# Grant L. Vagle

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## Education

2017-Present — **Ph.D. Student, University of Colorado, Boulder** in Ecology and Evolutionary Biology and the Interdisciplinary Quantitative Biology Graduate Program. Research interests: biodiversity, macroecology, species ranges, eco-genomics, montane mammals, ecological theory

2013-2017 — **B.A. Concordia College, Moorhead, MN** in Biology and Mathematics
Cumulative GPA: 3.93

## Research Experience

2018

- **More-individuals hypothesis simulations** This work involved developing simulations to determine if natural population variation (inherent in biological populations) is clouding our detection of the More-Individuals Hypothesis due to our sampling a narrow time window. This was inspired by the McCain *et al.* (2018) study which found insignificant results for the More-Individuals Hypothesis from a field study on elevational gradients in Colorado. This work was conducted in Christy McCain's lab at CU-Boulder in the Ecology and Evolutionary Biology Department.

- **Mesa Verde National Park Survey** As part of a field crew participating in a partnership between Mesa Verde National Park and the Museum of Natural History at the University of Colorado, we live-trapped small mammals and collected carrion beetles (Coleoptera: *Silphidae*). This survey was done in order to analyze potential species range shifts, as historical data dating back to the early 1900s was available for a variety of species.

- **Plant memory and growth form** Helped develop experimental procedures to examine *Mimosa pudica* (Sensitive Plants) growth form in windy and calm environments. Also developed a mathematical model to predict potential growth forms of this plant. This work was conducted in Orit Peleg's lab at CU-Boulder in the Computer Science Department, and is currently being continued by others in the Peleg Lab.

- **Colonial evolutionary strategies** Colonial animals represent an evolutionary tension because evolution can happen at both the member-level and the colony-level, and traits beneficial at the member-level are unlikely to be beneficial at the colony-level. This work examined the member-level heritability of a Cretaceous bryozoan called *Wilbertopora listokinae*, to examine the potential for within-colony evolution. This work was conducted in Carl Simpson's lab at CU-Boulder in the Geosciences Department.

- **Rocky Mountain Genomics HackCon** Attended the conference and participated in the NCBI-style hackathon at the Rocky Mountain Genomics HackCon. Developed software to analyze endogenous retroviral gene expression in infected and non-infected samples using machine learning techniques. The code is available on the CHERVIL project github page (github.com/NCBI-Hackathons/chervil).

## Research Experience (continued)

2016 **Small mammal communities on remnant and restored prairies** I worked as part of a team of undergraduate researchers under Dr. Joseph Whittaker of Concordia College. We live-trapped and handled small mammals, took saliva samples, and pit-tagged various small mammal species in northwestern Minnesota in an effort to compare the mammal diversity of restored vs. remnant prairie sites.

## Teaching Experience

### University of Colorado

Fall 2018 Developed and implemented a one-day hands-on course for cluster computing with sequence data targeted at computational beginners.

### Concordia College

Fall 2016 BIOL 221 - Ecology - Teaching Assistant
Spring 2016 MATH 121 - Calculus I - Homework Grader
Fall 2015 MATH 121 - Calculus I - Homework Grader
Spring 2015 MATH 122 - Calculus II - Homework Grader
Fall 2014 MATH 121 - Calculus I - Class Tutor

## Research Presentations

2018 Vagle, G. Simulating the More-Individuals Hypothesis. Guild of Rocky Mountain Ecologists and Evolutionary Biologists Annual Meeting. 23 September 2018.

Vagle, G. Modeling and testing sensitive plants' (*Mimosa pudica*) responses to windy environments. Interdisciplinary Quantitative Biology Rotation Talks III, Univ. of Colorado. 2 May 2018.

McCreery, K. P., D. M. Nguyen, S. Nordstrom, M. Smallegan, G. Vagle, C. Walsh, and A. Watson. Do interdisciplinary institutes make science more interdisciplinary? Bioinformatics and Data Science Supergroup, Univ. of Colorado. 2 April 2018.

Vagle, G. Colonial evolutionary strategies in a mid-Cretaceous Bryozoan *Wilbertopora listokinae*. Interdisciplinary Quantitative Biology Rotation Talks II, Univ. of Colorado. 21 February 2018.

2017 Vagle, G. Probability of detecting relationships between the components of the productivity - diversity relationship. Interdisciplinary Quantitative Biology Rotation Talks I, Univ. of Colorado. 9 November 2017.

Vagle, G., D. Braund, C. Whitten, A. Schulz, and J. Watson. Comparison of small mammal communities on restored and remnant prairies in northwestern Minnesota. Celebration of Student Scholarship Oral Presentation, Concordia College - Moorhead, MN. 5 April 2017.

## Research Presentations (continued)

- Whitten, C., D. Braund, J. Watson, and G. Vagle. Recent occurrences of the plains pocket mouse (*Perognathus flavescens*) in northwestern Minnesota. Celebration of Student Scholarship Poster Session, Concordia College - Moorhead, MN. 5 April 2017.

- Vagle, G., C. Whitten, D. Braund, J. Watson, A. Schulz, and J.C. Whittaker. Comparison of small mammal communities on restored and remnant prairies in northwestern Minnesota. Annual Meeting of the Minnesota Chapter of the Wildlife Society Poster Session. 15 February 2017.

2016
- Comstock, M., D. Braund, A. Schulz, G. Vagle, C. Whitten, J. Watson, and J. C. Whittaker. Response of the small mammal community to prairie restoration in northwestern Minnesota. Homecoming Poster Session, Concordia College - Moorhead, MN. 8 October 2016.

2015
- Vagle, G., J. Shamdas, C. Amundson, and C. Mukori. Water chemistry and macroinvertebrate diversity on Long Lake, Becker County, MN. Ecology Poster Session, Concordia College - Moorhead, MN. 11 December 2015.

## Honors and Awards

### University of Colorado

2017-2018
- Interdisciplinary Quantitative Biology Graduate Fellowship

### Concordia College

2013-2017
- Presidential Scholarship

2016
- Flaat Math/Science Endowment Scholarship
- Fugelstad-Torstveit Research Endowment, Concordia College Biology Dept.

## Skills

Coding
- R, Python, Matlab, Bash

## Involvement

### University of Colorado

2018-Present
- Ecology and Evolutionary Biology Department Graduate Student IT Representative

### Concordia College

2013-2017
- Concordia College Varsity Baseball - Team Captain in 2016-17

2015-2017
- Sigma Zeta Science and Math Honor Society-Gamma Gamma Chapter

2016
- Dr. Joseph C. Whittaker's Evaluation and Tenure Committee - Student Member

## References

Available on Request