

Anna E. Savage
Curriculum Vitae

University of Central Florida
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Department of Biology
4110 Libra Drive
Orlando, Florida 32816-2368

EDUCATION

- 2005 – 2012 **Ph.D. in Ecology and Evolutionary Biology**
Cornell University, Ithaca, NY, USA
Dissertation advisor: Kelly R. Zamudio
- 2000 – 2004 **B.A. in Biology**
Amherst College, Amherst, MA, USA
summa cum laude with Distinction
Thesis advisor: Jill S. Miller

POSITIONS HELD

- 2020 – present **Associate Professor**
Department of Biology
University of Central Florida, Orlando, FL, USA
***Genomics and Bioinformatics Research Cluster member*
***Sustainable Coastal Systems Research Cluster member*
- 2015 – 2020 **Assistant Professor**
Department of Biology
University of Central Florida, Orlando, FL, USA
***Genomics and Bioinformatics Research Cluster member*
***Sustainable Coastal Systems Research Cluster member*
- 2012 – 2015 **Molecular Evolution Postdoctoral Fellow**
Smithsonian Institution, Washington, DC
(salary and research funding, 2 years)
- 2008 – 2011 **Graduate Teaching Assistant**
Department of Ecology and Evolutionary Biology
Cornell University, Ithaca, NY, USA
- 2009 **Research Assistantship**
Cornell Center for a Sustainable Future (dissertation research)
- 2007 **Research Assistantship**
University of Nevada, Las Vegas School of Life Sciences
(microsatellite marker development)
- 2006 – 2010 **National Science Foundation Graduate Research Fellow**
Cornell University, Ithaca, NY, USA
(salary and tuition, 3 years)
- 2005 – 2006 **Presidential Genomics Fellow**
Cornell University, Ithaca, NY, USA

(salary and tuition, 1 year)

2004 – 2005

Laboratory Technician

Department of Biology

Amherst College, Amherst, MA, USA

RESEARCH

PEER-REVIEWED PUBLICATIONS

*graduate or **undergraduate student under my supervision

‡corresponding author

32. **Savage, A. E.‡**, B. Gratwicke, K. Hope, E. Bronikowski, and R. C. Fleischer (2020). Immune activation is associated with susceptibility to the amphibian chytrid fungus. *Molecular Ecology* 29: 2889-2903.
31. Rivera, B.** , K. Cook, K. Andrews, M. S. Atkinson*, **A.E. Savage‡** (2019). Pathogen dynamics differ in an invasive island-dwelling frog compared to native species. *EcoHealth* 16: 222-234.
30. Urgiles. V.L.* , P. Szekely, D. Szekely, N. Christodoulides*, J.C. Sanchez-Nivicela, **A.E. Savage** (2019). Genetic delimitation of *Pristimantis orestes* (Lynch 1979) and *P. saturninoi* Brito et al., 2017 and the description of two new terrestrial frogs from the *Pristimantis orestes* species group (Anura, Strabomantidae). *ZooKeys* 864: 111-146.
29. **Savage, A. E.‡**, C. R. Muletz-Wolz, E. H. Campbell Grant, R. C. Fleischer, K. P. Mulder* (2019). Functional variation at an expressed MHC class II β locus associates with *Ranavirus* infection intensity in larval anuran populations. *Immunogenetics* 71: 335-346.
28. Lawrance, M., E. Sutton**, K. L. Mansfield, **A. E. Savage‡** (2018). Molecular evolution of fibropapilloma-associated herpesviruses infecting juvenile green and loggerhead sea turtles. *Virology* 521C: 190-197.
27. Karwacki, E.** , M. Atkinson*, R. J. Ossiboff, **A. E. Savage‡** (2018). A novel quantitative PCR assay specific for the emerging Perkinsea amphibian pathogen reveals seasonal infection dynamics across anuran families and life stages. *Diseases of Aquatic Organisms* 129: 85-98.
26. **Savage, A. E.‡**, K. P. Mulder*, T. Torres**, S. Wells (2018). Lost but not forgotten: MHC genotypes predict overwinter survival despite depauperate MHC diversity in a declining frog. *Conservation Genetics* 19: 309-322.
25. Lebert, B. M.** , S. A. Sanford**, L. M. Reisinger**, A. M. Forsman, **A. E. Savage‡** (2017). Draft genome sequence of *Xenophilus* sp., a novel bacterium isolated from skin of a southern leopard frog (*Rana sphenocephala*) in Florida, USA. *Genome Announcements* 5: e01067-17.
24. Mulder, K. P.* , M. Cortazar-Chinarro, D. J. Harris, A. Crottini, E. H. C. Grant, R. C. Fleischer, **A. E. Savage‡** (2017). Evolutionary dynamics of an expressed MHC class II locus in the Ranidae (Anura) uncovered by genome walking and high-throughput amplicon sequencing. *Developmental and Comparative Immunology* 76: 177-188.
23. Horner, A. A.* , E. Hoffman, T. Hether, M. Tye, **A.E. Savage‡** (2017). Cryptic chytridiomycosis linked to climate and genetic variation in amphibian populations of

- the southeastern United States. *PLoS One* 12: e0175843.
22. **Savage, A. E.**[#], K. A. Terrell, B. Gratwicke, N. M. Mattheus*, L. Augustine, R. C. Fleischer (2016). Reduced immune function predicts disease susceptibility in frogs infected with a deadly fungal pathogen. *Conservation Physiology* 4: cow011.
 21. **Savage, A. E.**[#], K. R. Zamudio (2016). Adaptive tolerance to a pathogenic fungus drives major histocompatibility complex evolution in natural amphibian populations. *Proceedings of the Royal Society of London B: Biological Sciences* 283: 20153115.
 20. Longo, A. V.[#], **A. E. Savage**, I. Hewson, K. R. Zamudio (2015). Seasonal and ontogenetic variation of skin microbial communities and relationships to natural disease dynamics in declining amphibians. *Royal Society Open Science* 2: 140377.
 19. **Savage, A. E.**[#], C. G. Becker, K. R. Zamudio (2015). Linking genetic and environmental factors in amphibian disease risk. *Evolutionary Applications* 8: 560-572.
 18. Becker, M. H.[#], J. B. Walke, S. Cikanek, **A. E. Savage**, N. Mattheus*, C. Santiago, K. P. C. Minbiole, R. N. Harris, L. K. Belden, B. Gratwicke (2015). Composition of symbiotic bacteria predicts survival in Panamanian golden frogs infected with a lethal fungus. *Proceedings of the Royal Society of London B: Biological Sciences* 282: 21042881.
 17. Lenker, M. A.^{**#}, **A. E. Savage**, C. G. Becker, D. Rodriguez, K. R. Zamudio (2014). *Batrachochytrium dendrobatidis* infection dynamics vary seasonally in Upstate New York. *Diseases of Aquatic Organisms* 111: 51-60.
 16. **Savage, A. E.**[#], K. M. Kiemnec-Tyburczy, A. R. Ellison, R. C. Fleischer, K. R. Zamudio (2014). Conservation and divergence in the frog immunome: pyrosequencing and de novo assembly of immune tissue transcriptomes. *Gene* 542: 98-108.
 15. Ellison, A. R.[#], **A. E. Savage**, G. V. DiRenzo, P. Langhammer, K. R. Lips, K. R. Zamudio (2014). Fighting a losing battle: vigorous immune response countered by pathogen suppression of host defenses in a chytridiomycosis-susceptible frog. *Genes, Genomes, Genetics* 4: 1275-89.
 14. Kiemnec-Tyburczy, K. M.[#], J. Q. Richmond, **A. E. Savage**, K. R. Lips and K. R. Zamudio (2012). Genetic diversity of class I MHC loci in six non-model frogs is shaped by positive selection and gene duplication. *Heredity* 109: 146-55.
 13. Velo-Antón, G.[#], D. Rodríguez, **A. E. Savage**, G. Parra-Olea, K. R. Lips and K. R. Zamudio (2012). Frog-killing fungus spreads across new world populations. *Biological Conservation* 146: 213–218.
 12. **Savage, A. E.**[#] and K. R. Zamudio (2011). MHC genotypes associate with resistance to a frog-killing fungus. *Proceedings of the National Academy of Sciences U.S.A.* 108: 16705-10.
 11. **Savage, A. E.**[#], M. J. Sredl, and K. R. Zamudio (2011). Disease dynamics vary spatially and temporally in a North American amphibian. *Biological Conservation* 144: 1910-5.
 10. **Savage, A. E.**[#], L.L. Grismer, S. Anuar, K. O. Chan, J. L. Grismer, E. Quah, M. A. Muin, N. Ahmad, M. Lenker* and K. R. Zamudio (2011). First record of *Batrachochytrium dendrobatidis* infecting four frog families from Peninsular Malaysia. *EcoHealth* 8: 121-8.
 9. Kiemnec-Tyburczy, K. M.[#], J. Q. Richmond, **A. E. Savage**, and K. R. Zamudio (2010). Selection, trans-species polymorphism and locus identification of major

histocompatibility complex class II β alleles of New World ranid frogs.
Immunogenetics 62: 741-51.

8. Grismer, L. L.[‡], K. O. Chan, E. Quah, M. A. Muin, **A. E. Savage**, J. L. Grismer, N. Ahmad, L. F. Greer, A.-C. Remigio (2010). Another new, diminutive Rock Gecko (*Cnemaspis* Strauch) from Peninsular Malaysia and a discussion of resource partitioning in sympatric species pairs. *Zootaxa* 2569: 55-66.
7. Chan, K. O.[‡], L. L. Grismer, S. Anuar, E. Quah, M. A. Muin, **A. E. Savage**, J. L. Grismer, N. Ahmad, A.-C. Remigio and L. F. Greer (2010). A new endemic rock Gecko *Cnemaspis* Strauch 1887 (Squamata: Gekkonidae) from Gunung Jerai, Kedah, northwestern Peninsular Malaysia. *Zootaxa* 2576: 59-68.
6. Richmond, J. Q.[‡], **A. E. Savage**, E. B. Rosenblum, and K. R. Zamudio (2009). Towards immunogenetic studies of amphibian chytridiomycosis: Linking innate and acquired immunity. *BioScience* 59: 311-20.
5. **Savage, A. E.**[‡], J. R. Jaeger (2008). Isolation and characterization of microsatellite markers in the lowland leopard frog (*Rana yavapaiensis*) and the relict leopard frog (*R. onca*), two declining frogs of the North American desert southwest. *Molecular Ecology Resources* 9: 199-202.
4. **Savage, A. E.**, J. R. Cavatorta[‡], I. Yeam, S. M. Gray, and M. M. Jahn (2008). Positive Darwinian selection at single amino acid sites conferring plant virus resistance. *Journal of Molecular Evolution* 67: 551-9.
3. **Savage, A. E.**[‡], and J. S. Miller (2006). Gametophytic self-incompatibility in *Lycium parishii* (Solanaceae): Allelic diversity, genealogical structure, and patterns of molecular evolution at the S-locus. *Heredity* 96: 434-44.
2. Yeung, K.[‡], J. S. Miller, **A. E. Savage**, B. C. Husband, B. Igic, and J. R. Kohn (2005). Association of ploidy and sexual system in *Lycium californicum* (Solanaceae). *Evolution* 59: 2048-55.
1. **Savage, A.**[‡], and J. Atema (2003). Neurochemical modulation of behavioral response to chemical stimuli in *Homarus americanus*. *Biological Bulletin* 205: 222-3.

Manuscripts under review or accepted for publication

- Rittenburg, L.^{**}, J.R. Kelley, K. L. Mansfield, **A. E. Savage**[‡]. Marine leeches are associated with the tumor disease fibropapillomatosis in green sea turtles but not in loggerhead sea turtles. *Diseases of Aquatic Organisms*, **accepted**.
- Trujillo, A.L., E. A. Hoffman, C. G. Becker, **A. E. Savage**[‡]. Spatiotemporal adaptive evolution of immune genes in a frog-fungus disease system. *Heredity*, **under revision**.
- Karwacki, E.^{**}, K. Martin^{*}, **A. E. Savage**. One hundred years of infection with three global pathogens in amphibian populations of Florida, USA. *Biological Conservation*, **under review**.

BOOK CHAPTERS

- Storfer, A., C. P. Kozakiewicz, M. A. Beer, and **A. E. Savage**. Applications of population genomics for understanding and mitigating wildlife disease. In: *Population Genomics of Wildlife* (2020). Paul Holenhe and Om Rajora, editors.

OTHER PUBLICATIONS

Seigel, R. A., W. Saffell, C. Patterson, B. Durkin, S. Martin, M. Lawrance, and **A. E. Savage**. Compensatory damages: Wetland creation could lead to the spread of disease. *Roads and Bridges Magazine*, April 2017.
 <<https://www.roadsbridges.com/compensatory-damages>>

GRANTS

Total external UCF grant dollars: \$910,118 (\$439,912 credited to me)

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|------|--|-----------|
| 2019 | <i>Florida Institute of Oceanography</i> “Understanding genomic, behavioral, and microbial drivers of ontogenetic shifts in early sea turtle foraging ecology and habitat use K. Mansfield, UCF (PI), A. E. Savage (Co-PI; 30% credit split) ; A. Forsman, UCF (Co-PI), E. Seney, UCF (Co-PI) Start date: TBD in 2020 | \$339,867 |
| 2019 | <i>UCF Seed Funding Program ER1 Grant</i> “Implementing genome editing techniques in threatened frogs to understand immunity to a globally devastating infectious disease” A. E. Savage (PI; 100% credit) | \$29,296 |
| 2019 | <i>Florida Fish and Wildlife Conservation Commission</i> “Using disease ecology, population genetics and environmental detection to understand and mitigate a recent African clawed frog invasion in the Tampa Bay area: Year 2” A. E. Savage (PI; 55% credit split) ; E. Hoffman, UCF (Co-PI) | \$47,478 |
| 2018 | <i>Sea Turtle Conservancy</i> “Immune gene and pathogen drivers of fibropapillomatosis in Florida’s juvenile green and loggerhead sea turtles: Year 2” A. E. Savage (PI; 75% credit split) ; K. Mansfield, UCF (Co-PI) | \$21,966 |
| 2018 | <i>Florida Fish and Wildlife Conservation Commission</i> “Using disease ecology, population genetics and environmental detection to understand and mitigate a recent African clawed frog invasion in the Tampa Bay area” A. E. Savage (PI; 55% credit split) ; E. Hoffman, UCF (Co-PI) | \$41,152 |
| 2017 | <i>Florida Department of Transportation</i> “Using genetics and ecology to identify optimal conservation strategies for Florida scrub-jays (<i>Aphelocoma coerulescens</i>) impacted by habitat loss.” A. E. Savage (PI; 50% credit split) ; E. Hoffman, UCF (Co-PI); A. M. Forsman, UCF (Co-PI), D. Breininger, KSC (Co-PI) | \$232,954 |
| 2017 | <i>Sea Turtle Conservancy</i> | \$17,630 |

- “Identifying genetic and pathogen drivers of fibropapillomatosis in Florida’s juvenile green and loggerhead sea turtles”
A. E. Savage (PI; 75% credit split); K. Mansfield, UCF (Co-PI)
- 2016 *National Fish and Wildlife Foundation* \$132,078
 “Ecological and genomic determinants of ontogenetic habitat shifts among oceanic stage turtles in the Gulf of Mexico: A predictive toolkit for responding to future anthropogenic change”
 K. Mansfield, UCF (PI); **A. E. Savage (co-PI; 50% credit split)**
- 2016 *Smithsonian Global Genome Initiative Grant* \$22,000
 “Unraveling co-evolutionary dynamics of frog and fungal genomes to understand infectious disease”
 R. Fleischer, Smithsonian Institution (PI), **A. E. Savage (co-PI; 0% dollar credit split; additional \$11,140 contributed in kind from start up to fund the total project)**, K. P. Mulder (co-PI).
- 2016 *Florida Fish and Wildlife Conservation Commission* \$76,993
 “Impacts of Gopher tortoise (*Gopherus polyphemus*) temporary exclusion and relocation on spatial habitat use, survival, immunity, and disease”
A. E. Savage (PI; 100% credit split).
- 2015 *UCF College of Sciences SEED Grant* \$30,000 + \$6,600 Biology match
 “SmartPhrog: A responsive low-cost high-performance bioacoustics solution using the Raspberry Pi single-board computer for frog population monitoring”
A. E. Savage (PI; 33.34% credit split), Shaojie Zhang, UCF Dept. of Electrical Engineering and Computer Science (co-PI), Yier Jin, UCF Dept. of Electrical Engineering and Computer Science (co-PI)
- 2013 *Smithsonian Competitive Grants Program for Science* \$99,000
 B. Gratwicke, Smithsonian Institution (PI), **A. E. Savage (co-PI)**, R. Fleischer, Smithsonian Institution (co-PI)
- 2012 *Association of Zoos & Aquariums Conservation Endowment Fund* \$22,506
A. E. Savage (PI), Stuart Wells, Phoenix Zoo (co-PI).
- 2012 *Central Arizona Project Grant* \$10,000
A. E. Savage (PI), Stuart Wells, Phoenix Zoo (co-PI).
- 2012 *Amazon Web Services Education Research Grant* \$2,500
A. E. Savage (PI)
- 2011 *Smithsonian Institution Next Generation Sequencing Small Grant* \$7,500
 R. Fleischer, Smithsonian Institution (PI), **A. E. Savage (co-PI)**, B. Gratwicke, Smithsonian Institution (co-PI).
- 2010 *Cornell University Center for Vertebrate Genomics* \$13,744
 Kelly Zamudio, Cornell University (PI), **A. E. Savage (co-PI)**.
- 2009 *NSF Doctoral Dissertation Improvement Grant* \$15,000

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| 2008 | <i>Amherst College Graduate Research Grant</i> | \$10,800 |
| 2007 | <i>National Geographic Society Young Explorers Grant</i> | \$5,000 |
| 2007 | <i>Cornell University Andrew W. Mellon Research Grant</i> | \$1,000 |
| 2007 | <i>Amherst College Graduate Research Grant</i> | \$3,000 |
| 2006 | <i>Cornell University Center for the Environment</i> | \$3,250 |
| 2006 | <i>Cornell University Andrew W. Mellon Research Grant</i> | \$1,400 |
| 2006 | <i>Amherst College Graduate Research Grant</i> | \$2,100 |

RESEARCH GRANTS AWARDED TO STUDENTS UNDER MY SUPERVISION

**graduate or **undergraduate student*

Extramural grants

| | | |
|------|---|-----------------------------|
| 2019 | Veronica Urgiles* ASIH Helen T. and Frederick M. Gaige Award | \$900 |
| 2019 | Katherine Martin* ASIH Helen T. and Frederick M. Gaige Award | \$900 |
| 2019 | Kevin Mulder * Secretary's Research Award | \$2000 |
| 2018 | Matthew Atkinson* Sixma Xi Grant-in-Aid of Research | \$500 |
| 2018 | Jayde Reid** Sixma Xi Grant-in-Aid of Research | \$1000 |
| 2018 | Veronica Urgiles* Explorers Club Exploration Fund | \$1200 |
| 2018 | Veronica Urgiles* Linnean Society research grant | \$950 |
| 2018 | Kevin Mulder* National Museum of Natural History ADS grant | \$7200 |
| 2018 | Matthew Atkinson* E.E. Williams Research Grant | \$1000 |
| 2017 | Kevin Mulder* Smithsonian Institution Predoctoral student fellowship and research allowance | \$37,500 |
| 2017 | Veronica Urgiles* National Geographic Society Early Career Grant | \$4970 |
| 2017 | Ariel Horner* Explorers Club Exploration Fund | \$1500 |
| 2017 | Emily Karwacki** Explorers Club Youth Activity Fund | \$1250 |
| 2017 | Ariel Horner* Jacksonville Zoo research grant | \$1600 |
| 2016 | Kevin Mulder* Explorers Club Exploration Fund | \$2260 |
| 2016 | Kevin Mulder* Mohammed bin Zayed Species Conservation Fund | €11,000 (= \$13,708) |
| 2016 | Kevin Mulder* Leipzig Bioinformatics (IZBI) grant | €1000 (= \$1246) |
| 2016 | Zachary Rivas** Theodore Roosevelt Memorial Grant | \$3500 |

UCF grants

- 2019 Leah Rittenburg** Summer Undergraduate Research Fellowship **\$1500**
- 2019 Brittany Gray** Summer Undergraduate Research Fellowship **\$1500**
- 2019 Leah Rittenburg** Distinguished Undergraduate Research Award **\$200**
- 2019 Eleni Triantafyllopoulo** Distinguished Undergraduate Research Award **\$200**
- 2018 Matthew Atkinson* College of Sciences Doctoral Research Support Award **\$5000**
- 2018 Leah Rittenburg** Office of Undergraduate Research Grant **\$500**
- 2018 Eleni Triantafyllopoulo** Office of Undergraduate Research Grant **\$500**
- 2017 Sire Kassama** Office of Undergraduate Research Grant **\$900**
- 2017 Eleni Triantafyllopoulo** Office of Undergraduate Research Grant **\$500**
- 2016 Zachary Rivas** Office of Undergraduate Research Grant **\$500**
- 2016 Emily Karwacki** Office of Undergraduate Research Grant **\$500**
- 2016 Sanabel Mahmoud** Office of Undergraduate Research Grant **\$500**
- 2015 Tyler Stuck** Office of Undergraduate Research Grant **\$150**

ORAL PRESENTATIONS

Invited Seminars

- 2020 “Evolutionary dynamics of infectious diseases in ectothermic vertebrates.” Invited Biology Department seminar, University of Florida, Gainesville FL (presented over Zoom)
- 2020 “Cold-blooded killers: Eco-evolutionary dynamics of wildlife epidemics.” LIFE @ UCF invited seminar, University of Central Florida, Orlando, FL (presented over Zoom)
- 2020 “Cold-blooded killers: Eco-evolutionary dynamics of wildlife epidemics.” College of Sciences Distinguished Speaker Series, University of Central Florida, Orlando, FL (presented over Zoom)
- 2019 “Evolutionary dynamics of infectious diseases in ectothermic vertebrates.” Invited Biology Department seminar, University of Illinois Urbana-Champaign, Champaign County, IL
- 2019 “Evolutionary dynamics of infectious diseases in ectothermic vertebrates.” Invited Biology Department seminar, Southern Illinois University, Carbondale, IL
- 2018 “Application of genomics for understanding and mitigating wildlife disease.” Invited talk, Fish And Wildlife Health Forum, USGS Headquarters, Reston, VA
- 2018 “Adaptation to emergent infectious diseases in natural populations of frogs and marine turtles.” Invited talk, Georgia Sea Turtle Center, Jekyll Island, GA

- 2018 "Adaptation to emergent infectious diseases in natural populations of amphibians and reptiles." Herpetology Society invited research talk, Eckerd College, St. Petersburg, FL
- 2017 "Host adaptation to chytrid fungi in amphibians." Plenary invited talk, ASM Microbe, New Orleans, LA
- 2017 "Evolutionary dynamics of infectious diseases in ectothermic vertebrates." Graduate student invited speaker, Savannah River Ecology Lab (University of Georgia), Aiken, SC
- 2017 "Career transitions from graduate student to postdoc to faculty member." Graduate student invited workshop, Savannah River Ecology Lab (University of Georgia), Aiken, SC
- 2017 "Evolutionary dynamics of infectious diseases in ectothermic vertebrates." Invited seminar, American Museum of Natural History (Richard Gilder Graduate School), New York, NY
- 2017 "Evolutionary dynamics of infectious diseases in ectothermic vertebrates." Invited seminar, UC Davis Center for Population Biology, Davis, CA
- 2016 "Infectious disease linked to climate and genetic variation in amphibian populations of the southeastern United States." Invited talk for the symposium *Spotlight Session: Everglades and Wetlands Science Part 2: Cellular, Genetic and Toxicological Outcomes of a Changing Habitat*, Society of Environmental Toxicology and Chemistry Annual Meeting, Orlando, FL
- 2016 "RNAseq as a tool for understanding wildlife disease genetics." Invited workshop presentation, Cutting Edge Tools in Biotechnology Instrumentation and Methods, Wildlife Disease Association Annual Meeting, Cortland, NY
- 2016 "Immunogenetics of disease tolerance in an amphibian-fungus host pathogen system." Invited seminar, University of Massachusetts Dartmouth, Dartmouth, MA.
- 2016 "Functional genomics of chytridiomycosis susceptibility in the lowland leopard frog," Fish and Wildlife Disease Working Group meeting, USGS Southeast Ecological Science Center.
- 2015 "Functional immunogenomics of susceptibility to a frog-killing fungus." Invited seminar, University of South Florida, Tampa, FL.
- 2015 "Functional immunogenomics of tolerance in an amphibian-fungus host pathogen system." Invited speaker, *Frontiers in Phylogenetics Symposium*, Smithsonian National Museum of Natural History, Washington, DC.
- 2015 "Evolution of host resistance in frogs infected with a deadly fungal pathogen." Invited talk in the Department of Biology's public symposium titled "*Rapid Genetic*

Change in Response to Climate Pressures: What Do We Need to Know?
University of Massachusetts Boston, Boston, MA.

- 2013 “Immunogenetic adaptation to a frog-killing fungus.” Invited seminar, Arizona State University, Tempe, AZ
- 2013 “Immunogenetic adaptation to a frog-killing fungus in Southwestern North America.” The Nature Conservancy brown bag seminar, Tucson, AZ
- 2013 “Frogs, Immunity, and Chytridiomycosis: A Genetic Approach.” Phoenix Zoo conservation lecture, Phoenix, AZ
- 2013 “Scientific Frog/Fraud.” thirstDC: Smithsonian Edition. U Street Music Hall, DC. <<http://thirstdc.com/speakers.php>>
- 2013 “Amphibian Declines and Chytridiomycosis.” NSC Biodiversity Academy for Teachers. National Zoological Park, Washington, DC
- 2012 “Immunogenetic adaptation to a frog-killing fungus in Southwestern North America.” Closer Look seminar, National Geographic Society, Washington, DC
- 2012 “Immunogenetic adaptation to a frog-killing fungus.” Biology Department Seminar, Amherst College, Amherst, MA
- 2012 “Immunogenetic adaptation to a frog-killing fungus.” Smithsonian Conservation Biology Institute Seminar Series, National Zoological Park, Washington, DC
- 2011 “Immunogenetic adaptation to a frog-killing fungus.” Invited seminar, Tucson Herpetological Society, Tucson, AZ
- 2009 “Global amphibian declines and chytridiomycosis in lowland leopard frogs.” Guest lecture, Introductory Biology (BIOG1109), Cornell University, Ithaca, NY
- 2009 “Population genetics of chytridiomycosis in *Lithobates yavapaiensis*, the lowland leopard frog.” Invited talk, Northeast Partners for Amphibian and Reptile Conservation (NEPARC) regional meeting, Watkins Glen, NY
- 2009 “Evolution of chytridiomycosis resistance in *Lithobates yavapaiensis*, the Arizona lowland leopard frog.” Biology Department Seminar, Ithaca College, Ithaca, NY
- 2009 “Global amphibian declines and chytridiomycosis.” Guest lecture, Herpetology (BIOEE478), Cornell University, Ithaca, NY
- 2009 “Global amphibian declines and chytridiomycosis in the lowland leopard frog.” Guest lecture, Conservation Biology, Amherst College, Amherst MA
- 2008 “Frogs and fungus: global amphibian declines.” Guest lecture, Introductory Biology (BIOG1109), Cornell University, Ithaca, NY

Regional, National and International Conference Presentations

**graduate or **undergraduate student under my supervision*

- 2020 Atkinson, M.S.* , **A. E. Savage**. Understanding the implications of *Perkinsea* infection in Cuban treefrogs (*Osteopilus septentrionalis*). Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Nauvoo, AL

- 2020 LaFond, J.*, **A. E. Savage**. MHC diversity in *Rana yavapianensis*: A twelve-year comparison of immunogenetic variation in the presence of *Batrachochytrium dendrobatidis* (Bd). Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Nauvoo, AL
- 2019 Urgiles, V.*, **A. E. Savage**. "Diversification of Terrestrial Frogs in a High Altitude Tropical Hotspot." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Snowbird, UT
- 2019 Karwacki, E.** , K.R. Martin*, **A. E. Savage**. " 100 Years of Infection With Three Global Pathogens in Amphibian Populations of Florida, USA." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Snowbird, UT
- 2019 Atkinson, M.S.* , **A. E. Savage**. " Impacts of the emergent protistan pathogen *Perkinsea* on Florida's amphibian communities." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Snowbird, UT
- 2019 Martin, K.R.* , K. L. Mansfield, **A. E. Savage**. "Evolutionary dynamics and disease associations of immune genes in nearshore juvenile green and loggerhead turtles." 39th International Sea Turtle Symposium, Charleston, SC
- 2019 Kelley, J., **A. E. Savage**, K. L. Mansfield. "Evolutionary dynamics and disease associations of immune genes in nearshore juvenile green Hierarchical occupancy modeling to account for imperfect herpesvirus detection in the fibropapillomatosis disease system." 39th International Sea Turtle Symposium, Charleston, SC
- 2019 Atkinson, M.S.* , E. A. Hoffman, E. Karwacki, **A. E. Savage**. "Impacts of invasive *Xenopus laevis* on disease ecology of native Florida amphibians." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Asheville, NC
- 2019 **Savage, A. E.**, A.L. Trujillo, E. A. Hoffman. "Spatiotemporal phylogeography of immune genes in the frog-fungus disease system." Society for Integrative and Comparative Biology annual meeting, Tampa, FL
- 2018 **Savage, A. E.**, J. O. H. Napier*. "Movement Ecology, Homing Behavior, and Pathogen Infections in Gopher Tortoises (*Gopherus polyphemus*) Following Temporary Exclusion." Gopher Tortoise Council Annual Meeting, Archbold Biological Station, Lake Placid, FL
- 2018 Christodoulides, N.* , J. Konvalina, J. LaFond*, **A. E. Savage**. "In the Zone: Utilizing Transcriptomic Data to Predict Basking Behavior Classification in Reptile and Amphibian Species." Graduate Research Forum, University of Central Florida, Orlando, FL
- 2018 **Savage, A. E.**, M. Lawrance, E. Sutton**, K. L. Mansfield. "Genetic and Pathogen Drivers of a Benign Tumor Disease in Juvenile Green and Loggerhead Sea Turtles." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA
- 2018 Atkinson, M.S.* , Karwacki, E.** , **A. E. Savage**. "Impacts of the Emergent Protistan Pathogen *Perkinsea* on Florida's Amphibian Communities." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA

- 2018 Trujillo, A., **A. E. Savage**. "Evolutionary Dynamics of an Expressed Class II MHC Gene in Ranid Frog Populations Impacted by Emerging Infectious Diseases." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA
- 2018 Karwacki, E.** , **A. E. Savage**. "Establishing a Timeline for Three Infectious Pathogens Affecting Anurans Within Florida, USA." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA
- 2017 Atkinson, M.S.* , Karwacki, E.** , **A. E. Savage**. "A novel quantitative PCR assay specific for the emerging amphibian pathogen *Dermomycooides* spp. reveals widespread infection in larval anurans." Fish and Wildlife Disease Working Group meeting, USGS, Gainesville, FL
- 2017 Karwacki, E.** , Atkinson, M.S.* , **A. E. Savage**. "A novel quantitative PCR assay specific for the emerging amphibian pathogen *Dermomycooides* spp. reveals widespread infection in larval anurans." Southeastern Ecology and Evolution Conference (SEEC), Florida Gulf Coast University, Estero, FL
- 2017 Sutton, E.** , M. Lawrance, K.L. Mansfield, **A. E. Savage**. "A comprehensive approach to surveillance, epidemiology and genetic analyses of Chelonid Fibropapilloma-associated Herpesvirus in marine turtles." Southeastern Ecology and Evolution Conference (SEEC), Florida Gulf Coast University, Estero, FL
- 2017 **Savage, A. E.**, M. Lawrance, E. Abney**, and K. L. Mansfield. "Co-Evolution of Immune Genes and Herpesviruses in Juvenile Green and Loggerhead Sea Turtles." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Austin, TX
- 2017 Fleischer, R. C., **A. E. Savage**, L. C. Sackett, K. Paxton, C. Atkinson, B. Gratwicke. "Genomic and transcriptomic assessments of host response to invasive pathogens." *Conservation of Adaptive Potential and Functional Diversity Conference, Durham University, Durham, UK*
- 2017 Trujillo, A., M. Lawrance, K. Oknefski**, R. Seigel, **A. E. Savage**. "Evolutionary Dynamics of an Expressed Class II MHC Gene in Ranid Frog Populations Impacted by Emerging Infectious Diseases." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Austin, TX
- 2017 Atkinson, M.S.* , E. Karwacki**, **A. E. Savage**. "A novel quantitative PCR assay specific for the emerging amphibian pathogen *Dermomycooides* spp. reveals widespread infection in larval anurans." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Austin, TX
- 2017 **Savage, A. E.**, M. Lawrance, and K. L. Mansfield. "Evolutionary dynamics of herpesvirus and fibropapillomatosis in green and loggerhead sea turtles." International Sea Turtle Symposium, Las Vegas, NV
- 2017 Kelley, J., M. Lawrance, **A. E. Savage**, K. L. Mansfield. "Temporal analysis of chelonid fibropapilloma-associated herpesvirus (CFPHV) prevalence in juvenile green turtles (*Chelonia mydas*) at two coastal foraging grounds" International Sea Turtle Symposium, Las Vegas, NV
- 2017 **Savage, A. E.**, K. P. Mulder* , T. Torres**, S. Wells. "Lost But Not Forgotten: Class II MHC Genotypes Predict Overwinter Survival Despite Depauperate MHC Diversity in a Threatened Frog." Society for Integrative and Comparative Biology annual meeting, New Orleans, LA

- 2016 Rivas, Z. P.**, **A. E. Savage**. "Exploring the relationship between *A. hydrophila* and *B. dendrobatidis* infection in two species of North American anurans." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, New Orleans, LA
- 2016 Horner, A. A.* , E. Hoffman, T. Hether, M. Tye, **A.E. Savage**. "Cryptic chytridiomycosis in declining anuran populations of the southeastern United States." Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA
- 2016 **Savage, A. E.**, B. Gratwicke, K. Hope, E. Bronikowski, and R. C. Fleischer. "Acquired immunity causes susceptibility in frogs infected with a deadly fungus." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, New Orleans, LA
- 2016 **Savage, A. E.**, M. Lawrance, and K. L. Mansfield. "Is herpesvirus infection in green sea turtles (*Chelonia mydas*) associated with the benign tumor disease fibropapillomatosis?" Wildlife Disease Association Annual Meeting, Cortland, NY
- 2016 **Savage, A. E.**, B. Gratwicke, K. Hope, E. Bronikowski, and R. C. Fleischer. "Acquired immunity causes susceptibility in frogs infected with a deadly fungus," Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, New Orleans, LA
- 2016 Seigel, R., W. Saffell, B. Durkin, M. Gutt, M. Lawrance, **A. E. Savage**. "Do constructed wetlands have higher rates of Ranavirus infection of amphibians compared with non-constructed sites?" Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, New Orleans, LA
- 2016 Mahmoud, S.**, **A. E. Savage**. "Heat shock proteins as quantifiable stress indicators in Bd infected amphibians." Southeastern Ecology and Evolution Conference (SEEC), Florida State University, Tallahassee, FL
***Second Place overall in the category of Undergraduate Oral Presentation*
- 2016 Horner, A. A.* , E. A. Hoffman, **A. E. Savage**. "Emerging pathogen infection for three sentinel amphibian species in the Southeastern United States". Speed talk. Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) annual meeting, Nauvoo, AL
- 2016 Horner, A. A.* , E. Hoffman, T. Hether, M. Tye, **A.E. Savage**. "Cryptic chytridiomycosis in declining anuran populations of the southeastern United States." Fish and Wildlife Disease Working Group meeting, USGS, Gainesville, FL
- 2015 Horner, A. A.* , Eric A. Hoffman, **A. E. Savage**. "Emerging pathogen infection for three sentinel amphibian species in the Southeastern United States". 15th Annual Amphibian Pathogens Meeting, Arizona State University, Tempe, AZ
- 2015 **Savage, A. E.**, B. Gratwicke, K. Hope, E. Bronikowski, R. C. Fleischer. "Functional genomics of chytridiomycosis susceptibility in the lowland leopard frog," 15th Annual Amphibian Pathogens Meeting, Arizona State University, Tempe, AZ
- 2015 Stuck, T.** , S. Zhang, Y. Jin, **A. E. Savage**. "SmartPhrog: A bioacoustic solution for frog population monitoring using Raspberry Pi." Oral presentation. The Southeastern Ecology and Evolution Conference (SEEC). University of Georgia, Athens GA
***Third Place overall in the category of Undergraduate Oral Presentation*

- 2014 **Savage, A. E.**, A. R. Ellison, G. V. DiRenzo., B. Gratwicke, K. R. Zamudio, R. C. Fleischer. "Evolution of host resistance: profiling the immunogenomic response of frogs infected with a deadly fungal pathogen." Invited presentation, Ecology and Evolution of Infectious Diseases conference, Fort Collins, CO
- 2013 **Savage, A. E.**, A. R. Ellison, K. R. Zamudio, R. C. Fleischer. "Conservation and Divergence in the Frog Immunome: Implications for Chytridiomycosis." In: *Symposium: Application of Molecular and Genetic Techniques to Wildlife Epidemiology*. The Wildlife Society Annual Meeting, Milwaukee, WI
- 2012 **Savage, A. E.**, A. R. Ellison, R. C. Fleischer, K. R. Zamudio. "The frog immunome and chytridiomycosis" World Congress of Herpetology, University of British Columbia, Vancouver, BC, Canada
- 2010 **Savage, A. E.**, K. R. Zamudio. "Evolution of resistance to chytridiomycosis in lowland leopard frogs." 10th Annual Amphibian Pathogens Meeting, Arizona State University, Tempe, AZ
- 2010 **Savage, A. E.**, K. R. Zamudio. "Evolution of immunogenetic resistance to chytridiomycosis" Evolution Annual Meetings, Portland State University, Portland, OR
- 2009 **Savage, A. E.**, K. R. Zamudio. "Susceptibility to experimental chytridiomycosis in the lowland leopard frog," Joint Meeting of Ichthyologists and Herpetologists, Portland, OR

POSTER PRESENTATIONS

**graduate or **undergraduate student under my supervision*

Regional, National and International Conference Presentations

- 2020 Blow, M.** , Atkinson, M.* , **A. E. Savage**. "Using eDNA to test whether Cuban treefrogs (*Osteopilus septentrionalis*) can amplify the amphibian pathogen *Perkinsea*." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Nauvoo, AL
- 2020 Fabiano, N.** , Atkinson, M.* , Karwacki, E., **A. E. Savage**. "Swabs as a nonlethal alternative for detection of the protistan pathogen *Perkinsea* in anurans." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Nauvoo, AL
- 2020 Galt, N.** , Atkinson, M.* , Glorioso, B., Waddle, H., **A. E. Savage**. "Ranavirus and *Perkinsea* infection dynamics vary with host characteristics among invasive Cuban treefrogs in Louisiana, USA." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Nauvoo, AL
- 2020 Rittenburg, L. T.** , Kelley, J. R.* , Mansfield, K. L., **A. E. Savage**. "Marine leeches are associated with the tumor disease fibropapillomatosis in green sea turtles but not in loggerhead sea turtles." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Nauvoo, AL
- 2019 Christodoulides, N.* , **A. E. Savage**. "Exploring immune gene expression and microbiome variation in natural populations of pathogen-tolerant and pathogen-susceptible amphibians." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Snowbird, UT

- 2019 Rittenburg, L.** , K. L. Mansfield, **A. E. Savage**. "Differences Between Genetic Lineages of Two Marine Leech Species in Host Preference and Correlation with Fibropapillomatosis and Chelonid Herpesvirus 5 in Sea Turtles." 39th International Sea Turtle Symposium, Charleston, SC
- 2019 Urgiles, V. L.* , **A. E. Savage**. "Diversification of terrestrial frogs in a remote high altitude tropical hotspot." Society for Integrative and Comparative Biology annual meeting, Tampa, FL
- 2019 LaFond, J.C.* , **A. E. Savage**. "Why won't Bullfrogs Die? A Study of Host Tolerance to Deadly, Fungal Pathogen." Society for Integrative and Comparative Biology annual meeting, Tampa, FL
- 2018 Mulder, K. P.* , R. Fleischer, **A. E. Savage**. "Combined sequence capture data targeting host immunity and pathogen virulence genes in chytrid-infected frogs across the genus *Rana* reveal co-evolutionary dynamics of chytridiomycosis." Second Joint Congress on Evolutionary Biology, Montpellier, France
- 2018 Brooks, M. R.** , J. O.H. Napier, **A. E. Savage**. "Impacts of gopher tortoise (*Gopherus polyphemus*) temporary exclusion and relocation on Ranavirus infection dynamics." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA
- 2018 Sutton, E.** , M. Lawrance, K. L. Mansfield, **A. E. Savage**. "A comprehensive approach to surveillance, epidemiology, and genetic analyses of chelonid fibropapilloma-associated herpesvirus in marine turtles." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA
- 2018 Rivera, B.** , K. Cook, K. Andrews, M. S. Atkinson, **A. E. Savage**. "*Batrachochytrium dendrobatidis* and Ranavirus infection differs in invasive compared to native island-dwelling frogs." Southeastern Partners in Amphibian and Reptile Conservation (SEPARC) Annual Meeting, Helen, GA
- 2017 Abney, E.** , M. Lawrence, **A. E. Savage**, K.L. Mansfield. "MHC class I and its influence on susceptibility to fibropapillomatosis in green turtles (*Chelonia mydas*) and loggerhead sea turtles (*Caretta caretta*)." 37th International Symposium on Sea Turtle Biology and Conservation, Las Vegas, NV
- 2017 Sutton, E.** , M. Lawrance, K. L. Mansfield, **A. E. Savage**. "A comprehensive approach to surveillance, epidemiology, and genetic analyses of chelonid fibropapilloma-associated herpesvirus in marine turtles." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Austin, TX
- 2017 Oknefski, K.** , A. Trujillo, M. Lawrance, **A. E. Savage**. "Impact of Genetic Structure on Pathogen Dynamics in North American Ranid Frogs." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, Austin, TX
- 2016 Stuck, T.** , S. Zhang, Y. Jin, **A. E. Savage**. "SmartPhrog: A Long-Term, Active Bioacoustic Monitoring Solution Using Raspberry Pi For Frog Population Monitoring." Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, New Orleans, LA
- 2015 Stuck, T.** , S. Zhang, Y. Jin, **A. E. Savage**. "Solar Pi: A Long-Term Bioacoustic Monitoring Solution Using Raspberry Pi." Southeastern Ecology & Evolution Conference (SEEC), University of Georgia, Athens, GA

UCF Conference Presentations

- 2019 Fabiano, N.** , M. S. Atkinson* , **A. E. Savage**. "Swabs as a Noninvasive Alternative to Tissue Samples for Detection of the Protistan Pathogen *Perkinsea* in Anurans." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
****Judges Choice Award (\$400)**
- 2019 Rittenburg, L.** , K. L. Mansfield, **A. E. Savage**. "Differences Between Genetic Lineages of Two Marine Leech Species in Host Preference and Correlation with Fibropapillomatosis and Chelonid Herpesvirus 5 in Sea Turtles." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
****Judges Choice Award (\$400)**
- 2019 Kane, R.** , I. Jensen** , D. J. Becker** , **A. E. Savage**. "De Novo Assembly and Characterization of the Green Sea Turtle (*Chelonia mydas*) Transcriptome: An RNA-Seq Study." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
****Judges Choice Award (\$400)**
- 2019 Triantafyllopoulo, E.** , M. S. Atkinson* , **A. E. Savage**. "Whole Genome Sequencing of the Emerging Protistan Pathogen *Perkinsea* to Better Understand Systematics and Taxonomy." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2019 Galt, N.** , M. S. Atkinson* , **A. E. Savage**. "Cuban Tree Frogs as Invasive Hosts for Three Major Amphibian Pathogens in New Orleans, LA." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2018 Triantafyllopoulo, E.** , M. S. Atkinson* , **A. E. Savage**. "Sequencing the Genome of the Emerging Protistan Pathogen *Perkinsea* (or *Dermomycooides Sp.*) to Better Understand the Taxonomy and Biology of the Organism." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2018 **LaFond, J.**, A. E. Savage. "Population immunogenetics of ranid frogs across species and time." Genomics and Bioinformatics Cluster Open House, University of Central Florida, Orlando, FL
- 2018 Rivera, B.** , K. Woods, K. Andrews, M. S. Atkinson* , **A. E. Savage**. "*Batrachochytrium dendrobatidis* and *Ranavirus* Detection in Invasive and Native Island Dwelling Frogs in Jekyll Island, GA, USA." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2018 Kassama, S.** , J. Hart, **A. E. Savage**. "Uncovering the Genetic Basis for an Important Seedling Root System Trait in Common Bean." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2018 Sarria, C.** , **A. E. Savage**. "Examining Genetic Variation of an Emerging Amphibian Pathogen to Understand Virulence." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL

- 2018 Saldanha, J.** , **A. E. Savage**. "Infection Dynamics of Herpes Virus in Gopher Tortoises." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2018 Karwacki, E.** , **A. E. Savage**. "Establishing a Timeline for Three Deadly Pathogens Affecting Frogs in Florida." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2017 Stuck, T.** , S. Zhang, Y. Jin, **A. E. Savage**. "Development and Comparative Analysis of a Novel Frog Population Bioacoustics Monitoring Technology." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2017 Rivera, B.** , K. Woods, K. Andrews, M. S. Atkinson* , **A. E. Savage**. "Monitoring Batrachochytrium dendrobatidis and Ranavirus Infection in Multiple Frog Species Across Jekyll Island, GA." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2017 Mas, M.** , A. M. Forsman, **A. E. Savage**. "A *De Novo* Transcriptome Assembly of *Lithobates sphenoccephalus* and Comparative Gene Expression to Understand Pathogen Effects." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2017 Abney, E.** , K. L. Mansfield, **A. E. Savage**. "MHC Class I and Susceptibility to Fibropapillomatosis in Green Turtles (*Chelonia mydas*) and Loggerhead Sea Turtles (*Caretta caretta*)." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2017 Karwacki, E.** , **A. E. Savage**. "Development of a Method for Detection of an Emerging Pathogen: *Dermomycooides spp.*" Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2016 Mahmoud, S.** , **A. E. Savage**. "Heat shock proteins as quantifiable stress indicators in Bd infected amphibians." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2016 Rivas, Z. P.** , **A. E. Savage**. "Is a Bacteria Contributing to the Death of North American Frogs Concurrently Infected with a Fungus?" Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2016 Stuck, T.** , S. Zhang, Y. Jin, **A. E. Savage**. "SmartPhrog: A bioacoustic solution for frog population monitoring using Raspberry Pi." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL
- 2016 Torres, T.** , **A. E. Savage**. "Predicting the Distribution of the Amphibian Pathogen *Batrachochytrium dendrobatidis* in Two Regions of the United States Using Species Distribution Modeling." Showcase of Undergraduate Research Excellence (SURE), University of Central Florida, Orlando, FL

TEACHING

COURSES TAUGHT

- 2019 Instructor, Evolutionary Biology (PCB 4683), and oversee three lab sections (PCB4683L), University of Central Florida
- 2018 Instructor, Genomics Lab (PCB 4445C-RI), University of Central Florida
- 2018 Instructor, Evolutionary Biology (PCB 4683), and oversee three lab sections (PCB4683L), University of Central Florida
- 2017 Instructor, Graduate Wildlife Genomics (PCB 5937)
- 2017 Instructor, Undergraduate Wildlife Genomics (PCB 4932)
- 2017 Instructor, Evolutionary Biology (PCB 4683), and oversee three lab sections (PCB4683L), University of Central Florida
- 2016 Instructor, Genomics Lab (PCB 4445C-RI), University of Central Florida
- 2016 Instructor, Evolutionary Biology (PCB 4683), and oversee three lab sections (PCB4683L), University of Central Florida
- 2015 Instructor, Evolutionary Biology (PCB 4683), and oversee three lab sections (PCB 4683L), University of Central Florida
- 2011 Graduate teaching assistant (discussion section instructor), Evolutionary Biology and Diversity (BIOEE 1740), Cornell University
- 2011 Graduate teaching assistant (lab instructor), The Vertebrates (BIOEE 2740), Cornell University
- 2009 Graduate teaching assistant (lab instructor), Herpetology (BIOEE 478), Cornell University
- 2008 Graduate teaching assistant (lab instructor), Introductory Biology for Non-Majors (BIOG 1109), Cornell University

STUDENT ADVISING

Adviser to 5 PhD students (1 graduated), 5 Master's students (2 graduated), and 2 HIM students (both graduated)

1. Committee Chair

PhD students

- 2018 – present Katherine Martin (UCF Biology PhD program)
- 2017 – present Nicholas Christodoulides (UCF Biology PhD program)
****Dean's Fellowship**
- 2016 – present Matthew Atkinson (UCF Biology PhD program)
****ORC Doctoral Fellowship**

- 2016 – present Kevin Mulder (CIBIO-InBio PhD program, University of Porto, Portugal.
Co-chair: Guillermo Velo-Anton, CIBIO
- 2017 – 2018 Jason Strickland (UCF Biology PhD program)
Co-chair: Christopher Parkinson, Clemson University
Graduated in 2018.

Master's students

- 2017 – present Veronica Urgiles (UCF Biology Master's Program)
****Fulbright Scholar**
- 2017 – present Jacob LaFond (UCF Biology Master's Program)
- 2017 – 2018 Katherine Mercier (UCF Biology Master's Program)
Co-chair: Christopher Parkinson, Clemson University
Graduated in 2018.
- 2015 – 2018 Johnathan Napier (UCF Biology Master's Program)
Graduated in 2018.
- 2015 – 2019 Ariel Horner (UCF Biology Master's Program)

Undergraduate Honors in the Major Thesis students

- 2017 – present Joanne Saldanha '18 (UCF Honors in the Major Program),
Graduated in 2018.
- 2015 – 2016 Zachary Rivas '16 (UCF Honors in the Major Program),
Graduated in 2016.

2. Committee member

PhD students

- 2019 – present Pavithiran Amirthalingam (UCF Biology PhD Program)
- 2019 – present Wesley Neely (Biology PhD Program, University of Alabama. Dissertation chair: C. Guilherme Becker)
- 2018 – present Ian Will (UCF Biology PhD Program)
- 2017 – 2019 Lauren Caspers (UCF Biology PhD Program)
- 2017 – present John Konvalina (UCF Biology PhD Program)
- 2017 – present Christopher Long (UCF Biology PhD Program)
- 2017 – 2018 Miles Zhang (UCF Biology PhD Program), **graduated**
- 2016 – 2019 Chloe Ramsey (Integrative Biology PhD program, University of South Florida, Tampa, FL. Dissertation chair: Jason Rohr), **transferred**

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|----------------|---|
| 2016 – present | Nicholas Massimo (School of Life Sciences PhD program, Arizona State University, Tempe, AZ. Dissertation chair: James P. Collins) |
| 2016 – present | Katrina Phillips (UCF Biology PhD Program) |
| 2016 – 2017 | Andrew Mason (UCF Biology PhD Program), transferred |
| 2015 – 2016 | Ying Wang (UCF Computer Science PhD Program), graduated |

Master's students

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|----------------|---|
| 2017 – 2018 | Janet Ho (UCF Biology Master's Program), graduated |
| 2016 – present | Jake Kelley (UCF Biology Master's Program) |
| 2016 – present | Corey Seavey (UCF Biology Master's Program) |
| 2016 – present | Michael Haney (UCF Biology Master's Program) |
| 2015 – 2017 | Dana Davis (UCF Biology Master's Program), graduated |
| 2015 – 2016 | Matthew Lawrance (UCF Biology Master's program), graduated |

Undergraduate Honors in the Major Thesis students

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| 2016 – 2018 | Jacqueline Meyer '18 (UCF Honors in the Major Program) |
| 2015 – 2016 | Grace Avecilla '16 (UCF Honors in the Major Program), graduated |

3. Other undergraduate researchers supervised

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|----------------|---|
| 2019 – present | Tamara Lee (UCF '20) |
| 2019 – present | Sydney Morton (UCF '22; T-L.E.A.R.N. program) |
| 2019 – present | Matt Blow (UCF '21) |
| 2019 – present | Zory Sanchez (UCF '20) |
| 2019 – present | Brittney Gray (UCF '21; EXCEL program) |
| 2018 – present | Noah Fabiano (UCF '21; T-L.E.A.R.N. program) |
| 2018 – present | Alison Malay (UCF '19) |
| 2018 – present | Net Galt (UCF '19) |
| 2018 – present | Hannah Shell (UCF '20) |
| 2018 – 2019 | Noah Penney (UCF '21) |
| 2018 – present | Rachael Gutner (UCF '21) |
| 2018 – 2019 | Hope Daskalakis (UCF '20) |
| 2018 | Stephanie Crum (UCF '20; EXCEL program) |

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|----------------|---|
| 2017 – present | Kathleen Kuesters (UCF '20) |
| 2017 – 2018 | Joanne Saldanha (UCF '18; Honors in the Major) |
| 2017 – present | Leah Rittenburg (UCF '20) |
| 2017 – present | Jayde Reid (UCF '19) |
| 2017 – present | Eleni Triantafyllopoulo (UCF '19) |
| 2017 | Savannah Herrera (UCF '19; EXCEL program) |
| 2016 – 2018 | Cassandra Sarria (UCF '18; McNair Scholar program) |
| 2016 – 2018 | Marissa Brooks (UCF '18) |
| 2016 – 2018 | Elizabeth Abney (UCF '18) |
| 2016 – 2018 | Emma Sutton (UCF '17) |
| 2016 – present | Sire Kassama (UCF '20; PRIME-STEM program & McNair Scholar program) |
| 2016 – 2018 | Kiernan Oknefski (UCF '18) |
| 2016 – 2018 | Brenda Rivera (UCF '18; EXCEL & RAMP programs) |
| 2016 – 2018 | Emily Karwacki (UCF '18; EXCEL program) |
| 2016 – 2017 | Keegan Laud (UCF '17) |
| 2016 | Jessica Sandoval (UCF '17) |
| 2016 | Yasmine Akhiyat (UCF '16) |
| 2015 – 2016 | Taina Torres (UCF '16) |
| 2015 – 2016 | Tyler Stuck (UCF '17) |
| 2015 – 2016 | Sanabel Mahmoud (UCF '16) |
| 2015 – 2016 | Louisa Collins (UCF '16) |
| 2015 – 2016 | Jeremi McRae (UCF '16) |
| 2015 – 2016 | Andrew Letter (UCF '16) |
| 2015 – 2016 | Zachary Rivas (UCF '16; Honors in the Major) |
| 2015 | Bridget Perry (UCF '17; EXCEL program) |
| 2015 | Julia Tate (UCF '15) |
| 2012 – 2014 | Nichole Mattheus (M.S., U. AL, 2011), Smithsonian Intern |
| 2012 – 2013 | Amelie Genovese (Bishop's U., 2012), Smithsonian Intern |
| 2012 – 2013 | Scott Martin (UT Austin, 2011), Smithsonian Intern |
| 2009 – 2013 | Melissa Lenker (Cornell University, 2013) |
| 2010 – 2011 | Karen Tracy (Cornell University, 2014) |
| 2008 – 2009 | Abigail Duvall (Cornell University, 2012) |

SERVICE

****Service to eight department, three college, and four university committees****

UCF SERVICE

Departmental Service

| | |
|----------------|--|
| 2017 – present | Graduate Student Research Award Committee chair |
| 2016 – present | Graduate Curriculum Committee member |
| 2015 – 2018 | Steering Committee member |
| 2015 – 2019 | Genomics and Bioinformatics Department Search Committee member |
| 2015 – 2016 | Biology Senior Laboratory Technician Search Committee chair |
| 2015 – 2016 | Social Media Committee member |
| 2015 – 2016 | Facilities and Space Committee member |
| 2015 | Major Instrumentation Lab Committee member |

College Service

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|-------------|---|
| 2020 | John Russell Williams and Arnold Haverlee Exploration Endowed Scholarships, selection committee chair |
| 2019 | John Russell Williams and Arnold Haverlee Exploration Endowed Scholarships, selection committee chair |
| 2018 | John Russell Williams Endowed Scholarship, selection committee member |
| 2015 – 2017 | College of Sciences Research Committee member |

University Service

| | |
|----------------|--|
| 2019 – present | UCF Office of Research Laboratory Safety Committee member |
| 2018 – present | High Impact Practice Course Steering Committee member |
| 2016 – present | Institutional Animal Care and Use Committee (IACUC), full voting member |
| 2015 – 2016 | Institutional Animal Care and Use Committee (IACUC), alternate voting member |
| 2015 – 2017 | Genomics and Bioinformatics Cluster University Search Committee member |
| 2015 – 2016 | UCF Faculty Cluster Initiative, Genomics and Bioinformatics Cluster proposer and core member |

***Member of a team of four faculty from three UCF colleges (Biology, Biomedical Sciences, and Engineering) who wrote a funded proposal to hire an interdisciplinary cluster of five genomics and bioinformatics faculty.*

2015 Office of Research internal UCF competition reviewer for the Sea Turtle Observancy Sea Turtle License Plate Grants Program

PROFESSIONAL SERVICE

2019 **CABI book proposal review: *Atlas of Amphibian Histopathology***

2018 – 2019 **NSF Graduate Research Fellowship Program**, review panelist

2018 – 2019 **UCF Monitoring Advising Analytics to Promote Success (MAAPS) faculty mentor**, mentoring program that pairs first-generation college students with faculty mentors who were first-generation college students

2018 – 2019 **Gaige Award committee chair**, American Society of Ichthyologists and Herpetologists

2018 **UCF FCTL Summer Conference QEP Track speaker** on Research Intensive course development, in: *Creating High-Impact Courses, Part 1: The HIP Course Designation Process*

2017 – 2018 **Gaige Award committee member**, American Society of Ichthyologists and Herpetologists

2017 **NSF Full Proposal Panelist**, Division of Environmental Biology, Arlington, VA

2017 **Abstract reviewer** for the 2017 International Congress on Conservation Biology (ICCB)

2017 **Session Chair**, Molecular Evolution Session at the 2017 Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA

2017 **Judge**, Division of Ecoimmunology and Disease Ecology student posters and talks at the 2017 Society for Integrative and Comparative Biology Annual Meeting, New Orleans, LA

2016 **Judge**, 2016 Siebert Award for the best student oral presentation in Ecology at the Joint Meeting of Ichthyologists and Herpetologists Annual Meeting, New Orleans, LA

2016 – present **Board of Governors, American Society of Ichthyologists and Herpetologists**. Serving a five-year term (2017-2021) on the society's central board, involving activities including annual meeting organization, dispersal of society funds, and assessment of society goals and future activities.

2015 – 2017 **Helmsley Charitable Trust UCF Biology Faculty Learning Community** – Member of an inter-institutional (FIU, UCF and USF) STEM education research grant program focused on

- transforming STEM education through coordinated course and curricular redesigns at each of the three research universities.
- 2014 **The Wildlife Society/Partners for Amphibian and Reptile Conservation joint symposium organizer** – “Identification, Surveillance and Management of Novel Infectious Diseases in Reptiles and Amphibians” symposium, Pittsburg, PA, October 25-30, 2014: Matthew Allender, Kimberly Andrews, Terry Norton, Valorie Titus
- 2012 – present **Smithsonian Amphibian working group** – Smithsonian-wide and affiliated amphibian research: Brian Gratwicke, Tim Walsh, Ed Bronikowski, Evan Grant, Adrienne Brand, Scott Miller, Pierre Comizzoli, Douglas Woodhams, Roberto Ibanez, Roy McDiarmid, Reid Harris, Loouise Rollins-Smith, Tom Akre, *et al.*
- 2012 – 2013 **Smithsonian Conservation Biology Institute Seminar Series:** host and organizer, 2012-2013 series
- 2012 – present **Ad hoc reviewer for grants submitted to:** *Florida Fish and Wildlife Conservation Commission, National Geographic Society National Science Foundation (DEB, DIB, EDGE and IOS programs)*
- 2011 – present **Ad hoc reviewer for manuscripts submitted to:** *Amphibia-Reptilia, Animal Conservation, Bulletin of Marine Science, Conservation Genetics, EcoHealth, Ecology, Ecology and Evolution, Evolution, Genetica, Global Change Biology, ILAR Journal, Immunogenetics, Journal of Animal Breeding and Genetics, Journal of Animal Ecology, Journal of Evolutionary Biology, Journal of Global Antimicrobial Resistance, Journal of Herpetology, Microbial Ecology, Molecular Ecology, PeerJ, PLoS One, Proceedings of the Royal Society of London B, Veterinary Immunology and Immunopathology*

COMMUNITY SERVICE

- 2020 Panelist, UCF National Science Foundation Pitch program for junior faculty
- 2019 Judge for the Dr. Nelson Ying Science Competition, a high school student research competition run by the Orlando Science Center, Orlando, FL
- 2019 Outreach activities on amphibian molecular genetics at UCF STEM Day
- 2018 Outreach booth on Savage Lab amphibian and reptile research and conservation at UCF’s My Biology Day (<https://sciences.ucf.edu/biology/my-science-days/mybiologyday-agenda/>)
- 2017 Outreach booth on amphibian and reptile research and conservation at the UCF Faculty Family Fun Day (<http://events.ucf.edu/event/593230/faculty-family-fun-day/>)
- 2017 Judge for the Dr. Nelson Ying Science Competition, a high school student research competition run by the Orlando Science Center, Orlando, FL.

- 2016 Invited presentation on experiences as a woman in science for UCF's GEMS (Girls Exceling in Math and Science) October evening social, University of Central Florida, Orlando, FL
- 2016 Enchanted Forest Women in Biology panelist for middle school girls, Titusville, FL.
- 2016 Judge for the Dr. Nelson Ying Science Competition, a high school student research competition run by the Orlando Science Center, Orlando, FL.
- 2016 UCF Dissertation Forum panelist on navigating the transition from dissertation to a faculty position, UCF library, Orlando, FL.
- 2015 Judge for the Dr. Nelson Ying Science Competition, a high school student research competition run by the Orlando Science Center, Orlando, FL.
- 2013 Created new exhibit in the reptile house of the Smithsonian's National Zoo on genetics of chytrid fungus resistance, featuring zoo-reared lowland leopard frogs, Washington, DC.
- 2010 NSF Crossing Boundaries Conservation Scientist: middle and high school outreach in conservation biology, involving online teaching resources, Google Earth tours, a field blog, and short films of field and lab work, available at: <<http://www.crossingboundaries.org/anna-savage-1092.php>>
- 2007 Expanding Your Horizons program: science outreach for middle school minority and underprivileged girls in New York, Ithaca, NY.

PROFESSIONAL DEVELOPMENT

- 2018 UCF's QEP-Sponsored Research Intensive Course Designation Workshop
- 2016 UCF's National Science Foundation CAREER Award Pitch program for junior faculty
- 2015 NSF Grants Conference, Tampa, FL (June 1-2, 2015)
- 2015 UCF Center for Success of Women Faculty (CSWF) Faculty Mentoring Community participant
- 2013 Trinity and Tuxedo RNAseq workshop, University of Virginia, Charlottesville, VA
- 2013 The Influence of Global Environmental Change on Infectious Disease Dynamics Workshop, Institute of Medicine Forum on Microbial Threats, CDC & NIH, Washington, DC
- 2012 GS Junior 454 pyrosequencing training by Roche, Center for Conservation and Evolutionary Genetics, Smithsonian Institution, Washington, DC
- 2012 The Science and Applications of Microbial Genomics Workshop, Institute of Medicine Forum on Microbial Threats, CDC & NIH, Washington, DC
- 2011 Negotiating the Ideal Faculty Position, NSF ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers, Rice University, Houston, TX

- 2011 Bioinformatics Workshop, Computational Biology Service Unit (CBSU), Cornell University, Ithaca, NY
- 2010 Fungal Diseases: An Emerging Threat To Human, Animal, and Plant Health Workshop, Institute of Medicine Forum on Microbial Threats, CDC & NIH, Washington, DC
- 2008 Measuring Spatial Heterogeneity Workshop, Ecology and Evolution of Infectious Diseases (EEID) Conference, Colorado State University, Ft. Collins, CO
- 2007 Amphibian Declines & Chytridiomycosis: Translating Science into Urgent Action, Arizona State University, Tempe, AZ

HONORS, FELLOWSHIPS, AND AWARDS

- 2018 Nominated for UCF Outstanding Undergraduate Research Mentor of the Year
- 2016 Elected to Board of Governors, American Society of Ichthyologists and Herpetologists
- 2012 LaMont C. Cole Award for the most outstanding published paper written by a graduate student or recent graduate, Department of Ecology and Evolutionary Biology, Cornell University
- 2010 Crossing Boundaries Conservation Scientist Fellowship, National Science Foundation
***Materials for educators available at <<http://www.crossingboundaries.org/anna-savage-1092.php>>
- 2009 Honorable Mention, Seibert Conservation Award for best student presentation in conservation, Joint Meeting of Ichthyologists and Herpetologists (JMIH)
- 2004 Oscar E. Schotte Award for the best independent research done in biology, Amherst College