Carlee Steppe

218 Bridgewood Ave ● Taylors, SC 29687 ● (864) 404-9012 ● carleesteppe@gmail.com

Objective: Earn a position in native plant conservation based on my passion, education, and research interests in conservation biology, plant propagation and the preservation of native ecological communities

Education

Clemson University: School of Forestry and Environmental Conservation **December 2016**
Bachelors of Science *Clemson, SC*
Environmental and Natural Resources: Conservation Biology (GPA: 3.6/4.0)

Employment and Professional Experience

Conservation and Land Management Intern: **February 2017-*present***
Chicago Botanic Garden and Bureau of Land Management *Ridgecrest, CA*

- Collecting seeds for BLM Seeds of Success program
- Collecting tissue samples to be used for genetic testing
- Responsible for scouting for seeds in over 1.6 million acres of the Ridgecrest field office
- Hiking an average of 4 miles a day to scout for native plant populations
- Surveying for rare and endangered plant species on BLM land
- Focusing on 40+ species in the Western Mojave Desert including *Chylismia, Muhlenbergia, Plantago, Lycium, Yucca, Salvia* and *Bouteloua*
- Aiding in USGS common gardens initiative by maintaining garden in Ridgecrest area

Horticulture Research Associate, in Dr. Faust Lab: **August 2016-February 2017**
Clemson University *Clemson, SC*

- Worked independently on several research projects
- Studied the decreased fertilizer practices of the last few years and their effects on the post-harvest survivorship of Petunias
- Experimented with how CaCl2 effects the plant height of several species and its potential as an organic plant growth regulator
- Researched how recently collected cuttings utilize water and techniques to improve survival in greenhouse setting
- Analyzed stomata openings at different times of day and night to look into water loss for cuttings
- On a daily basis, I was responsible for watering and general plant care for over a thousand plants. As well as accurately applying treatments such as hormones, fertilizer and other plant regulators. On a weekly basis, I collected tissue and soil samples. I then analyzed these samples for qualities such as pH, electroconductivity and moisture.

Horticulture Research Technician, in Dr. Adelberg Lab: **August 2016-December 2016**
Clemson University *Clemson, SC*

- Aided in developing better microgreens techniques on Daikon radish, to be implemented in vertical farming
- Researched several different tissue culture and micro-propagation methods for *Sarracenia jonesii*, an endangered plant species
- One of which was operating with different levels of MS (Murashige and Skoog) in liquid media and different ventilation containers
- Developed an acclimatization protocol for *Sarracenia* increasing its survivorship and use as a restoration plant
- On a daily basis I utilized techniques such as bleach, ethanol, heat and exclusion treatments to maintain a sterile work environment
- Worked with 20+ species in tissue culture including *Petunia, Agave* and *Echinacea* maintaining stock collects and for other scientific endeavors

Research Experience for Undergraduate Intern, in Dr. Shaw Lab: **June-August 2016**
National Science Foundation and University of Minnesota *St. Paul, MN*

- Studied the capacity for ongoing adaptation within *Chamaecrista fasciculata* populations
- Collected/entered data on germination and growth of *Chamaecrista fasciculata* for quantitative genetics research
- Developed and conducted two individual projects researching the physical seed dormancy of *Chamaecrista.* Especially, its ability for this annual species to emerge in the second year. This could have long term impacts on the adaptive capabilities of this species.

SC Botanical Gardens Employee: **January 2014-May 2016**
Clemson University *Clemson, SC*

- Worked in Natural Heritage Garden and the SC Botanic Gardens Greenhouse with the conservation and preservation of native species
- Planted, potted up, mixed soil for, pruned and weeded out plants every single day
- Propagated over 50 native species of the southeastern US from seed, cuttings and divisions

Clemson Silviculture Lab Intern, In Dr. Wang Lab: **May-August 2015**
Clemson University *Clemson, SC*

- Specialized in the study of invasive species, specifically six of the most predominate woody species of southeastern US (Chinaberry, Chinese privet, Chinese tallow, mimosa, silverthorn and tree of heaven)
- Cut down, cut into cross sections and sanded over 120 trees with a team of two other undergraduates
- Analyzed the bark thickness and age of wood invasive species to suggestion a management strategy
- Input and processed data using Microsoft Excel, Microsoft Access, and JMP
- Working to publish manuscript on this topic

Research Experience

Creative Inquiry/Research on SE Invasive Tree Species: **January 2015-*present***
Clemson University *Clemson, SC*

- Researching the traits of non-native/invasive species for fire tolerance
- Working as a part team with two other undergraduate students to develop research objectives and data collection
- Developing organizational standards for research samples and data
- Working to publish a manuscript on this topic that includes a comparison between invasive and native tree species

Creative Inquiry/Research on Rooting Difficult Plants **January-December 2016**
Clemson University *Clemson, SC*

- Working independently to discover the ideal propagation method of at risk/endangered plant species; *Shortia galacifolia* and *Torreya taxifolia*
- Manipulated many variables in order to root plants including root presence, hormone treatment and media type
- Working with automated fog/mist system developed at Clemson University to increase rooting capability

Creative Inquiry/Research measuring impact of Climate Change on *Pinus*: **January-May 2014**
Clemson University *Clemson, SC*

- Cored longleaf and loblolly pines to analyzed tree rings
- Used dendrochronology to look at effects of climate change on growth
- Used statistical analysis to find correlation between tree ring growth and climate (COFECHA)
- Research published in on campus research magazine (Decipher: Fall 2014)

Research Presentations

H. Spencer, C. Adams, **C. Steppe**, L. Pile, G.G. Wang. 2016. Exploring the potential impact of climate change on existing ecological communities. Clemson University 11th Annual Focus on Creative Inquiry Forum. Clemson, SC (poster presentation).

Steppe, C., C. Adams, H. Spencer, L.S. Pile, G.G. Wang. 2015. Are woody non-native invasive plants of Asian origin adapted to frequent fire regimes that were historically characteristic of the southeastern US? Southeast Exotic Pest Plant Council (SE-EPPC) and North Carolina – Invasive Plant Council (NC – IPC) Joint Annual Meeting. Chapel Hill, NC (poster presentation). -3rd place poster recipient

Adams, C., M. Lund, H. Spencer, T. Brady, T. Garland, H. Hutto, C. Myers, M. Raeckelboom, **C. Steppe**, D. Thomas, L.S. Pile and G.G. Wang. (2015). Increasing our scientific knowledge of invasive plant species of the Southeastern US and promoting public awareness. Clemson University 10th Annual Focus on Creative Inquiry Forum. Clemson, SC (poster presentation).

Awards, Conferences, Trainings and Honors

Conservation Land Management training	June 2017
Attended Botany 2017	June 2017
Attended Floriculture Research Alliance Conference	October 2016
President's List Clemson University	August 2013 and January 2016
Dean's List Clemson University	January 2014-August 2015
SC Life Scholarship Recipient	August 2013-December 2016
Third Place Poster Presentation Award Recipient at Invasive Plant Council Meeting	July 2015
Attended Sierra Student Coalition leadership training	July 2014

Technical Skills

- Familiar with COFECHA, SAS, and JMP Pro 12 from classwork as well as analysis for research projects
- Confident in mixing solutions including fertilizer, tissue culture media, CaCl2 and Bonzi
- Used an ATV and four wheel drive vehicles
- Worked with hand and power tools for the SC Botanic Gardens and several other research projects
- Conditioned to field work including 8 hours work days and extreme weather such as rain and heat
- Worked several times a week in a sterile environment for micro-propagation, tissue culture and sterile seed propagation
- Proficient in working with lab equipment such as autoclave, heating elements, pH meter, pressure chamber for water potential, microscopes, laminar flow hood and drying ovens
- ArcPad and ArcGIS experience including fieldwork with Trimble Juno units
- Familiar with Eastern, Western and Midwestern plant species of U.S.

Relevant Coursework

Conservation Biology, Dendrology, Forest Biology, Agricultural Economics, Plant Biology, Ecology, Field Botany, Evolutionary Biology, Restoration Ecology, Plant Pathology, Plant Propagation, Soil Information Systems, Fundamental Genetics, Plant Physiology, GIS for Natural Resources and Freshwater Ecology