

# James S. Santangelo

3359 Mississauga Road  
Department of Biology, University of Toronto Mississauga  
Mississauga, ON, L5L 1C6

email: [james.santangelo37@gmail.com](mailto:james.santangelo37@gmail.com)  
website: [james-s-santangelo.github.io/](https://james-s-santangelo.github.io/)  
code/data: [github.com/James-S-Santangelo](https://github.com/James-S-Santangelo)

## EDUCATION & APPOINTMENTS

PhD	<i>University of Toronto</i> Department of Ecology and Evolutionary Biology Advisors: <a href="#">Marc T. J. Johnson</a> and <a href="#">Rob W. Ness</a> Thesis: Evolutionary processes in urban environments	Sept. 2016 - 2022
HBSc	<i>University of Toronto Mississauga</i> Department of Biology Faculty supervisor: <a href="#">Marc T. J. Johnson</a> Graduate student advisor: <a href="#">Nash E. Turley</a> Thesis: The effects of fungal endophyte infection in mediating the competitive ability of the host grass, <i>Festuca rubra</i>	Sept. 2009 - June 2015

## PUBLICATIONS

(# Manuscripts/chapters = 13; # First-authored = 9; [Google Scholar](#))

### Published and Accepted Manuscripts <sup>†</sup>Mentee authors

13. Verrelli, Brian C., Alberti, M., Des Roches, S., Harris, N. C., Hendry, A. P., Johnson, M. T. J., Savage, A. M., Chanrmantier, A., Gotanda, K. M., Govaert, L., Miles, L. S., Rivkin, L., R., Winchell, K. M., Brans, K. I., Correa, C., Diamond, S. E., Fitzhugh, B., Grimm, N. B., Hughes, S., Marzluff, J. M., Munshi-South, J., Rojas, C., **Santangelo, J. S.**, Schell, C., J., Schweitzer, J. A., Szulkin, M. C., Zhou, Y., and Ziter, C. A global horizon scan for urban evolutionary ecology. *Trends in Ecology & Evolution*. [Online ahead of print](#)
12. Innes, S. G., **Santangelo J. S.**, Kooyers, N. J., Olsen, K. M., Johnson, M. T. J. Evolution in response to climate in the native and introduced ranges of a globally distributed plant. *Evolution* 76: 1495-1511.
11. **Santangelo J. S.**, and The Global Urban Evolution Project (GLUE). Global urban environmental change drives adaptation in white clover. *Science* 375: 1275-1281. [PDF](#) [GitHub](#) [Learn more about GLUE](#)
10. **Santangelo J. S.**, L. Ruth Rivkin, <sup>†</sup>Advenard, C., Thompson, K. A. (2020). Multivariate phenotypic divergence along an urbanization gradient. *Biology Letters* 16: 20200511. [PDF](#) [GitHub](#)
9. **Santangelo J. S.**, Thompson, K. A., <sup>†</sup>Cohan, B., <sup>†</sup>Syed, J., Ness, R. W., and Johnson, M. T. J. (2020). Predicting the strength of urban-rural clines in a Mendelian polymorphism along a latitudinal gradient. *Evolution Letters* 4: 212-225. [PDF](#) [GitHub](#)
8. Johnston L., Bonsma-Fisher M., Ostblom J., Hasan A., **Santangelo J. S.**, Tran L., Sales de Andrade E., Coome L., and Mahallati S. (2019). A graduate student-led participatory live-coding quantitative methods course in R: Experiences on initiating, developing, and teaching. *Journal of Open Source Education* 2: 6-11. [PDF](#) [GitHub](#)

7. L. Ruth Rivkin, **Santangelo J. S.**, Alberti M., Aronson M. F. J., de Keyser C. W., Diamond S. E., Fortin M.-J., Frazee L. J., Gorton A. J., Hendry A. P., Liu Y., Losos J. B., MacIvor J. S., Martin R. A., McDonnell M. J., Miles L. S., Munshi-South J., Ness R. W., Newman A. E. M., Stothart M. R., Theodorou P., Thompson K. A., Verrelli B. C., Whitehead A., Winchell K. M., and Johnson M. T. J. (2019). A roadmap for urban evolutionary ecology. *Evolutionary Applications* 12: 384-398. [PDF](#)
6. **Santangelo J. S.**, Thompson K. A., and Johnson M. T. J. (2019). Herbivores and plant defenses affect selection on plant reproductive traits more strongly than pollinators. *Journal of Evolutionary Biology* 32: 4-18. [PDF](#) [GitHub](#)  
*\*\*\*This manuscript won ESEB's Stephen Stearns Prize*
5. **Santangelo J. S.**, L. Ruth Rikvin, and Johnson M. T. J. (2018). The evolution of city life. *Proceeding of the Royal Society B: Biological Sciences* 285: 20181529. [PDF](#)
4. **Santangelo J. S.**, Johnson M. T. J., and Ness R. W. (2018). Modern spandrels: the roles of genetic drift, gene flow and selection in the evolution of parallel clines. *Proceeding of the Royal Society B: Biological Sciences* 285: 20180230. [PDF](#) [GitHub](#)
3. Cadotte M. W., Livingstone S. W. Yasui S.-L. E., Dinnage R. Li, J.-T., Marushia R. **Santangelo J. S.**, and Shu W. (2017). Explaining ecosystem multifunction with evolutionary models. *Ecology* 98: 3175-3187. [PDF](#)
2. **Santangelo J. S.**, and Kotanen P. M. K. (2016). Non-systemic fungal endophytes increase survival but reduce tolerance to simulated herbivory in subarctic *Festuca rubra*. *Ecosphere* 7: e01260. [PDF](#)
1. **Santangelo J. S.**, Turley N. E., and Johnson M. T. J. (2015). Fungal endophytes of *Festuca rubra* increase in frequency following long-term exclusion of rabbits. *Botany* 93(4): 233-241. [PDF](#)

### Book chapters

1. **Santangelo J. S.**, Miles L. M., Breitbart S. T., Murray-Stoker D., L. Ruth Rivkin, Johnson M. T. J., and Ness R. W. (2020). Urban environments as a framework to study parallel evolution. In: *Urban Evolutionary Biology*. M. Szulkin, J. Munshi-South, and A. Charmantier, eds. Oxford University Press, Oxford, UK. [PDF](#)

### Submitted Manuscripts and pre-prints

1. **Santangelo, J. S.**, Roux, C., Johnson, M. T. J. The effects of environmental heterogeneity within a city on the evolution of clines. [bioRxiv](#). [Preprint](#)

### Educational resources (not peer reviewed)

1. **Santangelo J. S.** (2019). Data simulation and randomization tests. *NEON Faculty Mentoring Network, QUBES Educational Resources*. [Access](#).

## FUNDING

(Total Funding = \$109,500 CAD)

NSERC PDF, National Engineering and Research Council of Canada (\$90,000)	2022
NSERC CGS-D, National Engineering and Research Council of Canada (\$35,000)	2020
NSERC PGS-D, National Engineering and Research Council of Canada (\$42,000)	2018
Ontario Graduate Scholarship, Government of Ontario, Canada (\$15,000)	2017
NSERC CGS-M, National Engineering and Research Council of Canada (\$17,500)	2016

## HONORS, AWARDS, & FELLOWSHIPS

---

(Total Awards = \$18,057.26 CAD)

<b>Hamilton Award Finalist</b> , Society for the Study of Evolution (\$624)	2022
<b>Doctoral Excellence Award</b> , Canadian Society for Ecology and Evolution (\$600)	2022
<b>Peter Abrams Award</b> , University of Toronto Ecology and Evolutionary Biology Department (\$500)	2022
<b>Roberta Bondar Graduate Student Excellence Award</b> , University of Toronto Mississauga Department of Biology (\$2452.50)	2021
<b>Doctoral excellence scholarship</b> , University of Toronto Faculty of Arts and Science (\$5000.00)	2020
<b>Rustom H. Dastur Graduate Scholarship</b> , University of Toronto Ecology and Evolutionary Biology Department (\$2602.33)	2020
<b>R. Ramsay Wright Graduate Scholarship</b> , University of Toronto Ecology and Evolutionary Biology Department (\$1000)	2020
<b>Robert L. Jefferies Graduate Scholarship</b> , University of Toronto Ecology and Evolutionary Biology Department (\$396.20)	2020
<b>Stephen Stearns Graduate Student Prize</b> , European Society for Evolutionary Biology (\$375)	2019
<b>Frederick P. Ide Graduate Award</b> , University of Toronto Ecology and Evolutionary Biology Department (\$3000)	2019
<b>ASN 1<sup>st</sup> place presentation</b> , Ontario Ecology, Ethology, and Evolution colloquium (OE3C), Kingston, Canada (\$125)	2017
<b>CSPB best talk in botany</b> , Ontario Biology Day (OBD), Ottawa, Canada (\$100)	2015
<b>New Phytologist Prize for best presentation in botany</b> , Canadian Society for Ecology and Evolution (CSEE), Saskatoon, Canada (\$100)	2015
<b>Award for research excellence in evolution</b> , Ontario Biology Day (OBD), Mississauga, Canada	2014
<b>Undergraduate research grant</b> , University of Toronto Mississauga (\$500)	2014
<b>Alan F. Coventry Memorial Scholarship</b> , University of Toronto Mississauga Biology Department (\$782.23)	2013

## INVITED TALKS

---

Virtual	NSF RCN on Urban Eco-Evo	2022
University of Toronto Mississauga	Departmental seminar series	2021
Radcliffe Institute, Harvard University	Next in Evolution	2018
University of Toronto Mississauga	19 <sup>th</sup> annual New Phytologist Workshop	2017

## CONTRIBUTED PRESENTATIONS

---

(# Contributed Talks/Posters = 14; # Talk/Poster Awards = 5)

(\*Poster presentation; †Award)

ESEB, Prague, Czech Republic	2022
†CSEE, Montréal, Canada	2022
Evolution meeting, Cleveland, Ohio	2022
VIII Congreso Mexicano de Ecología, Oaxaca, Mexico	2022
Atwood Colloquium, University of Toronto, Toronto	2022
†ESEB, Turku, Finland	2019
Evolution meeting, Providence, Rhode Island	2019
*Evolution joint congress, Montpellier, France	2018

Evolution meeting, Portland, Oregon	2017
<sup>†</sup> Ontario Ecology, Ethology, and Evolution Colloquium (OE3C), Kingston, Canada	2017
<sup>†</sup> Ontario Biology Day (OBD), Ottawa, Canada	2015
<sup>†</sup> Canadian Society for Ecology and Evolution (CSEE), Saskatoon, Canada	2015
<sup>†</sup> Ontario Biology Day (OBD), Mississauga, Canada	2014
*Canadian Society of Plant Biologists (CSPB), Mississauga, Canada	2013

## SERVICE, LEADERSHIP, & PROFESSIONAL EXPERIENCE

---

(# Unique Positions = 13)

<b>Grad student rep</b> , UTM Systems Biology Faculty Search	2019 - 2020
<b>Editor</b> , UofT EEB Quarterly Review magazine	2018 - 2020
<b>Co-organizer/instructor</b> , UTM Bi-weekly Graduate Student Programming Workshops	2018 - 2019
<b>Member</b> , UTM Biology Executive Committee	2017 - 2019
<b>Member</b> , UTM Biology Seminar Committee	2017 - 2019
<b>Member</b> , Tri-campus Graduate Chair Search Committee	2018
<b>Member</b> , Ecology and Evolutionary Biology Chair Search Committee	2018
<b>UTM campus representative</b> , EEB Graduate Student Association	2018
<b>Guest Editor</b> , <i>Proceedings B</i> Special Issue: "The Evolution of City Life"	2017 - 2018
<b>Organizer</b> , 19 <sup>th</sup> annual New Phytologist Workshop: "Synthesis in the City: Urban Evolutionary Ecology"	2017
<b>Co-president</b> , UTM Biology Graduate Student Society	2017
<b>Treasurer</b> , UTM Biology Graduate Student Society	2016
<b>Member</b> , UTM Biology Chair Search Committee	2018

## TEACHING EXPERIENCE

---

(# Unique Courses = 6; Total Students Taught = 664)

### Course instructor & developer

EEB313: Quantitative methods in R for biology	2018 - 2019
---	-------------

### Administrative teach assistant

BIO259: Introduction to biological data	2022
---	------

### Teaching assistant

BIO259: Introduction to biological data	2022
BIO152: Introduction to evolution and genetics	2020
BIO342: Evolutionary biology	2017 - 2022
BIO205: Ecology	2017

### Guest lectures

HSC302: Biocommunication visualization	2018 - 2020
--	-------------

## MENTORSHIP & ADVISING

---

(# Students = 5; # Co-authors on published manuscripts = 3)

<b>Cindy Roux</b> , Visiting graduate student from France	Summer 2019
<b>Trevor Schmahl</b> , Undergraduate thesis student	Sept. 2018 - April 2019
<b>Beata Cohan</b> , Undergraduate thesis student	Sept. 2017 - Dec. 2018
<b>Carole Advenard</b> , Visiting graduate student from France	Summer 2017
<b>Jibran Syed</b> , Undergraduate thesis student	Sept. 2016 - April 2017

## REVIEWER

---

(# Unique Journals = 8; Total Reviews = 19)

Annals of Botany	N = 1
Ecology and Evolution	N = 1
Evolution	N = 1
Frontiers Ecology and Evolution	N = 1
Journal of Evolutionary Biology	N = 1
Journal of Urban Evolution	N = 1
Proceedings of the Royal Society B	N = 10
Science	N = 1

## SOCIETY MEMBERSHIPS

---

American Society of Naturalists (ASN)	2017 - present
Canadian Society of Ecology and Evolution (CSEE)	2015 - present
European Society for Evolutionary Biology (ESEB)	2022 - present
Society for the Study of Evolution (SSE)	2017 - present