RHETT M. RAUTSAW, PHD

POSTDOCTORAL RESEARCH ASSOCIATE
WASHINGTON STATE UNIVERSITY • SCHOOL OF BIOLOGICAL SCIENCES
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EDUCATION

PhD 2017 – 2022 **Clemson University**, Clemson, SC USA
Department of Biological Sciences

MS 2014 – 2017 **University of Central Florida**, Orlando, FL USA
Department of Biology

BS 2012 – 2014 **Wright State University**, Dayton, OH USA
Cum Laude, Major in Biological Sciences

PROFESSIONAL POSITIONS

2022 – **Washington State University**, Pullman, WA USA
Postdoctoral Research Assistant, Dr. Andrew Storfer
University of South Florida, Tampa, FL USA
Courtesy Research Assistant Professor, Dr. Mark Margres

2017 – 2022 **Clemson University**, Clemson, SC USA
NSF Graduate Research Assistant, Dr. Christopher Parkinson

2014 – 2017 **University of Central Florida**, Orlando, FL USA
Graduate Teaching Assistant
Graduate Researcher, Dr. Christopher Parkinson

2012 – 2014 **Wright State University**, Dayton, OH USA
Undergraduate Researcher, Dr. Jeffrey Peters
Undergraduate Research Assistant, Dr. Thomas Rooney
Undergraduate Research Assistant, Dr. Volker Bahn

FELLOWSHIPS AND GRANTS [TOTAL: **$30,260**]

2021 Professional Development Graduate Research Assistantship **$15,000.00**
Clemson University Department of Biological Sciences
Harry & Catherine Findley Student Assistance Endowment – *Clemson University* **$1,960.00**
Graduate Travel Grant – *Clemson University Graduate Student Government* **$1,000.00**
"Travel for Dissertation Field Work in Colima/Chihuahua, Mexico"
Graduate Travel Grant – *Clemson University Graduate Student Government* **$750.00**
"Travel for Dissertation Field Work in Arizona/New Mexico"

2020 Harry & Catherine Findley Student Assistance Endowment – *Clemson University* **$3,000.00**
Interior Region 2/4 Ecological Services Program Conservation Fund – *USFWS* ***pending***
"Genomic evaluation of the *Nerodia fasciata-clarkii* complex to investigate levels of hybridization, introgression and the taxonomic status of *Nerodia clarkii taeniata*"
Parkinson CL, Schramer TD, **Rautsaw RM**
Applied for $104,541.00
Graduate Travel Grant – *Clemson University Graduate Student Government* **$750.00**
"Travel for Dissertation Field Work in Arizona/New Mexico"
SWRS Outstanding Graduate Research Award – *AMNH* ***not awarded***
"Testing for the influence of competition on venom evolution in sky-island rattlesnakes"
Grants-in-Aid of Research – *Sigma Xi* **$800.00**
"Testing for the influence of competition on venom evolution in sky-island rattlesnakes"
Howard McCarley Research Award – *Southwestern Association of Naturalists* **$1,000.00**
"Testing for the influence of competition on venom evolution in sky-island rattlesnakes"
Biodiversity Exploration and Discovery RFP – *National Geographic* ***not awarded***
"Exploring hidden diversity, adaptation, and conservation in Sierra Madre del Sur, Mexico"
Jones Lovich Grant in Southwestern Herpetology – *Herpetologists' League* ***not awarded***
"Testing for the influence of competition on venom evolution in sky-island rattlesnakes"

2019 E.E. Williams Research Grant – *Herpetologists' League* **$1,000.00**
"Testing for Character Displacement in Venom"
Lewis and Clark Fund for Exploration and Field Research – *APS* ***not awarded***
"Exploring hidden diversity, population structure, and conservation status of data-deficient Mexican Montane Pitvipers in the Sierra Madre del Sur"
Graduate Student Research Awards – *SSB* **$2,000.00**
"Testing the Influence of Competition on Venom Evolution"
Michael Dee Grant – *Herpetological Conservation International* ***not awarded***
"Exploring hidden diversity, population structure, and conservation status of data-deficient Mexican Montane Pitvipers in the Sierra Madre del Sur"
Fellowship of Graduate Student Travel – *SICB* ***not awarded***
"Testing the Influence of Competition on Venom Evolution"
Grants-in-Aid of Research – *Sigma Xi* ***not awarded***
"Testing the Influence of Competition on Venom Evolution"
The NCHS Grant – *North Carolina Herpetological Society* ***not awarded***
"Testing the Influence of Competition on Venom Evolution"
Venomous Reptile Research Grant – *The Rattlesnake Conservancy* ***not awarded***
"Escape from Extinction Mountain: Conservation Genetics of Isolated, Data-Deficient, Mexican Montane Pitvipers (*Cerrophidion petlalcalensis*)"
Conservation Biology Grant – *International Herpetological Symposium* ***not awarded***
"Escape from Extinction Mountain: Conservation Genetics of Isolated, Data-Deficient, Mexican Montane Pitvipers (*Cerrophidion petlalcalensis*)"
Klauber Summer Research Grant – *Southwestern Center for Herpetological Research* **$250.00**
"Exploring the Influence of Species Coexistence on Venom Evolution"
Graduate Travel Grant – *Clemson University Graduate Student Government* **$1,000.00**
"Travel to 2nd National Congress of Mexican Vipers"
Graduate Travel Grant – *Clemson University Graduate Student Government* **$750.00**
"Travel to Biology of the Pitvipers"

2016 Conference Travel Grant – *Gans Collections and Charitable Fund* ***not awarded***
"Travel to the JMIH 2016"
E.E. Williams Research Grant – *Herpetologist's League* ***not awarded***
"Examining Corridor Use and the Feasibility of Inland Retreat by Gopher Tortoise (*Gopherus polyphemus*)"
Theodore Roosevelt North American Fauna Grant – *AMNH* ***not awarded***
"Examining Corridor Use and the Feasibility of Inland Retreat by Gopher Tortoise"

2015 Grants-in-Aid of Research – *Sigma Xi* ***not awarded***
"Examining Corridor Use and the Feasibility of Inland Retreat by Gopher Tortoise (*Gopherus polyphemus*)"
J. Larry Landers Student Research Grant – *Gopher Tortoise Council* **$1,000.00**
"Examining Corridor Use and the Feasibility of Inland Retreat by Gopher Tortoise (*Gopherus polyphemus*)"

AWARDS AND HONORS [TOTAL: **$4,450**]

Presentation awards listed twice; Here with monetary amounts and again with their respective paper or presentation.

2022 Outstanding Graduate in Discovery Award
– *Clemson University College of Sciences* **$1,000.00**
– *Clemson University Department of Biological Sciences* **$200.00**

2019 BioOne Ambassador Award – *BioOne; nominated by ASIH* **$1,000.00**
The BioOne Ambassador Award is a competition across 200+ journals (one nominee per journal). The award recognizes impactful work by early career authors whom are dedicated to communicating the importance and impact of their research to the public.
Copeia's Best Student Paper in Herpetology – *ASIH*

2018 CBASS 1st Place Graduate Poster Presentation – *Clemson University BSGSA* **$100.00**

2017 Seibert Award for Best Conservation Oral Presentation – *SSAR* **$200.00**
Best Student Oral Presentation – *FLTWS* **$100.00**

2016 Graduate Presentation Fellowship – *UCF College of Graduate Studies* **$300.00**
Graduate Student Travel Award – *UCF Department of Biology* **$200.00**
Graduate Student Travel Award – *ASIH* **$600.00**

2015 Boyd Lyon Memorial Travel Award – *UCF BGSA* **$150.00**
Student Travel Award – *The Gopher Tortoise Council* **$100.00**
Graduate Presentation Fellowship – *UCF College of Graduate Studies* **$500.00**

PUBLICATIONS [† EQUAL CONTRIBUTION, *UNDERGRADUATE MENTEE]

GOOGLE SCHOLAR—citations: 141, h-index: 7, i10-index: 5

18. Myers EA, Strickland JL, **Rautsaw RM**, Mason AJ, Schramer TD, Nystrom GS, Hogan MP, Yooseph S, Rokyta DR, Parkinson CL. 2022. De novo genome assembly highlights the role of lineage-specific duplications in the evolution of the venom in Fea's Viper. *GENOME BIOLOGY AND EVOLUTION*. DOI: 10.1093/gbe/evac082
– CRediT: Validation; Formal Analysis; Writing – Review & Editing

17. Mason AJ, Holding ML, **Rautsaw RM**, Rokyta DR, Parkinson CL, Gibbs HL. 2022. Venom gene sequence diversity and expression jointly shape diet adaptation in pitvipers. *MOLECULAR BIOLOGY AND EVOLUTION*. DOI: 10.1093/molbev/msac082
    – CRediT: Validation; Formal Analysis; Writing – Review & Editing

16. **Rautsaw RM**, Jiménez-Velázquez G, Hofmann EP, Alencar LRV, Grünwald CI, Martins M, Carrasco P, Doan TM, Parkinson CL. 2022. VenomMaps: Updated distribution maps and niche models for New World pitvipers (Viperidae: Crotalinae). *SCIENTIFIC DATA* 9(232). DOI: 10.1038/s41597-022-01323-4
    – CRediT: Conceptualization; Methodology; Software; Validation; Formal Analysis; Investigation; Resources; Data Curation; Writing – Original Draft; Writing – Review & Editing; Visualization; Supervision; Project Administration

15. Schramer TD, **Rautsaw RM**, Bayona-Serrano JD, Nystrom GS, West TR, Ortiz-Medina JA, Sabido-Alpuche B, Meneses-Millán M, Borja M, Junqueira-de-Azevedo ILM, Rokyta DR, Parkinson CL. 2022. An integrative view of the toxic potential of *Conophis lineatus* (Dipsadidae: Xenodontinae), a medically relevant rear-fanged snake. *TOXICON* 205(15):38-52. DOI: 10.1016/j.toxicon.2021.11.009
    – CRediT: Conceptualization; Validation; Formal Analysis; Investigation; Data Curation; Writing – Original Draft; Writing – Review & Editing; Visualization; Supervision

14. Jenkins DG, Ohyama L, Lopez-Borghesi F, Hart JD, Bogata-Gregory JD, **Rautsaw RM** Roldán VC, Guilfoyle K, Jarvis A, Loch J, Mercier KP, Myers O, Shaw R, Volk D, Bard AM. 2021. Biogeography and predictors of wildlife killed on roads at peninsular Florida State Parks. *ECOLOGY AND EVOLUTION*. DOI: 10.1002/ece3.7743
    – CRediT: Data Curation; Methodology; Validation; Writing – Review & Editing

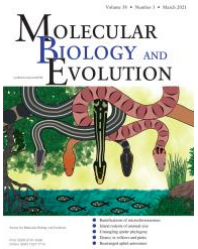
13. Hofmann EP, **Rautsaw RM**, Mason AJ, Strickland JL, Parkinson CL. 2021. Duvernoy's Gland Transcriptomics of the Plains Black-Headed Snake, *Tantilla nigriceps* (Squamata, Colubridae): Unearthing the Venom of Small Rear-Fanged Snakes. *TOXINS* 13(5):336. DOI: 10.3390/toxins13050336
    – CRediT: Investigation; Methodology; Formal Analysis; Writing—Review and Editing; Data Curation

12. **Rautsaw RM**†, Nachtigall PG†, Ellsworth S, Mason AJ, Rokyta DR, Parkinson CL, Junqueira-de-Azevedo ILM. 2021. ToxCodAn: a new toxin annotator and guide to venom gland transcriptomics. *BRIEFINGS IN BIOINFORMATICS*. DOI: 10.1093/bib/bbab095
    – CRediT: Conceptualization; Methodology; Software; Validation; Formal Analysis; Investigation; Resources; Data Curation; Writing – Original Draft; Visualization; Project Administration

11. Holding ML, Strickland JL, **Rautsaw RM**, Hofmann EP, Mason AJ, Hogan MP, Nystrom GS, Ellsworth SA, Colston TJ, Borja M, Castañeda-Gaytán G, Grünwald CI, Jones JM, Freitas-de-Sousa L, Viala VL, Margres MJ, Grazziotin FG, Junqueira-de-Azevedo ILM, Moura-da-Silva AM, Hingst-Zaher E, Gibbs HL, Rokyta DR, Parkinson CL. 2021. Phylogenetically diverse diets favor more complex venoms in North American pitvipers. *PNAS* 118(17):e2015579118. DOI: 10.1073/pnas.2015579118
    – CRediT: Investigation; Resources; Data Curation; Writing – Review & Editing

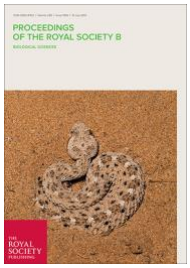
10. Margres MJ, **Rautsaw RM**, Strickland JL, Mason AJ, Schramer TD, Hofmann EP, Stiers E, Ellsworth SA, Nystrom GS, Hogan MP, Bartlett DA, Colston TJ, Gilbert DM, Rokyta DR, Parkinson CL. 2021. The Tiger Rattlesnake genome reveals a complex genotype underlying a simple venom phenotype. *PNAS* 118(4): e2014634118. DOI: 10.1073/pnas.2014634118
    - CRediT: Conceptualization; Methodology; Formal Analysis; Investigation; Writing – Original Draft; Visualization

9. **Rautsaw RM**, Schramer TD, Acuña R, Arick LN, DiMeo M, Mercier KP, Schrum M, Mason AJ, Margres MJ, Strickland JL, Parkinson CL. 2021. Genomic adaptations to salinity resist gene flow in the evolution of Floridian watersnakes. *MOLECULAR BIOLOGY AND EVOLUTION* 38(3): 745–760. DOI: 10.1093/molbev/msaa266
    - CRediT: Conceptualization; Methodology; Formal Analysis; Investigation; Writing – Original Draft; Visualization; Project Administration



8. Bayona-Serrano JD, Viala VL, **Rautsaw RM**, Schramer TD, Barros G. Nishiyama Junior MY, Sousa L, Moura-da-Silva AM, Parkinson CL, Grazziotin FG, Junqueira-de-Azevedo ILM. 2020. Metalloproteinase replacement and parallel structural simplification maintain venom phenotypes in diverse groups of rear-fanged snakes. *MOLECULAR BIOLOGY AND EVOLUTION* 37(12): 3563-3575. DOI: 10.1093/molbev/msaa192
    - CRediT: Validation; Investigation; Resources; Writing – Review & Editing

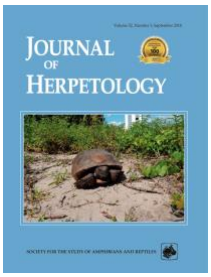
7. **Rautsaw RM**, Hofmann EP, Margres MJ, Holding ML, Strickland JL, Mason AJ, Rokyta DR, Parkinson CL. 2019. Intraspecific sequence variation and gene expression contribute little to venom diversity in the Sidewinder Rattlesnake (*Crotalus cerastes*). *PROCEEDINGS OF THE ROYAL SOCIETY B: BIOLOGICAL SCIENCES* 286(1906). DOI: 10.1098/rspb.2019.0810
    - CRediT: Conceptualization; Methodology; Formal Analysis; Investigation; Data Curation; Writing – Original Draft; Visualization; Project Administration



6. **Rautsaw RM**†, Hofmann EP†, Strickland JL, Holding ML, Hogan MP, Mason AJ, Rokyta DR, Parkinson CL. 2018. Comparative venom-gland transcriptomics and venom proteomics of four Sidewinder Rattlesnake (*Crotalus cerastes*) lineages reveal little differential expression despite individual variation. *SCIENTIFIC REPORTS* 8: 15534. DOI:10.1038/s41598-018-33943-5
    - CRediT: Conceptualization; Methodology; Formal Analysis; Investigation; Data Curation; Writing – Original Draft; Visualization; Project Administration

5. Martin SA, **Rautsaw RM**, Bolt MR, Parkinson CL, Seigel RA. 2018. Estimating the response of wildlife communities to coastal dune construction. *OCEAN & COASTAL MANAGEMENT* 161(1): 31-36. DOI: 10.1016/j.ocecoaman.2018.04.021
    - CRediT: Conceptualization; Methodology; Investigation; Writing – Review & Editing

4. **Rautsaw RM**, Martin SA, Lanctot K*, Vincent BA*, Bolt MR, Seigel RA, Parkinson CL. 2018. On the road again: Assessing the use of roadsides as wildlife corridors for Gopher Tortoises (*Gopherus polyphemus*). *JOURNAL OF HERPETOLOGY* 52(2): 136-144. DOI: 10.1670/17-013
    - CRediT: Conceptualization; Methodology; Formal Analysis; Investigation; Data Curation; Writing – Original Draft; Visualization; Project Administration; Funding Acquisition



3. **Rautsaw RM**, Martin SA, Vincent BA*, Lanctot K*, Bolt MR, Seigel RA, Parkinson CL. 2018. Stopped dead in their tracks: The impact of railways on Gopher Tortoise (*Gopherus polyphemus*) movement and behavior. *COPEIA* 106(1): 135–143. DOI: 10.1643/CE-17-635
   - CRediT: Conceptualization; Methodology; Formal Analysis; Investigation; Data Curation; Writing – Original Draft; Visualization; Project Administration; Funding Acquisition
   - Awarded *2019 BioOne Ambassador*
   - Awarded *Copeia 2018 Best Student Paper in Herpetology*

2. Martin SA, **Rautsaw RM**, Robb F, Bolt MR, Parkinson CL, Seigel RA. 2017. Set AHDriFT: Applying game cameras to drift fences for surveying herpetofauna and small mammals. *THE WILDLIFE SOCIETY BULLETIN* 41(4): 804-809. DOI: 10.1002/wsb.805
   - CRediT: Conceptualization; Methodology; Investigation; Writing – Original Draft; Visualization; Project Administration

1. Martin SA, **Rautsaw RM**, Bolt MR, Parkinson CL, Seigel RA. 2017. Adapting coastal management to climate change: Mitigating our shrinking shorelines. *THE JOURNAL OF WILDLIFE MANAGEMENT* 81(6): 982-989. DOI: 10.1002/jwmg.21275
   - CRediT: Investigation; Writing – Review & Editing

NATURAL HISTORY NOTES & RANGE EXTENSIONS

2. **Rautsaw RM**, Holding ML, Strickland JL, Castañeda-Gaytán JJ, García-González FC, Castañeda-Gaytán JG, Borja-Jiménez JM, Parkinson CL. 2018. *Hypsiglena tanzeri* (Tanzer's Night Snake): Geographic Distribution. *HERPETOLOGICAL REVIEW* 49(2): 287.

1. **Rautsaw RM**, Yanick CJ*, Medina S*, Parkinson CL, Martin SA, Bolt MR. 2016. *Gopherus polyphemus* (Gopher Tortoise): Predation. *HERPETOLOGICAL REVIEW* 47(3): 447-448.

OTHER PUBLICATIONS

2. **Rautsaw RM**. 2022. Phylogenomics of Vipers and the Role of Competition on Venom Evolution. PhD Dissertation. *CLEMSON UNIVERSITY*.

1. **Rautsaw RM**. 2017. The paths less traveled: Movement of Gopher Tortoises (*Gopherus polyphemus*) along roads and railways. MS Thesis. *UNIVERSITY OF CENTRAL FLORIDA*.

MANUSCRIPTS IN PREP/REVIEW

de Oliveira LG, Alencar LRV, Tambosi LR, Carrasco P, **Rautsaw RM**, Sigala J, Scrocchi G, Martins M. Conservation gaps for Neotropical vipers: Mismatches between protected areas, species richness and evolutionary distinctiveness. *BIOLOGICAL CONSERVATION* – Submitted
   - CRediT: Validation; Resources; Writing – Review & Editing

Holding ML, Trevine VC, Zinenko O, Strickland JL, **Rautsaw RM**, Mason AJ, Hofmann EP, Hogan MP, Parkinson CL, Grazziotin FG, Santana SE, Davis MA, Rokyta DR. Evolutionary allometry, climate, and dietary specialization explain fang length evolution in vipers. *PROCEEDINGS OF THE ROYAL SOCIETY B: BIOLOGICAL SCIENCES* – Submitted
   - CRediT: Investigation; Resources; Writing – Review & Editing

Rautsaw RM†, Nachtigall PG†, Junqueira-de-Azevedo ILM, Parkinson CL. MITOSIS: Identification of sample contamination and mislabeling using mitochondrial data. ***BIOINFORMATICS*** – 90% complete
- CRediT: Conceptualization; Methodology; Software; Validation; Formal Analysis; Investigation; Resources; Data Curation; Writing – Original Draft; Visualization; Project Administration

OPEN-SOURCE CODE/APPLICATIONS

GITHUB.COM/RHETTRAUTSAW RHETTRAUTSAW.COM RHETTRAUTSAW.APP

ToxCodAn
- A computational tool designed to detect and annotate toxin genes in transcriptome assemblies.
- DOI: 10.1093/bib/bbab095

MitoSIS
- Mitochondrial Species Identification System. A wrapper for mitochondrial genome assembly and identification of sample contamination or mislabeling.

VenomMaps
- Shiny app designed to display the distributions, niche models, and occurrence records of vipers for use by researchers and for medical aid due to snakebite.

CoordinateMapper
- Shiny app designed to aid in choosing a next-generation sequencing platform and estimate costs given the estimated size of the genome, read length, number of samples, depth of sequencing, and number of reads required.

Sequencing Estimator
- Shiny app designed to aid in choosing a next-generation sequencing platform and estimate costs given the estimated size of the genome, read length, number of samples, depth of sequencing, and number of reads required.

MENTORSHIP

Tristan Schramer (Fall 2019 –) M.S. Student, Clemson University
Working on the venom gland transcriptome of the road guarder (Conophis lineatus) and evolutionary history of Nerodia.

Jade Mellor (Fall 2020 –) M.S. Student, Clemson University
Working on the evolution of venom and Mojave toxin in rock rattlesnakes (Crotalus lepidus).

Ramses Alejandro Rosales (Fall 2020 –) Ph.D. Student, Clemson University
Working on the venom gland transcriptomics of montane pitvipers (Cerrophidion).

Faith Shupard (Spring 2020) B.S. Student, Clemson University
Worked on the venom gland transcriptomics of hog-nosed pitvipers (Porthidium). Currently finishing her B.S. at Clemson University in veterinary sciences.

Brady O'Boyle (Spring 2020) B.S. Student, Clemson University
Worked on the venom gland transcriptomics of jumping pitvipers (Atropoides). Currently a Ph.D. student at the University of Georgia on rotation.

Bridget A. Vincent (Spring 2016 – Fall 2017) B.S. Student, UCF
Helped with data collection, organization, and manuscript write-up of a project examining the impact of railways on Gopher Tortoise movement and behavior. Currently a Ph.D. student at the University of California Santa Barbara in Dr. Todd Oakley's lab.

Katelyn Lanctot (Spring 2016 – Fall 2017) B.S. Student, UCF
Helped with data collection, organization, and manuscript write-up of a project examining the influence of roads on Gopher Tortoise movement patterns. Currently a veterinary student at the University of Florida.

Steffany Medina (Spring 2015 – Spring 2016) B.S. Student, UCF
Helped with the first year of M.S. thesis research involving Gopher Tortoise movement ecology.

Christopher J. Yanick (Spring 2015 – Fall 2016) B.S. Student, UCF
Helped with the first year of M.S. thesis research involving Gopher Tortoise movement ecology. Currently attending graduate school to research biomedical aspects of neurodegenerative diseases.

TEACHING EXPERIENCE

COURSES

2014 – 2017 **University of Central Florida**, Orlando, FL USA
Ecology Laboratory – Instructor of Record (Fall 2015, Fall 2016, Spring 2017)
Herpetology – Graduate Teaching Assistant (Spring 2015, Spring 2016)
General Bio I Laboratory – Graduate Teaching Assistant (Fall 2014)

WORKSHOPS

1. **Rautsaw RM**. 2021. QGIS applications in digital Natural History Collection Course-Based Undergraduate Research Experiences. BCEENET 2021 Virtual Meeting. **[Invitation]**

PRESENTATIONS [† EQUAL CONTRIBUTION, *UNDERGRADUATE MENTEE]

INVITED PRESENTATIONS

7. **Rautsaw RM**. 2022. Snakes and Ladders: Elevating snake genome assembly and evolutionary biology with HiFi genomics. PacBio Discoveries Roadshow, North Carolina Biotechnology Center, Research Triangle Park, NC, USA.

6. **Rautsaw RM**. 2022. Testing the influence of competition on venom evolution. Departmental Seminar. Clemson University, Clemson, SC, USA.

5. **Rautsaw RM**. 2021. Stopped dead in their tracks: Understanding the impact of roads and rails on Gopher Tortoises. Departmental Seminar. University of South Alabama, Mobile, AL, USA.

4. **Rautsaw RM**. 2020. Genomic adaptations to salinity resist gene flow in the evolution of Floridian watersnakes. Departmental Seminar. Instituto Butantan, São Paulo, Brazil.

3. **Rautsaw RM**, Martin SA, Vincent BA, Lanctot K, Bolt MR, Seigel RA, Parkinson CL. 2020. On the right track: Understanding and reducing the impact of railways on *Gopherus*. 45th Annual Desert Tortoise Council Meeting. Excalibur Hotel & Casino, Las Vegas, NV, USA.

2. **Rautsaw RM**, Parkinson CL. 2019. Sampling the genome to assess the taxonomic status of the Atlantic Salt Marsh Snake (*Nerodia clarkii taeniata*). Reptile and Amphibian Noteworthy Accomplishments (RANA) Meeting. Ocala, FL, USA.

1. **Rautsaw RM**. 2019. Contrasting patterns of venom evolution in rattlesnakes of the American Southwest. Instituto Butantan, São Paulo, Brazil.

ORAL PRESENTATIONS

15. **Rautsaw RM**. 2019. Phylotranscriptomics: Using transcriptomics to build phylogenies. NSF Scales of Biodiversity Collaborative Meeting. Pantanal, Brazil.

14. **Rautsaw RM**, Hofmann EP, Margres MM, Holding ML, Strickland JL, Mason AJ, Hogan MP, Rokyta DR, Parkinson CL. 2019. The flat adaptive landscape of Sidewinder Rattlesnake venom. Biology of the Pitvipers III. Rodeo, NM, USA.

13. Hofmann EP, **Rautsaw RM**, Grünwald CI, Jones JM, Franz-Chávez H, Ahumada-Carrillo IT, Ramírez-Chaparro R, de la Torre-Loranca MA, Strickland JL, Mason AJ, Holding ML, Borja M, Castañeda-Gaytán G, Rokyta DR, Parkinson CL. 2019. Characterizing venom variation in the Mexican montane vipers (*Cerrophidion*). Biology of the Pitvipers III. Rodeo, NM, USA.

12. Holding ML, Strickland JL, **Rautsaw RM**, Mason AJ, Hofmann EP, Margres MM, Hogan MP, Ellsworth S, Nystrom G, Coston TJ, Borja M, Grünwald CI, Jones JM, Castañeda-Gaytán G, de Sousa LAF, de Silva AM, Azevedo I, Grazziotin FG, Gibbs HL, Rokyta DR, Parkinson CL. 2019. Assessing the relationship between venom complexity and diet diversity in rattlesnakes using a novel, genome-wide phylogeny. Biology of the Pitvipers III. Rodeo, NM, USA.

11. Parkinson CL, Holding ML, Strickland JL, **Rautsaw RM**, Mason AJ, Hofmann EP, Borja M, Grünwald CI, Jones JM, de la Torre-Loranca MA, Castañeda-Gaytán G, Grazziotin FG, Gibbs HL, Rokyta DR. 2019. The rattlesnake tree of life: A genome-wide perspective. Biology of the Pitvipers III. Rodeo, NM, USA.

10. **Rautsaw RM**, Hofmann EP, Grünwald CI, Jones JM, Franz-Chávez H, Ahumada-Carrillo IT, Ramírez-Chaparro R, de la Torre-Loranca MA, Strickland JL, Mason AJ, Holding ML, Borja M, Castañeda-Gaytán G, Parkinson CL. 2019. Variación en el veneno del los vipéridos de montaña mexicanos (*Cerrophidion*). 2° Congreso Nacional de Viperidos Mexicanos y Ofidismo. Aguascalientes, Aguascalientes, MX.

9. Parkinson CL, Holding ML, Strickland JL, **Rautsaw RM**, Mason AJ, Hofmann EP, Borja M, Grünwald CI, Jones JM, Castañeda-Gaytán G, Rokyta DR. 2019. El árbol de la vida de las serpientes de cascabel: una perspectiva de genoma amplio. 2° Congreso Nacional de Viperidos Mexicanos y Ofidismo. Aguascalientes, Aguascalientes, MX.

8. **Rautsaw RM**, Hofmann EP, Rokyta DR, Parkinson CL. 2018. Comparative venomics of the Sidewinder Rattlesnake (*Crotalus cerastes*). Venomous Herpetology Symposium. Miami, FL USA.

7. **Rautsaw RM**, Martin SA, Vincent BA*, Lanctot K*, Bolt MR, Seigel RA, Parkinson CL. 2017. Stopped dead in their tracks: The impact of railways on Testudine movement and behavior. JMIH 2017 Meeting. Austin, TX USA.
   – *SSAR SEIBERT AWARD FOR BEST CONSERVATION ORAL PRESENTATION* ($200)

6. **Rautsaw RM**, Martin SA, Vincent BA*, Lanctot K*, Bolt MR, Seigel RA, Parkinson CL. 2017. A switch in tracks: The impact and management of railways for Gopher Tortoises. FLTWS Spring 2017 Meeting. Orlando, FL, USA.
   – *BEST STUDENT ORAL PRESENTATION* ($100)

5. **Rautsaw RM**, Martin SA, Frank Robb, Bolt MR, Seigel RA, Parkinson CL. 2017. Updating the drift fence: Applying game cameras to survey herpetofauna and small mammals. The 38th Annual Gopher Tortoise Council Meeting. Palatka, FL, USA.
   – *1ST PLACE STUDENT ORAL PRESENTATION*

4. Martin SA, **Rautsaw RM**, Bolt MR, Richard A. Siegel, Parkinson CL. 2017. Utilizing R for density estimates of Gopher Tortoises and the benefit of hierarchical modeling. The 38th Annual Gopher Tortoise Council Meeting. Palatka, FL, USA.

3. Bolt MR, Weiss SK, Lupo PA, **Rautsaw RM**. 2017. The response of radiotagged Gopher Tortoises (*Gopherus polyphemus*) to created dune habitat on the John F. Kennedy Space Center. The 38th Annual Gopher Tortoise Council Meeting. Palatka, FL, USA.

2. **Rautsaw RM**, Medina S*, Yanick CJ*, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2016. Determining usage of wildlife corridors by Gopher Tortoises (*Gopherus polyphemus*). FLTWS Spring 2016 Meeting. Gainesville, FL, USA.

1. **Rautsaw RM**, Medina S*, Yanick CJ*, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2015. Determining usage of wildlife corridors by Gopher Tortoises (*Gopherus polyphemus*). The 37th Annual Gopher Tortoise Council Meeting. Covington, LA, USA.

POSTER PRESENTATIONS

18. Simpson CL, Strickland JL, **Rautsaw RM**, Parkinson CL. 2019. Venom phenotype specialization in Blunthead Treesnakes (*Imantodes cenchoa*). Clemson University Summer Undergraduate Research Symposium. Clemson, SC, USA.

17. Holding ML, Trevine VC, Zinenko O, Strickland JL, Rautsaw RM, Mason AJ, Hofmann EP, Parkinson CL, Grazziotin FG, Summers AP, Santana SE, Davis MA, Rokyta DR. 2019. Fang length evolution in vipers is predicted by furred and feathered diets. Biology of the Pitvipers III. Rodeo, NM, USA.

16. Hofmann EP, **Rautsaw RM**, Rokyta DR, Parkinson CL. 2018. Characterizing venom variation in Mexican montane pitvipers (*Cerrophidion*) through venom gland transcriptomics. Venomous Herpetology Symposium. Miami, FL USA.
   – *BEST STUDENT POSTER PRESENTATION*

15. **Rautsaw RM**†, Hofmann EP†, Rokyta DR, Parkinson CL. 2018. Exploring venom gene expression among lineages of the Sidewinder rattlesnake (*Crotalus cerastes*). 2018 Society of Systematic Biologists standalone meeting. Ohio State University, Columbus, OH USA.

14. **Rautsaw RM**†, Hofmann EP†, Rokyta DR, Parkinson CL. 2018. Exploring venom gene expression among lineages of the Sidewinder rattlesnake (*Crotalus cerastes*) through venom gland transcriptomics. Clemson Graduate Research And Discovery Symposium (GRADS). Clemson University, Clemson, SC USA.

13. **Rautsaw RM**†, Hofmann EP†, Rokyta DR, Parkinson CL. 2018. Exploring venom gene expression among lineages of the Sidewinder rattlesnake (*Crotalus cerastes*) through venom gland transcriptomics. Clemson Biological Sciences Annual Student Symposium (CBASS). Clemson University, Clemson, SC USA.
    – *1ST PLACE GRADUATE POSTER PRESENTATION* ($100)

12. Vincent BA*, Lanctot K*, **Rautsaw RM**, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2017. Stopped in their tracks: Assessing the effects of anthropogenic barriers on *Gopherus polyphemus*. Showcase of Undergraduate Research Excellence. UCF, Orlando, FL USA.
    – *JUDGE'S PICK* ($500)

11. Lanctot K*, Vincent BA*, **Rautsaw RM**, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2017. Wildlife corridors: Evaluating organismal movement between fragmented habitats. Showcase of Undergraduate Research Excellence, UCF, Orlando, FL USA.

10. Lanctot K*, Vincent BA*, **Rautsaw RM**, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2017. Wildlife corridors: Evaluating organismal movement between fragmented habitats. The 38th Annual Gopher Tortoise Council Meeting. Palatka, FL USA.

9. Vincent BA*, Lanctot K*, **Rautsaw RM**, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2017. Stopped in their tracks: Assessing the effects of anthropogenic barriers on *Gopherus polyphemus*. The 38th Annual Gopher Tortoise Council Meeting. Palatka, FL USA.

8. Smith N, Grace M, Arnaldi K, Bunner C, Guilfoyle K, Klein K, Mercier KP, Napier J, Perry D, Phillips K, **Rautsaw RM**, Stahelin G, Volk D, Jenkins DG. 2017. Toward a macroecology of roadkill. 8th Biennial Conference of the International Biogeography Society. Tucson, AZ USA.

7. **Rautsaw RM**, Medina S*, Yanick CJ*, Martin SA, Bolt MR, Seigel RA, Parkinson CL. 2016. Determining usage of wildlife corridors by Gopher Tortoises (*Gopherus polyphemus*). JMIH 2016 Meeting. New Orleans, LA USA.

6. Yanick CJ*, Medina S*, **Rautsaw RM**, Parkinson CL. 2016. Stopped in their tracks: Assessing the effects of anthropogenic barriers on *Gopherus polyphemus*. Summer Research Academy. UCF Office of Undergraduate Research, Orlando, FL USA.

5. Medina S*, Yanick CJ*, **Rautsaw RM**, Parkinson CL. 2016. Wildlife corridors: Assessing the connectivity of habitats in a fragmented landscape. Sunshine State Scholars Program. Orlando, FL USA.

4. Yanick CJ*, Medina S*, **Rautsaw RM**, Parkinson CL. 2016. Stopped in their tracks: Assessing the effects of anthropogenic barriers on *Gopherus polyphemus*. Sunshine State Scholars Program. Orlando, FL USA.

3. Medina S*, Yanick CJ*, **Rautsaw RM**, Parkinson CL. 2016. Wildlife corridors: Assessing the connectivity of habitats in a fragmented landscape. Showcase of Undergraduate Research Excellence, UCF, Orlando, FL USA.

2. Yanick CJ*, Medina S*, **Rautsaw RM**, Parkinson CL. 2016. Stopped in their tracks: Assessing the effects of anthropogenic barriers on *Gopherus polyphemus*. Showcase of Undergraduate Research Excellence UCF, Orlando, FL USA.
   – *HONORABLE MENTION*

1. Martin, Scott A., **Rautsaw RM**, Bolt MR, Seigel RA. 2015. Remote Surveying for Reptiles and Amphibians: New Applications for Game Cameras. MD-DE Chapter of TWS Fall 2015 Meeting. Columbia, MD USA.

TECHNICAL SKILLS

Field	*Laboratory*	*Computational*
International Field Work	Dissection/Tissue Collection	Unix, R, Python scripting
Venomous Snake Handling	DNA/RNA Purification	Super-computing
Venom Extraction	DNA/RNA Quantification	Bioinformatics
Transect Surveys	DNA/RNA Library Prep	ArcGIS
Game Camera Surveys	Next-Generation Sequencing	Phylogenetics
Drift Fence/Pitfall Collection	PCR	RNA-Seq Analysis
Radio-Telemetry		Statistics
Road Cruising		

LICENSES, PERMITS, & CERTIFICATIONS

2020 – Wilderness First Aid. *American Red Cross*

2014 – Sub-permittee under Dr. Christopher Parkinson for License to Handle and Possess Venomous Reptiles and/or Reptiles of Concern (Class III: Viperidae). *Florida Fish and Wildlife Conservation Commission.*

2014 – Adult and Pediatric First Aid/CPR/AED Certification. *American Red Cross.*

SCIENTIFIC SOCIETY MEMBERSHIPS

2019 – Society of Systematic Biologists (SSB)
2016 – Herpetologist's League (HL)
2016 – American Society of Ichthyologists and Herpetologists (ASIH)

PROFESSIONAL SERVICE

PEER REVIEW (PUBLONS)

Biology Methods and Protocols | European Journal of Wildlife Research (2) | GigaScience
Journal of Fish and Wildlife Management | Molecular Biology and Evolution
Molecular Phylogenetics and Evolution

PUBLIC OUTREACH

2020 Identifying Snakes in the Southern United States – *Clemson Outdoor Recreation and Education*

2019 3 Nights of Nature: Snakes of Upstate South Carolina – *North Anderson Presbyterian Church*
BioOne Ambassador – *BioOne*
Be A T.I.G.E.R Field Day – *Clemson University, Clemson, SC*

2018 The Impact of Railways on Gopher Tortoises – *YouTube, Sigma Xi Student Research Showcase* – Link: https://goo.gl/HFUmdP
Herpetology/Science Education Outreach – *R.C. Edwards Junior High School, Central, SC*
Be A T.I.G.E.R Field Day – *Clemson University, Clemson, SC*

2017 Science and Math Night: Snake Education – *Cypress Springs Elementary School, Orlando, FL*

2016 Fall Faculty Family Fun and Fitness Day: Snake Education – *Center for Success of Women Faculty, UCF, Orlando, FL*
Herpetology/Biology as a Career – *Orange County Youth Shelter, Orlando, FL*
Identifying Venomous Snakes of Florida – *Dr. Lisa Chamber's Lab Meeting, UCF, Orlando, FL*
Herpetology/Science Education Outreach – *Mad Scientist Research Society, UCF, Orlando, FL*
Herpetology/Science Education Outreach – *Wayne Densch Center for Transitional Housing, Orlando, FL*

2009 – 2011 Animal/Reptile Education Shows – *Concord Elementary School, Troy, OH & Franklin Monroe Elementary School, Pitsburg, OH*

MEDIA COVERAGE

2022 PhD students face cash crisis with wages that don't cover living costs – Nature
PhD students demand wage increases amid rising cost of living – Science
Top students honored in the College of Science – *Clemson News*

2020 BioOne Ambassador Award: Catching up with Rhett Rautsaw – *BioOne*

2019 Trapped Tortoise Research Earns Award For Alumnus – *University of Central Florida College of Science News*
Rautsaw wins BioOne Award – *The Early Bird*
BioOne Ambassador Award 2019 Winners – *BioOne*
BioOne Meet the Winners: Rhett M. Rautsaw – *BioOne*
Clemson student 1 of 5 researchers worldwide recognized for communicating about their work – *Clemson University College of Sciences*

2018 SigmaXi 2018 Student Research Showcase – *Sigma Xi*

2017 A Wild Win for UCF Biology Student – *University of Central Florida College of Science News*