, January 2014, *Identifying the genomic signature of selection using a simulation model*, Society for Integrative and Comparative Biology Meeting, Austin, TX
- Sarah P. Flanagan, Adam G. Jones, October 2013, *Identifying the genomic signature of selection using a simulation model*, Texas A&M Biology Department Student/Post-doc Research Conference, College Station, TX

Sarah Flanagan - CV

- Sarah P. Flanagan, Emily Rose, James B. Johnson, and Adam G. Jones, March 2013, *Correlating female secondary sex traits and mating success in a sex-role reversed Gulf Pipefish*, Syngnathid Biology International Symposium, Faro, Portugal
- Sarah P. Flanagan, May 2011, *Do male physiological condition and territory quality affect female mate choice in the Brown Anole*, *Anolis sagrei?*, Colby College Biology Honors Thesis Symposium, Waterville, Maine

Poster Presentations of Research

- Sarah P. Flanagan, Emily Rose, James B. Johnson, and Adam G. Jones, October 2012, *Correlations between mating success and female sexually selected traits*, Texas A&M Biology Department Student/Post-doc Research Conference, College Station, Texas
- Sarah P. Flanagan, Emily Rose, James B. Johnson, and Adam G. Jones, July 2012, *Correlations between mating success and female sexually selected traits*, First Joint Congress on Evolutionary Biology, Ottawa, Ontario, Canada
- Sarah P. Flanagan, Catherine R. Bevier, July 2011, *Do male physiological condition and territory quality affect female choice in the Brown Anole*, *Anolis sagrei?*, Animal Behavior Society, Bloomington, Indiana
- Sarah P. Flanagan, May 2011, *Female choice and male physiological condition in the Brown Anole*, *Anolis sagrei*, Colby College Undergraduate Research Symposium, Waterville, Maine
- Sarah P. Flanagan, April 2011, *Female choice and male physiological condition in the Brown Anole*, *Anolis sagrei*, Maine Biological and Medical Sciences Symposium, Mount Desert Island Biological Laboratory, Mount Desert Island, Maine

Outreach Presentations

- Sarah P. Flanagan, November 2015 (Discussion), Discussion of Rose et al. (2015) paper, Skype conversation with Catherine Bevier's undergraduate animal behavior class at Colby College, ME.
 - Sarah P. Flanagan, September 2015 (Discussion), A career as a research scientist, Skype conversation with Angie Sauer's high school biology class at Colegio Nueva Granada, Bogotá, Colombia
 - Sarah P. Flanagan, September 2015 (Oral Presentation), *Pipefish World: Engaging citizens in biology through photographs*, Science Café, Bryan, TX
 - Kathryn Wedemeyer-Strombel and Sarah P. Flanagan, June 2015 (Oral Presentation and Demonstration), How to help seahorses and sea turtles avoid living in trash, Primrose Griffin Park School, Frisco, TX
 - Sarah P. Flanagan, March 2014, (Oral Presentation) *Pipefish World: Engaging citizens in biology through photographs*, Brazos Valley Aquarium Society, TX
 - Emily Rose and Sarah P. Flanagan, October 2011, (Oral Presentation and Demonstration), Marine biology and seahorses, Alton Elementary School, Brenham, TX
 - Sarah P. Flanagan and students in Colby College BI493: Problems in Environmental Science Course, November 2010, (Oral Presentation), Impacts of shoreline development on the littoral zone of Great Pond, Belgrade Lakes Association, Belgrade, ME
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REFERENCES

Adam Jones

Professor, Biology Department, Texas A&M University

Relationship: PhD Advisor

Phone: (979) 845-7774

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Gunilla Rosenqvist

Professor, Centre for Biodiversity Dynamics, Norwegian University of Science and Technology

Relationship: Research Collaborator

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Email: gunilla.rosenqvist@ntnu.no

Ginger Carney

Associate Professor, Biology Department, Texas A&M University

Relationship: Graduate Teaching Assistant Supervisor

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