Randy Klabacka

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Education

PhD Candidate in Biological Sciences **2016 – 2021**
Auburn University– Auburn, AL (*anticipated*)
Advisors: Dr. Jamie Oaks and Dr. Tonia Schwartz
Anticipated graduation: Fall 2021

Bachelor of Science in Biological Science **2016**
Brigham Young University– Provo, UT
Advisors: Dr. Jack W. Sites Jr. (Biology) and Dr. Chad Hancock (NDFS)

Grants and Awards

- **2020** American Genetics Association (AGA) – Ecological, Evolutionary, and Conservation Genomics (EECG) Research Award – Genomic and bioenergetics costs of asexuality in a vertebrate system (genus *Aspidoscelis*) ($8,000)
- **2019** COSAM Travel Award– to attend 9th World Congress of Herpetology in New Zealand ($300)
- **2019** SSAR Henri Seibert Competition– best student paper talk in Systematics and Evolution Category at JMIH 2019 ($200)
- **2019** Trees in the Desert NSF-funded workshop (travel, housing & food, workshop)
- **2017** Cellular and Molecular Biology (CMB) Peaks of Excellence Research Fellowship: Mitonuclear distancing: The baggage of an asexual reproductive strategy (*Aspidoscelis*) (Summer Stipend)
- **2017** Meredith Ann Birchfield Endowed Fund for Excellence: Filling genetic sampling gap for species delimitation/biogeography of *Draco maculatus* species complex (Thailand) ($1,500)
- **2017** NSF Travel Grant: Society of Systematic Biologists meeting. ($500)
- **2016** Office of Research & Creative Activities (ORCA) Grant: Phylogeny and species boundaries in the "flying dragons" of the *Draco maculatus* species complex (family Agamidae) ($1,500)
- **2015** 3rd Place HBLL College of Life Sciences Poster Competition: ($100)
- **2015** BYU College of Life Sciences Dean's List
- **2014** NSF Research Opportunity for Undergraduate Students (REU) supplemental award recipient: Phylogeny and biogeography of New World leaf-toed geckos, *Phyllodactylus* (Co-author; $3,000)
- **2013** Full-tuition Academic Scholarship: Brigham Young University

Publications

Klabacka, R.L., Perry, P.L. Jr., Oaks, J.R., McGuire, J.A., Grismer, L. L., Sites, J.W. Jr. (2019). Phylogenetic composition of the *Draco maculatus* species complex: Novel species hypotheses for four flying lizards within Indochina. In preparation for *Molecular Phylogenetics and Evolution* (accepted with minor revisions).

Gangloff, E.J., Schwartz, T.S., **Klabacka, R.L.**, Huebschman, N., Liu, A.Y., Bronikowski, A.M. (2020). Mitochondria as central characters in a complex narrative: Linking genomics, energetics, and pace-of-life in natural populations of garter snakes. *Experimental Gerontology* (special issue). In press. Contribution: Phylogenetic and population genetic analyses (Fig. 3A, 3B, S1).

Davis, H.R., Grismer, L.L., **Klabacka, R.L.**, Muin, M.A., Quah, E.S., Anuar, S., Wood, P.L. jr, and Sites, J.W. jr (2016). The phylogenetic relationships of a new Stream Toad of the genus Ansonia Stoliczka, 1870 (Anura: Bufonidae) from a montane region in Peninsular Malaysia." *Zootaxa* 4103(2): 137-153. DOI: 10.11646/zootaxa.4103.2.4. Contribution: Lab work (DNA extraction, PCR, Sequencing)

Grismer, L.L, Wood, P.L. jr, Anuar, S., Grismer, M.S., Quah, E.S., Murdoch, M.L., Muin, Mohd A., Davis, H.R., **Klabacka, R.L.**, Aguilar, C., Cobos, A.J., Aowphol, A., Sites, J.W. jr (2016). Two new Bent-toed Geckos of the Cyrtodactylus pulchellus complex from Peninsular Malaysia and multiple instances of convergent adaptation to limestone forest ecosystems. *Zootaxa* 4105(5): 401-429. DOI: 10.11646/zootaxa.4105.5.1. Contribution: Lab work (DNA extraction, PCR, Sequencing)

Publications *in prep*

Klabacka, R.L., Parry, H., Yap, J., Cook, R., Herron, T., Horne, L., Álvarez, G., Kavazis, A., Oaks, J., Fujita, M., Johnson, J., Schwartz, T. Mitochondrial function in asexual whiptail lizards (genus *Aspidoscelis*). In preparation for *Biology Letters*. Anticipated submission: August 2020.

Klabacka, R.L., Schwartz, T.S., Reding, D., Sephick, S., Stevison, L., Bronikowski, A.M. Population genetics of the electron transport chain in snake populations exhibiting divergent resting metabolic rates. Currently finishing data analysis- in preparation for *Molecular Ecology*. Anticipated submission: August 2020.

Westfall, A., Telemeco, R., Waits, D., **Klabacka, R.L.**, … Schwartz, T. et al. A high quality genome assembly for the reptile physiology model, *Sceloporus undulatus*. In preparation for *Genome Biology*.

Research Presentations

Klabacka, R.L., Parry, H., Yap, J., Cook, R., Herron, T., Horne, L.M., Maldonado, J., Álvarez, G., Kavazis, A., Oaks, J.R., Fujita, M., Johnson, J., Schwartz, T.S. The powerhouse of asexual cost? Endurance and mitochondrial efficiency in parthenogenetic whiptail lizards (genus *Aspidoscelis*). 9th World Congress of Herpetology. 7 January 2020. University of Otago, Dunedin, New Zealand.

Klabacka, R., Perry, P.L. Jr., McGuire, J.A., Oaks, Grismer, L.L., Grismer, J.L., J.R., Sites, J.W. Jr. Riverine barriers as potential drivers of biodiversification in the *Draco maculatus* species complex of Indochina. Joint Meeting of Herpetologists and Ichthyologists (JMIH; 15 min oral presentation). 27 July 2019. Snowbird, UT. *1st place in Henri Seibert Competition (Systematics and Evolution category)

Klabacka, R., Maldonado, J., Kavazis, A.N., Parry, H., Oaks, J.R., Fujita, M.K., Schwartz, T.S. Comparative examination of mitochondrial function in parthenogenetic whiptail lizards (genus: *Aspidoscelis*). American Genetics Association Presidential Symposium. 3 June 2020. Portland, OR.

Schwartz, T.S., Reding, D., Klabacka, R., Sephick, S., Stevison, L., Bronikowski, A.M. Population genetics of the electron transport chain in snake populations exhibiting divergent resting metabolic rates. Society of Integrative and Comparative Biology (SICB; poster presentation). 5 January 2019. Tampa, FL.

Klabacka, R., Perry, P.L. Jr., McGuire, J.A., Oaks, Grismer, L.L., Grismer, J.L., J.R., Sites, J.W. Jr. Bayes factor delimitation supports population structure in Southeast Asian species complex of Agamid lizard. Society of Systematic Biologists (SSB) meeting (5 min oral presentation). 3 June 2018. The Ohio State University, OH.

Schwartz, T.S., Reding, D., Klabacka, R., Sephick, S., Stevison, L., Bronikowski, A.M. Targeted sequence capture for functional population genomics of genetic networks: Mapping approaches for non-model organisms. Joint Meeting of Herpetologists and Ichthyologists (JMIH; poster presentation). 14 July 2017. Austin, TX.

Klabacka, R., Perry, P.L. Jr., Grismer, L.L., McGuire, J.A., Oaks, J.R., Sites, J.W. Jr. Speciation or isolated diversification: The hidden variation of *Draco maculatus*. Society of Systematic Biologists (SSB) meeting (5 min oral presentation). 10 January 2017. Baton Rouge, LA.

Ecology and Evolutionary Genetics (SEPEEG) meeting (15 min oral presentation). 22 October 2016. Madison, FL.

Klabacka, R., Perry, P.L. Jr., Sites, J.W. Jr. Phylogeny and species boundaries in the "flying dragons" of the *Draco maculatus* species complex (family Agamidae). Utah Conference on Undergraduate Research (UCUR; poster presentation). 19 February 2016. University of Utah, Salt Lake City, UT.

Klabacka, R., Perry, P.L. Jr., Sites, J.W. Jr. Phylogeny and species boundaries in the "flying dragons" of the *Draco maculatus* species complex (family Agamidae). HBLL 2015 College of Life Sciences Undergraduate Poster Competition. 9 November 2015. Brigham Young University, Provo, UT.

Klabacka, R., Aguilar C., A.M. Bauer, A. Catenazzi, E. Greenbaum, J.W. Sites, Jr., F. Valdez, Wood, P.L. Jr., Wilkes, R., and T. Gamble. Phylogeny and biogeography of New World leaf-toed geckos, *Phyllodactylus* (Phyllodactylidae: Gekkota). Society for the Study of Amphibians and Reptiles, 58th Annual Meeting. 1 August 2015. University of Kansas, Lawrence, KA.

Invited Talks

LSU Museum of Natural Science Seminar Series
- Riverine barriers as drivers of biodiversification in terrestrial fauna of Southeast Asia **2019**

Vertebrate Biodiversity (undergraduate course; upcoming October 2019)
- Amphibian Life Histories **2019**

Functional Genomics (graduate course)
- Using high-throughput sequencing to examine variation at targeted genomic regions **2018**

Evolution and Systematics (undergraduate course)
- Early evolutionary ideas- tree thinking **2018**

Introductory Biology (undergraduate course)
- Domains of life **2016**
- The central dogma of biology **2016**

Field Experience

- Led team of 5 to NM and TX and collected 50 live *Aspidoscelis* of 5 species (1 month) **2019**
- Led team of 4 to NM and TX and collected 210 *Aspidoscelis* of 12 species (2 months) **2018**
- Led expedition to observe diurnal herpetofauna of NM during month-long field trip **2017**
- Collected herpetofaunal specimens in three-week field trip to Thailand and Malaysia **2016**
- Collected morphological data from live *Crotalus oreganus lutosus* **2015**
- Participated in a two-week neotropical biology field course in Costa Rica **2014**
- Collected geographical data for *Rana luteiventris* habitat restoration **2013**

Mentorship

I have mentored five undergraduate students in field biology, physiology, and molecular lab work. Current positions of these students include veterinary student, lab/field tech, pursuing MS, and undergraduate research assistant, and working on manuscripts for peer-reviewed publications.

Professional Training

- Creating an Active Learning Classroom- workshop (AU Biggio Center) **2018**

Assistantships

Auburn University:

Graduate Teaching Assistantship (GTA)– Vertebrate Biodiversity (Lab) **2019**
Graduate Research Assistantship (GRA)– Dr. Jamie Oaks **2019**

GRA– Functional Genomics (Dr. Tonia Schwartz) **2018**
GTA– Anatomy and Physiology (Lab) **2016**

Brigham Young University:

Undergraduate RA (URA)– Phylogenetic Systematics (Dr. Jack Sites Jr.) **2013 – 2016**
URA– Metabolic Physiology (Dr. Chad Hancock) **2013 – 2016**
Undergraduate TA– Introductory Biology Lab (Dr. John "Keoni" Kauwe) **2013 – 2016**

Relevant Research Skills

Computational

- Proficiently code in Python, C++, Bash, R
- Develop genomic pipelines for read cleaning, assembly, mapping, SNP calling, etc.
- Execute computational tools for functional genomics (e.g., gene expression), population genetics, and phylogenetics with genomic datasets
- 14 credit hours of Computer Science and Bioinformatics (during BYU undergraduate coursework)

Molecular

- Perform DNA sequencing techniques (extraction, optimizing quality/quantity for genomic sequencing, PCR, cleanup, big-dye sequencing, will be performing library prep for RAD-seq and RNA-seq in 2019)
- Perform mitochondrial isolation, tissue homogenization (for physiology), mitochondrial respirometry, enzyme activity assays, protein assays, reactive oxygen species assays

Organismal and Museum Collection

- Capture and formalin fix herpetofauna and maintain ethanol-preserved collection (I maintain the vertebrate biology teaching collection, which includes over 1000 ethanol-preserved fish, amphibians, and reptiles)
- Isolate blood from lizards (using post-orbital cavity) and perform general animal necropsy and dissection-flash-preserving tissue samples in liquid nitrogen

Field and Additional

- Fluently speak Spanish
- Established inter-institutional field research in TX and NM
- Lead multiple collection- and research-based field trips in TX, NM, and AZ

Outreach, Community Service, and Relevant Positions

Graduate chair of the Auburn University Dept. of Biol. Sciences Seminar Series **2018 –**
University of Texas- El Paso Volunteer TA- Field Biology course (ornithology) **2019**
Auburn University STEM Discovery Day instructor **2019**
University of Texas- El Paso Volunteer TA- Field Biology course (herpetology) **2018**
Reptiles and Amphibians Scout Merit Badge Instructor **2016**
Auburn Natural History Museum Open House Herpetological Representative **2016 – 2018**
Co-president and Co-founder of the Life Sciences Pre-Graduate Student Club **2015 – 2016**
Host for the BYU Dept. of Biol. "Night at the Museum" (with Dr. Seth Bybee) **2015**
Elected tour Guide for the newly dedicated LSB– President's Leadership Council dinner **2014**

Professional Memberships

Society for the Study of Amphibians and Reptiles (SSAR)
Society of Systematic Biologists (SSB)
Society for the Study of Evolution (SSE)

Publicity

COSAM News: Auburn Student Honored with Research Award on Reptile Study **2019**
Randy Klabacka – Herpetologist (brief Reptile and Amphibian Documentary) **2019**