

Randy Klabacka | curriculum vitae

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Education

Ph.D. Candidate in Biological Sciences	anticipated 2021
<i>Department of Biological Sciences, Auburn University</i>	
Advisors: Drs. Jamie Oaks & Tonia Schwartz	
B.S. in Biology	2016
<i>Department of Biology, Brigham Young University</i>	
Advisors: Drs. Jack Sites & Chad Hancock	

Grants, Fellowships, and Scholarships

2020: EECG Research Award (American Genetics Association)	\$8,000
Genomic and bioenergetics costs of asexuality in a vertebrate system (<i>Aspidoscelis</i>)	
2017: CMB Peaks of Excellence Research Fellowship (Auburn University)	\$4,500
Mitonuclear distancing: The baggage of an asexual reproductive strategy	
2017: Meredith Birchfield Endowed Fund for Excellence (Auburn University Museum of Natural History)	\$1500
Examining species boundaries in <i>Draco maculatus</i>	
2016: Office of Research & Creative Activities Grant (BYU)	\$1,500
Phylogeny and species boundaries in spotted flying lizards (<i>Draco maculatus</i>)	
2012-15: Undergraduate Academic Scholarships (BYU)	\$11,987

Awards

2019: COSAM Travel Award (Auburn University)	\$300
Funding to present research at 9th World Congress of Herpetology	
2019: 1st Place - Henri Seibert Competition Systematics & Evolution Category (SSAR)	\$200
Riverine barriers as potential drivers of biodiversification in <i>Draco maculatus</i>	
2019: Trees in the Desert Workshop (NSF - University of Arizona)	fully funded
funded scholarship (covering travel, lodging, food, and workshop)	
2017: NSF Travel Grant (Society of Systematics Biology Meeting)	\$500
Funding to present research at 2017 SSB meeting	
2015: 3rd Place - HBLL College of Life Sciences Poster Competition (BYU)	\$300
Phylogeny and species boundaries in spotted flying lizards (<i>Draco maculatus</i>)	
2015: College of Life Sciences Dean's List (BYU)	
2014: REU Supplement Recipient (BYU)	\$3,000
Phylogeny and biogeography of New World leaf-toed geckos (<i>Phyllodactylus</i>)	

Peer-reviewed Publications

- Klabacka, R. L.**, Wood Jr, P. L., McGuire, J. A., Oaks, J. R., Grismer, L. L., Grismer, J. L., Aowphol, A., Sites Jr, J. W., (2020). "Rivers of Indochina as potential drivers of lineage diversification in the spotted flying lizard (*Draco maculatus*) species complex." In: *Molecular Phylogenetics and Evolution*, p. 106861.
- Gangloff, E. J., Schwartz, T. S., **Klabacka, R.**, 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." In: *Experimental Gerontology*, p. 110967.
- Grismer, L. L., Wood, J. P., Anuar, S., Grismer, M. S., Quah, E., Murdoch, M. L., Muin, M. A., Davis, H. R., Aguilar, C., **Klabacka, R.**, (2016). "Two new Bent-toed Geckos of the *Cyrtodactylus pulchellus* complex from Peninsular Malaysia and multiple instances of convergent adaptation to limestone forest ecosystems." In: *Zootaxa* 4105.5, pp. 401–429.
- Davis, H. R., Grismer, L. L., **Klabacka, R. L.**, Muin, M. A., Quah, E. S., Anuar, S., Wood Jr, P. L., Sites Jr, J., (2016). "The phylogenetic relationships of a new Stream Toad of the genus *Ansonia* Stoliczka, 1870 (Anura: Bufonidae) from a montane region in Peninsular Malaysia." In: *Zootaxa* 4103.2, pp. 137–153.

Pre-prints and In-prep

- Klabacka, R. L.**, Parry, H. A., Yap, K. N., Cook, R. A., Herron, T. A., Horne, L. M., Maldonado, J. A., Oaks, J. R., Kavazis, A. N., Fujita, M. K., Schwartz, T. S., (planned submission April 2020). "Reduced mitochondrial efficiency in hybrid asexual lizards." In: *in prep for American Naturalist*.
- Westfall, A. K., Telemeco, R. S., Grizante, M. B., Waits, D. S., Clark, A. D., Simpson, D. Y., **Klabacka, R. L.**, Sullivan, A. P., Perry, G. H., Sears, M. W., (2020). "A chromosome-level genome assembly for the Eastern Fence Lizard (*Sceloporus undulatus*), a reptile model for physiological and evolutionary ecology." In: *bioRxiv (in review with GigaScience)*.
- Tracy, C., Beatty, A., Dreissen, E., **Klabacka, R.**, (n.d.). "Effect of internal and external stressors on struggle in an introductory biology course." In: *in prep* ().

Invited Seminars

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

Guest Lectures

- 2021:** Scripting for Biologists (BIOL 7180) *Guest Lecture*
Creating python classes and using random number generators
Implementing regular expressions
Introduction to Biopython
- 2019:** Vertebrate Biodiversity (BIOL 4020) *Guest Lecture*
Amphibian Life History Strategies
- 2018:** Functional Genomics (BIOL 5850/6850) *Guest Lecture*
Using high-throughput sequencing to examine variation at targeted genomic regions
- 2018:** Evolution and Systematics (BIOL 3030) *Guest Lecture*
Early evolutionary ideas- Tree thinking
- 2016:** Principles of Biology *Guest Lectures*

Presentations

- Klabacka, R.**, Parry, H., Yap, J., Cook, R., Herron, T., Horne, L. M., Maldonado, J., Álvarez, G., Kavazis, A. N., Oaks, J. R., Fujita, M. K., Schwartz, T. S., (2021). "Reduced endurance and mitochondrial respiration in hybrid asexual lizards (genus: *Aspidoscelis*).". In: *SICB 2021*. Virtual Conference (talk).
- (2020). "The powerhouse of asexual cost? Endurance and mitochondrial efficiency in parthenogenetic whiptail lizards (genus *Aspidoscelis*).". In: *9th Annual World Congress of Herpetology*. University of Otago; Dunedin, NZ (talk).
- Klabacka, R.**, Wood Jr, P. L., McGuire, J. A., Oaks, J. R., Grismer, L. L., Grismer, J. L., Aowphol, A., Sites Jr, J. W., (2019). "Riverine barriers as potential drivers of biodiversification in the *Draco maculatus* species complex of Indochina." In: *Joint Meeting of Ichthyologists and Herpetologists*. Snowbird, UT (talk) *1st place in Henri Seibert Competition (Systematics & Evolution Category).
- Schwartz, T. S., Reding, D., **Klabacka, R.**, Saphick, S., Stevison, L., Bronikowski, A. M., (2019). "Population genetics of the electron transport chain in snake populations exhibiting divergent resting metabolic rates." In: *Society for Integrative and Comparative Biology Meeting*. Tampa, FL (poster).
- Klabacka, R.**, Maldonado, J., Kavazis, A. N., Parry, H., Oaks, J. R., Fujita, M. K., Schwartz, T. S., (2019). "Comparative examination of mitochondrial function in parthenogenetic whiptail lizards genus (*Aspidoscelis*).". In: *American Genetics Association Presidential Symposium*. Portland, OR (poster).
- Klabacka, R.**, Wood Jr, P. L., McGuire, J. A., Oaks, J. R., Grismer, L. L., Grismer, J. L., Aowphol, A., Sites Jr, J. W., (2018). "Bayes factor delimitation supports population structure in Southeast Asian species complex of Agamid lizard." In: *Society for Systematic Biologists Meeting*. The Ohio State University; Cleveland, OH (poster).
- Schwartz, T. S., Reding, D., **Klabacka, R.**, Saphick, S., Stevison, L., Bronikowski, A. M., (2017). "Targeted sequence capture for functional population genomics of genetic networks: Mapping approaches for non-model organisms." In: *Joint Meeting of Ichthyologists and Herpetologists*. Austin, TX (poster).
- Klabacka, R.**, Wood Jr, P. L., McGuire, J. A., Grismer, L. L., Sites Jr, J. W., (2017). "Speciation or isolated diversification: The hidden variation of *Draco maculatus*." In: *Society for Systematic Biologists Meeting*. Louisiana State University; Baton Rouge, LA (talk).
- Klabacka, R.**, Wood Jr, P. L., Sites Jr, J. W., (2016). "Phylogeny and species boundaries in the "flying dragons" of the *Draco maculatus* species complex (family Agamidae)." In: *Utah Conference on Undergraduate Research*. University of Utah; Salt Lake City, UT (poster).
- Klabacka, R.**, Wood Jr, P. L., Grismer, L. L., McGuire, J. A., Sites Jr, J. W., (2016). "Hidden Dragons: The molecular composition of the *Draco maculatus* species complex." In: *South Eastern Population Ecology and Evolutionary Genetics Meeting*. Madison, FL (talk).
- Klabacka, R.**, Wood Jr, P. L., Sites Jr, J. W., (2015). "Phylogeny and species boundaries in the "flying dragons" of the *Draco maculatus* species complex (family Agamidae)." In: *HBLL BYU Poster Competition*. University of Utah; Salt Lake City, UT (poster) *3rd Place.
- Klabacka, R.**, Aguilar, C., Bauer, A. M., Catenazzi, A., Greenbaum, E., Sites Jr, J. W., Faldez, F., Wood Jr, P. L., Wilkes, R., Gamble, T., (2015). "Phylogeny and biogeography of New

World leaf-toed geckos, *Phyllodactylus* (Phyllodactylidae: Gekkota)." In: *Society for the Study of Amphibians and Reptiles Meeting*. University of Kansas; Lawrence, KA (poster).

Field Experience

2020: Led team of three in FL and collected 200 live <i>Anolis sagrei</i> for lab breeding colony	2 days
2019: Led team of five in NM and TX and collected 50 live <i>Aspidoscelis</i> of five species	1 month
2018: Led team of four in NM and TX and collected 210 <i>Aspidoscelis</i> of 12 species	2 months
2017: Led team of two to validate potential <i>Aspidoscelis</i> collection localities	3 weeks
2016: Collected various herpetofauna for BYU Bean LS Museum in Thailand and Malaysia	3 weeks
2015: Collected morphological data from live <i>Crotalus oreganus lutosus</i>	1 day
2014: Participated in neotropical biology and geology field course in Costa Rica	2 weeks
2013: Counted egg masses & recorded localities for <i>Rana luteiventris</i> habitat restoration	1 day

Mentorship

I have mentored seven undergraduate students in field biology, physiology, and molecular lab work. Current positions of these students include veterinary school, lab/field tech, M.S. evol/ecol student, undergraduate research assistant, and working on manuscripts for peer-reviewed publications.

Professional Development

2020: Introduction to Discipline-Based Education Research - graduate course	instructor: Cissy Ballen
2018: Creating an active learning classroom - professional workshop	host: AU Biggio Center

Assistantships

Auburn University	
○ 2021: GTA	BIOL 7180: Scripting for Biologists
○ 2020: GTA	BIOL 4020: Vertebrate Biodiversity Lab
○ 2020 (summer): Graduate Research Assistantship (GRA)	Phylogenetics (PI: Jamie Oaks)
○ 2020: Graduate Teaching Assistantship (GTA)	BIOL 5740/6740: Herpetology Lab
○ 2019: GTA	BIOL 4020: Vertebrate Biodiversity Lab
○ 2019 (summer): GRA	Phylogenetics (PI: Jamie Oaks)
○ 2018: GTA	BIOL 5240/6240 Animal Physiology Lab
○ 2017-2019: GTA	BIOL 5600/6600: Biomedical Physiology Lab
○ 2018 (summer): GRA	Functional Genomics (PI: Tonia Schwartz)
○ 2016: GTA	BIOL 2501: Anatomy and Physiology Lab
Brigham Young University	
○ 2013-2016: Undergraduate RA	Phylogenetic Systematics (PI: Jack Sites)
○ 2013-2016: URA	Metabolic Physiology and Bioenergetics (PI: Chad Hancock)
○ 2013-2016: UTA	BIO 130: Principles of Biology (Instructors: Keoni Kauwe & Byron Adams)

Relevant Research Skills

Computational
○ Proficiently code in Python, C++, Bash, R, LaTeX, HTML, CSS

- Develop genomic pipelines for read cleaning, assembly, mapping, and variant calling
- Execute computational tools for functional genomics (e.g., gene expression), population genetics, and phylogenetics with genomic datasets
- 22 graded credit hours of Computer Science, Bioinformatics, and Computational Statistics

Molecular.....

- Perform DNA sequencing techniques (extraction, optimizing quality/quantity for genomic sequencing, PCR, PCR cleanup, big-dye sequencing, will be performing RNA-seq in 2020)
- Perform mitochondrial isolation, tissue homogenization (for physiology), mitochondrial respirometry, enzyme activity assays, protein assays, and reactive oxygen species assays.

Organismal and Museum Collection.....

- Capture and formalin fix herpetofauna and maintain ethanol-preserved collection (curate teaching collection while teaching Vertebrate Biodiversity and Herpetology, which contains 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 tissues in liquid nitrogen.

Field and Additional.....

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

Outreach, Community Service, and Relevant Positions

2021-: QuickGRITS podcast	<i>Creator & host</i>
2021: Safe techniques for handling snakes: Instructor	<i>E. W. Shell Fisheries Greenhouse, Auburn University</i>
2020: Chief Science Officers "Zoom In On Science" Guest	<i>SciTech Institute; Kenya</i>
2020: Chief Science Officers "Zoom In On Science" Guest	<i>SciTech Institute; Sonora, Mexico</i>
2019: Volunteer Field Ornithology TA	<i>UTEP-IMRS Field Biology Course</i>
2019: STEM Discovery Day instructor	<i>Auburn University</i>
2018-: Grad Chair - Dept. of Biol. Sciences Seminar Series	<i>Auburn University</i>
2018-: Member of the Snake Response Team	<i>Auburn University</i>
2018: Volunteer Field Herpetology TA	<i>UTEP-IMRS Field Biology Course</i>
2016: Reptile and Amphibian Studies Scout Merit Badge Instructor	<i>Boy Scouts of America</i>
2016-2018: Natural History Museum Open House Representative	<i>Auburn University</i>
2015-2016: Co-president/founder of Life Sciences Pre-Graduate Student Club	<i>BYU</i>
2015: Host for the BYU-sponsored "Night at the Museum"	<i>Monte L. Bean Life Science Museum</i>
2014: Tour guide for LSB opening- President's Leadership Council dinner	<i>Brigham Young University</i>

Professional Memberships

Society for the Study of Amphibians and Reptiles (SSAR)
 Society for Integrative and Comparative Biology (SICB)
 Society of Systematic Biologists (SSB)
 Society for the Study of Evolution (SSE)
 American Genetics Association (AGA)
 Sigma Xi

Acknowledged In

- David, K. T., Oaks, J. R., Halanych, K. M., (2020). "Patterns of gene evolution following duplications and speciations in vertebrates." In: *PeerJ* 8, e8813.
- Lanna, F. M., Gehara, M., Werneck, F. P., Fonseca, E. M., Colli, G. R., Sites Jr, J. W., Rodrigues, M. T., Garda, A. A., (2020). "Dwarf geckos and giant rivers: the role of the São Francisco River in the evolution of *Lygodactylus klugei* (Squamata: Gekkonidae) in the semi-arid Caatinga of north-eastern Brazil." In: *Biological Journal of the Linnean Society* 129.1, pp. 88–98.
- Mackay, A. D., Marchant, E. D., Munk, D. J., Watt, R. K., Hansen, J. M., Thomson, D. M., Hancock, C. R., (2019). "Multitissue analysis of exercise and metformin on doxorubicin-induced iron dysregulation." In: *American Journal of Physiology-Endocrinology and Metabolism* 316.5, E922–E930.
- Fonseca, E. M., Gehara, M., Werneck, F. P., Lanna, F. M., Colli, G. R., Sites Jr, J. W., Rodrigues, M. T., Garda, A. A., (2018). "Diversification with gene flow and niche divergence in a lizard species along the South American "diagonal of open formations"." In: *Journal of Biogeography* 45.7, pp. 1688–1700.

Reviewed Journals

Molecular Ecology
Biological Journal of the Linnean Society
Herpetologica
Entomology, Ornithology, & Herpetology: Current Research