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

[11] NB O'Hara, SJ Franks, NC Kane, S Tittes, JS Rest. Evolution of pathogen response genes associated with increased disease susceptibility during adaptation to an extreme drought event in a *Brassica rapa* plant population. *Frontiers in Ecology and Evolution (**In review**)*

[10] 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**)*

[9] K Carscadden, M Mcdermott S Turbek, S Tittes, AP Martin. Building bridges: An active learning lesson in evolution and collaboration. *Journal of College Science Teaching (**Accepted**)*

[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. *The American Naturalist*

[11] CS Smith, E Scordato, S Tittes, S Taylor, D Vergara. Book Review: Molecular Population Genetics. Matthew Hahn. *Molecular Ecology*

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

[3] <u>S Tittes</u> 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, <u>S Tittes</u>, 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, <u>S Tittes</u>, 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, Keras, Docker, Pandoc, LaTeX, git, 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: <u>performr</u>
  A probablistic Hierarchical Bayesian model to predict performance curves across multiple populations and taxa.

- R package: <u>pomodoror</u>
  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

- Phylogenetics / Comparative Biology   Spring 2019

- 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 <u>GitHub</u>, and are used regularly in several population genetics courses.

[*CV compiled on 2019-02-23*]