

CONTACT INFORMATION

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EDUCATION

Master of Science, Biology (2015-2018)

Texas Tech University, Lubbock, TX

- Research Project: An investigation into the phenological and sexually dimorphic characteristics of the willow, *Salix exigua*
- Supervisor: Dr. Matt Olson
- Summa Cum Laude

Bachelor of Science, Ecology and Evolutionary Biology (2011-2015)

Angelo State University, San Angelo, TX

- Magna Cum Laude

EMPLOYMENT EXPERIENCE

Technician III - Lab Manager and Technician (2018-Present)

Texas Tech University, Department of Biological Sciences

2901 Main Street, Lubbock TX 79409

Supervisor: Dr. Matt Johnson

- Lab Management:
 - Keeping inventory of samples, reagents, and equipment
 - Washing and autoclaving equipment
 - Maintaining instruments and machinery
 - Managing laboratory waste
 - Ordering, receiving, processing, and shipping samples and supplies
 - Training undergraduate and graduate students as well as external collaborators in lab safety and protocols
- Lab Technician:
 - DNA extractions of leaf, seeds, roots, and soil from fresh tissue and herbarium specimens
 - Fungal DNA extractions from herbarium leaf and root tissue
 - High molecular weight DNA extractions from moss
 - DNA library preparation
 - Hybridization techniques for targeted sequencing
 - RNA extractions from moss and seeds

- Gel electrophoresis
- Creating, balancing, and storing solutions
- Destructive sampling of herbarium specimens
- Moss propagation
- Other:
 - Creating interactive maps using R for PhyscoHunt using iNaturalist data
 - Transporting supervisor and students to field trips, community outreach, and conferences
 - Assisted in developing and teaching the lab for Evolution of Plants, an upper level botany course

Research Assistant - Assistant Curator at the E. L. Reed Herbarium (2018)

Texas Tech University, Department of Biological Sciences

2901 Main Street, Lubbock TX 79409

Supervisor: Dr. Matt Johnson

- Reorganized herbarium to promote safety and efficiency
- Installed new microscopes and dissecting scopes for research projects
- Maintained cleanliness and organization
- Composed an updated inventory of a long-ignored research space
- Prepared purchase orders for new herbarium equipment
- Developed protocols for specimen preparation, mounting, and entry into the collection
- Established pest control and prevention protocols for the herbarium

Teaching Assistant - Lab Coordinator: Biology of Plants (2017-2018)

Texas Tech University, Department of Biological Sciences

2901 Main Street, Lubbock TX 79409

Supervisors: Dr. Matt Johnson and Dr. Nick Smith

- Developed weekly PowerPoint lectures, quizzes, and offline/online assignments
- Led weekly meetings with teaching assistants and professors
- Managed lab inventory and plant collection in the greenhouse
- Coordinated six labs during the fall semester and five in the spring
- Helped develop lab syllabi
- Assisted in the editing and alterations of the lab manual

Teaching Assistant (2015-2018)

Texas Tech University, Department of Biological Sciences

2901 Main Street, Lubbock TX 79409

Supervisors: Dr. Matt Olson, Dr. Matt Johnson, and Dr. Nick Smith

- Assigned to Organic Evolution, a senior level biology course, for four semesters
 - Developed exams and offline/online assignments
 - Graded exams and assignments
 - Led weekly discussion sessions for students
- Assigned to Biology of Plants, a non-major biology course, for three semesters
 - Developed weekly quizzes
 - Graded several weekly assignments
 - Taught two labs for both my first and second semester, one lab the third semester

Research Assistant (2017)

Texas Tech University, Department of Biological Sciences

2901 Main Street, Lubbock TX 79409

Supervisor: Dr. Matt Olson

- Designed methodology for field sampling of study species, *Salix exigua*
- Completed and received collecting permit from the Bureau of Land Management
- Propagated study species using stem cuttings in the biology department greenhouse
- Germinated seeds from study species
- Extracted DNA from leaf tissue
- Collected and counted seeds from pollen limitation experiment
- Collected insects for pollinator study on study species

Assistant Editor (2014-2015)

The Southwestern Naturalist

PO Box 4022, Topeka KS 66604

Worked from San Angelo, TX

- Organized important dates needed for publishing
- Estimated page charges for articles
- Developed and sent page charge statements and invoices

Animal Caretaker (2013-2014)

San Angelo Nature Center, San Angelo Recreation Department

7409 Knickerbocker Road, San Angelo TX 76904

- Cleaned, fed, and practiced enrichment with various animals native to the Concho Valley and exotic animals common in the pet trade
 - Animals include: Prairie dogs, Raccoons, Porcupines, Gray Foxes, Bobcats, Ground squirrels, Rock squirrels, Rattlesnakes, Tarantulas, Tortoises, Salamanders, etc.
- Educated visitors, often families and school classes, about the animals as well as conservation and sustainability
- Helped coordinate and train volunteers of various ages

Research Assistant - Angelo State Natural History Collection Herbarium (2012-2013)

Angelo State University, Biology Department

2601 W. Avenue N, San Angelo TX 76909

- Hired via an NSF grant to digitize collections:
 - Assisted in entering specimen data into the Specify 6.5 database
 - Prepared and mounted an assortment of plant specimens
 - Photographed specimens and entered them into an online database

PUBLICATIONS

(In Prep) M. Slimp, L.D. Williams, [H. Hale](#), and M.G. Johnson. On the potential of Angiosperms353 for population genomics. Invited Special Issue: *Exploring the Potential of Angiosperms353, a Universal Toolkit for Flowering Plant Phylogenomics*. *The American Journal of Botany*.

[H. Hale](#), E.M. Gardner, J. Viruel, L. Pokorny, and M.G. Johnson. 2020. Strategies for reducing per-sample costs in target capture sequencing for phylogenomics and population genomics in plants. Invited Special Issue: *Low-cost methods in plant sciences Applications in Plant Sciences* e11337. doi:10.1002/aps3.11337.

RESEARCH EXPERIENCE

Towards a genetic database of Texas flora via targeted sequencing of 353 genes

[Haley Hale](#), Madeline Slimp, Dr. Matt Johnson

- Presentations:
 - *Oral Paper*: Texas Plant Conservation Conference - Online Conference - August 2020
- Role:
 - Presenter
 - Construction of genetic libraries for sequencing

Implementing undergraduate research in an upper-level botany lab using target capture sequencing of herbarium specimens

[Haley Hale](#), Yanni Chen, Lindsay Williams, Dr. Matt Johnson

- Presentations:
 - *Oral Paper*: Botany - Online Conference - July 2020
- Role:
 - Presenter
 - Development and scheduling of the lab section for the course
 - Trained the teaching assistant in molecular techniques for target capture and assisted in teaching the undergraduates

Herbaria as botanical snapshots: 50 years of land use and climate change impacts on genetics and physiology in the Guadalupe Mountains

Madeline Slimp, [Haley Hale](#), Cassidy Coker, Zachary Bailey, Dr. Matt Johnson

- Role:
 - Specimen selection and tissue sampling
 - Construction of genetic libraries for sequencing
 - Trained undergraduate researcher in molecular techniques for target capture

Characterization of the Fungal Microbiome in 50-Year-Old Plant Herbarium Specimens

Cassidy Coker, [Haley Hale](#), Dr. Matt Johnson

- Role:
 - Specimen selection and tissue sampling
 - Construction of PCR products for sequencing
 - Trained undergraduate researcher in DNA extraction and PCR

Developing a cost-effective workflow for targeted sequencing of herbarium specimens using *Angiosperms353*

Haley Hale, Dr. Lisa Pokorny, Dr. Elliot Gardner, and Dr. Matt Johnson
Texas Tech University, Spring 2019 - Summer 2019

- Presentations:
 - *Oral Paper*: SICB - Austin, TX - January 2020
 - *Oral Paper*: Botany - Tucson, AZ - July 2019
- Role:
 - Presenter
 - Specimen selection and tissue sampling
 - Construction of genetic libraries for sequencing
 - Data visualization using R
 - Trained undergraduate researcher in molecular techniques for target capture

An investigation into the phenological and sexually dimorphic characteristics of the willow, *Salix exigua*

Haley Hale, Dr. Matt Olson, and Dr. Brian Sanderson
Texas Tech University, Summer 2016 - Summer 2018

- Role:
 - Primary researcher
 - Selected and designed study system
 - Collected phenological and sex data from the field and greenhouse
 - Started and maintained hundreds of individuals from study species in the greenhouse
 - Data analysis and visualization using R

Sex determination using molecular methods and the identification of sexual dimorphism in *Populus balsamifera*

Haley Hale, Helen Scott, and Dr. Matt Olson
Texas Tech University, Fall 2015 - Summer 2016

- Presentations:
 - *Oral Paper*: Evolution - Austin, TX - June 2016
- Role:
 - Presenter
 - Determined sex of trees from common garden using restriction enzyme digestion
 - Analyzed environmental, sex, and population data using R

Establishing a Population of the Threatened Chisos Mountain Hedgehog Cactus

Haley Hale and Dr. Bonnie Amos
Angelo State University, Fall 2013 - Spring 2014

- Presentations:
 - *Oral Paper*: Christmas Mountains Symposium - Terlingua Ranch Headquarters, TX - May 2014
 - *Poster*: TriBeta National Convention - Erie, PA - June 2014
- Role:
 - Presenter
 - Assisted in a population survey
 - Explored possible nurse plant relationships

COMMUNITY INVOLVEMENT AND SERVICE

E.L. Reed Herbarium, Sep 2018 - Present

Texas Tech University, Department of Biological Sciences

- Helping maintain cleanliness and organization in the E.L. Reed Herbarium
- Collecting and pressing plants for community outreach programs through the E.L. Reed Herbarium
- Taught elementary school children the importance of herbarium collections as well as how to make a specimen
- Constructed new plant presses for the herbarium for use in future courses and field work

Botanical Society of America, Jul 2019 - Present

- Identified legislation relevant to the goals of BSA's Public Policy Committee
- Moderated a talk session during Botany 2019

Texas Tech University Association of Biologists, Sep 2015 - Sep 2018

Texas Tech University, Department of Biological Sciences

- Assisted in recycling pickup throughout the department
- Sold lab manuals and equipment to undergraduates

TriBeta Biological Honor Society, Aug 2011 - May 2015

Angelo State University, Epsilon Sigma chapter

- STEM Conference – Focused on women in science, I led girls of various ages through an assortment of biological experiments
- HEB Feast of Sharing - Served thanksgiving meals to the community
- Helping Hands - Improved homes around San Angelo
- SAFE Recycling - Sorted recyclables at San Angelo's main recycling center
- Science Days/Nights - Taught local children about biology
- Spring Chicken Affair - Served food to the people of San Angelo
- WTMA Distinguished Lectureship - Organized events and distributed brochures to the audience of renowned and distinguished professionals in various fields of study

Natural History Mammal Collection, Feb 2012 - May 2012

Angelo State University, Biology Department

- Provided help with the preparation of several mammal specimens
- Skinned, stuffed, and took tissue samples of each specimen
- Recorded capture information and specimen data
- Assisted with research by skinning skunk heads and taking tissue and blood samples

Concho Valley PAWS, Jan 2012 - May 2012

- Cared for and cleaned cats and their habitats
- Looked after dogs during adoption events
- Took phone calls and assisted visitors at the front desk

HONORS AND AWARDS

- Graduated Summa Cum Laude from Texas Tech University
- Graduated Magna Cum Laude from Angelo State University
- Inducted into Alpha Chi Honor Society, Fall 2012
- ASU Dean's List: Fall 2011, Spring-Fall 2012, Spring 2013, Fall 2014, Spring 2015
- JCT award recipient, Epsilon Sigma chapter of TriBeta, Fall 2011

PROFESSIONAL MEMBERSHIPS AND ORGANIZATIONS

- Botanical Society of America, Summer 2019 - Present
 - Public Policy Committee Member, Summer 2019 - Present
 - Member, Summer 2019 - Present
- Society for the Study of Evolution, Spring 2016 - Spring 2017
- Southwestern Association of Naturalists, Spring 2015 - Spring 2016
- Texas Tech University Association of Biologists, Fall 2015 - Fall 2018
- TriBeta Biological Honor Society member, Fall 2011- Present
 - President, Summer 2014 - Summer 2015
 - Treasurer, Summer 2013 - Summer 2014
 - Representative, Summer 2012 - Summer 2013
 - Honor Member, Spring 2013 - Present
- Delta Tau Alpha Agricultural Honor Society, Fall 2013 - Spring 2015
- Alpha Chi Honor Society member, Fall 2012 - Spring 2015
- Block and Bridle Club, Fall 2011 - Spring 2012

REFERENCES

Matt Johnson, PhD - Assistant Professor, Department of Biological Sciences, Texas Tech University

- Current supervisor, former teaching/research assistant supervisor
- matt.johnson@ttu.edu
- (806) 834-5750

Matt Olson, PhD - Associate Professor, Department of Biological Sciences, Texas Tech University

- Supervisor for M.S. degree and teaching assistantships
- matt.olson@ttu.edu
- (806) 834-7252

Brian Sanderson, PhD - Researcher, The Jackson Laboratory

- Former Olson Lab postdoc
- brian@biologicallyrelevant.com
- (785) 840-4500

Bonnie Amos, PhD - Professor, Biology Department, Angelo State University

- Supervisor for undergraduate research and botany professor
- bonnie.amos@asu.edu
- (325) 486-6656