# Silas Tittes

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## EDUCATION

**University of Colorado at Boulder**, Boulder, Colorado, USA

- PhD. (in progress) – Ecology and Evolutionary Biology — Aug 20014 – Present

Advisers: Prof. Nolan Kane, and Prof. Nancy Emery

- Bachelor of Arts – Ecology and Evolutionary Biology — May 2008 – Dec 2012

Adviser: Prof. Andrew Martin

- Honors Thesis: Flea genetic diversity in Gunnison's Prairie Dog colonies and its implications for flea transmitted diseases

## RESEARCH EXPERIENCE

**University of Colorado at Boulder**

- Professional Research Assistant, Ecology and Evolutionary Biology — Aug 2014 – Aug 2013

Supervisor: Prof. Nolan Kane

- Undergraduate Research Student, Ecology and Evolutionary Biology — May 2009 – Aug 2012

Supervisor: Prof. Andrew Martin

## PUBLICATIONS

### JOURNALS

[9] C Weiss-Lehman, S Tittes, NC Kane, R Hufbauer, BA Melbourne. Riding the wave: genomic signatures of gene surfing and selection in experimental range expansions. *Philosophical Transactions of the Royal Society B* ***(in revision)***

[8] S Tittes, JF Walker, L Torres-Martinez, NC Emery. Grow where you thrive, or where only you can survive? An analysis of tolerance curve evolution in a clade with diverse habitat affinities. *American Naturalist* ***(in review)***

[7] CS Smith, S Tittes, JP Mendieta, E Collier-zans, H Rowe, LH Rieseberg, NC Kane (2018) Genetics of alternative splicing evolution during sunflower domestication. *Proceedings of the National Academy of Sciences*

[6] Q Gao, NC Kane, B Hulke, S Reinert, C Pogoda, S Tittes, J Prasifka (2017) Genetic architecture of capitate glandular trichome density in florets of domesticated sunflower (*Helianthus annuus L.*). *Frontiers in plant science*

[5] DJ Gray, H Baker, K Clancy, RC Clarke, K deCesare, J Fike, MJ Gibbs, F Grotenhermen, NC Kane, KG Keepers, DP Land, RC Lynch, JP Mendieta, M Merlin, K Muller-Vahl, CS Pauli, BJ Pearson, B Rhan, TC Ruthenberg, CJ Schwartz, S Tittes, D Vergara, KH White, RN Trigiano (2016) Current and future needs and applications for cannabis. *Critical Reviews in Plant Sciences*

[4] D Vergara, H Baker, K Clancy, KG Keepers, JP Mendieta, CS Pauli, S Tittes, KH White, NC Kane (2016) Genetic and genomic tools for Cannabis sativa. *Critical Reviews in Plant Sciences*

[3] RC Lynch, D Vergara, S Tittes, KH White, CJ Schwartz, MJ Gibbs, TC Ruthenburg, K deCesare, DP Land, NC Kane (2016) Genomic and chemical diversity in Cannabis. *Critical Reviews in Plant Sciences*

[2] SJ Franks, NC Kane, NB O'Hara, S Tittes, JS Rest (2016) Rapid genome-wide evolution in *Brassica rapa* populations following drought revealed by sequencing of ancestral and descendant gene pools. *Molecular Ecology*

[1] S Tittes, NC Kane (2014) The genomics of adaptation, divergence and speciation: a congealing theory. *Molecular Ecology*

### CONFERENCES

[4] S Tittes, NC Emery (2018) A novel Bayesian inferene method to model tolerance curves. *The American Society of Naturalists*, Montrey, CA

[3] S Tittes C Weiss-Lehman, NC Kane, R Hufbauer, BA Melbourne (2017) Surfing in pools of beetles: using replicated landscape experiments to disentangle signatures of selection and drift. *Evolution*, Portland, OR

[2] NB O'Hara, SJ Franks, NC Kane, S Tittes, Amidi-Abraham G, JS Rest (2014) Genomic signatures of rapid evolution in drought response and disease susceptibility in an annual plant, *Brassica rapa*. *Society for Molecular Biology and Evolution*, Puerto Rico

[1] SJ Franks, NC Kane, NB O'Hara, S Tittes, JS Rest (2014) Genome-wide analysis reveals rapid genetic changes in natural *Brassica rapa* populations following drought. *Evolution*, Raleigh, North Carolina

**SKILLS**

R, R Markdown, R Shiny, Bash, Python, Stan, Docker, Blast, Pandoc, LaTeX, Beamer, GitHub, Googling Stackoverflow.

**AWARDS & SCHOLARSHIPS**

- Ling-Ju Harn Fellowship 2014
  $18,000
- Undergraduate Research Opportunities Program 2010
  $1,000
- Edith Scates Memorial Scholarship 2008
  $1,000
- Lion's Club International Scholarship 2008
  $500

**SOFTWARE**

- R package: performr
  A probablistic Hierarchical Bayesian model to predict performance curves across multiple populations and taxa.
- R package: pomodoror
  A writing productivity application.

**TEACHING**

**INSTRUCTOR**

- Apple Genomics Spring 2018
  I designed and taught Apple Genomics as an upper-division undergraduate elective course focused on the assessment of genetic diversity and classification of Boulder county apples trees. Starting from leaf samples students learned DNA extraction and QC; the development of custom pipelines for DNA sequence alignment, genotyping, and calling variants; and the use of several software packages to assess population structure and genetic diversity. This project is ongoing and is now led by several of the students that took the course.

**TEACHING ASSISTANT**

- Evolutionary Biology Fall 2016 - 2018, Spring 2017, Summer 2017
- Genetics Spring 2015, Summer 2015, Spring 2016
- Genomics Fall 2015

**COURSE DEVELOPMENT**

- Population Genetics web applications Summer 2017
  I developed a series of R shiny based web applications used to teach undergraduate fundamental concepts in Population Genetics. These are free to use and available on GitHub, and are used regularly in several population genetics courses.

[*CV compiled on 2018-09-10*]