

James S. Santangelo

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EDUCATION & APPOINTMENTS

| | | |
|----------------|--|--------------|
| Postdoc | <i>University of California Berkeley</i> Department of Integrative Biology Advisor: Rasmus Nielsen | January 2023 |
| PhD | <i>University of Toronto</i> Department of Ecology and Evolutionary Biology Advisors: Marc T. J. Johnson and Rob W. Ness Thesis: Evolutionary processes in urban environments | July 2022 |
| HBSc | <i>University of Toronto Mississauga</i> Department of Biology | June 2015 |

PUBLICATIONS

(First-authored = 11; [Google Scholar](#))

Published and Accepted Manuscripts [†]Student mentee authors

21. 1. Paul Battlay, Brandon T. Hendrickson, Jonas I. Mendez-Reneau, **James S. Santangelo**, Lucas Albano, Jonathan Wilson, Aude E. Caizergues, Nevada King, Adriana Puentes, Amelia Tudoran, Cyrille Violle, Francois Vasseur, Courtney M. Patterson, Michael Foster, Caitlyn Stamps, Simon G. Innes, Remi Allio, Fabio Angeoletto, Daniel N. Anstett, Julia Anstett, Anna Bucharova, Mattheay S. Comerford, Satiago Daivd, Mohsen Falahati-Anbaran, William Godsoe, César González-Lagos, Pedro E. Gundel, Glen R. Hood, Regina Karousou, Christian Lampei, Carlos Lara, Adrián Lázaro-Lobo, Deleon Leandro, Thomas J.S. Merritt, Nora Mitchell, Mitra Mohammadi Bazarganim, Angela Moles, Maureen Murúa, Juraj Paule, Vera Pfeiffer, Joost A. M. Raeymaekers, Diana Rennison, Rodrigo S. Rios, Jennifer K. Rownstree, Adam C. Schneider, Kaitlin Stack Whitchey, Ítalo Tamburrino, Acer VanWallendael, Paul Y. Kim, Rob W. Ness, Marc T. J. Johnson, Kathryn A. Hodgins, Nicholas J. Kooyers. (2024). Haploblocks contribute to parallel climate adaptation following global invasion of a cosmopolitan plant. *Nature Ecology and Evolution*, *In Press*. [bioRxiv](#)
20. Jill T. Anderson, Megan L. DeMarche, Derek A. Denney, Ian Breckheimer, **James S. Santangelo**, Susana M. Wadgyamar. (2025). Adaptation and gene flow are insufficient for persistence of an alpine plant under climate change. *Science*. *In Press*.
19. David Murray-Stoker, **James S. Santangelo**, Marc T.J. Johnson, Marta Szulkin. (2025). Comparing approaches to quantify urbanization on a multicontinental scale. *Urban Ecosystems* 28: 82. [PDF](#)
18. Alexandra Sasha Nikolaeva, **James Santangelo**, Lydia Smith, Richard Dodd, Rasmus Nielsen. (2025). Occurrence of Aneuploidy Across the Range of Coast Redwood (*Sequoia sempervirens*). *G3:Genes, Genomes, and Genetics* jkaf063. [PDF](#)

17. Keerath Bhachu, Hind Emad Fadoul, **James S. Santangelo**, Marc T. J. Johnson. (2024). Tissue-specific expression of HCN and its metabolic precursors in *Trifolium repens*. Botany 102: 470-477. [PDF](#)
16. Aude E. Caizergues, **James S. Santangelo**, Rob W. Ness, Fabio Angeoletto, Daniel Anstett, Julia Anstett, Fernanda Baena-Diaz, Elizabeth J. Carlen, Jaime A. Chaves, Mattheau S. Comerford, Karen Dyson, Mohsen Falahati-Anbaran, Mark D.E. Fellowes, Kathryn A. Hodgins, Glen R. Hood, Carlos Iñiguez-Armijos, Nicholas J. Kooyers, Adrián Lázaro-Lobo, Angela T. Moles, Jason Munshi-South, Juraj Paule, Ilga M. Porth, Luis Y. Santiago-Rosario, Kaitlin Stack Whitney, Ayko J.M. Tack, Marc T.J. Johnson. (2023). Does urbanization lead to parallel demographic shifts across the world in a cosmopolitan plant? Molecular Ecology 33: e17311. [PDF](#)
15. **Santangelo J. S.**, Paul Battlay, Brandon T. Hendrickson, Wen-Hsi Kuo, Kenneth M. Olsen, Nicholas J. Kooyers, Marc T.J. Johnson, Kathryn A. Hodgins, Rob. W. Ness. (2023). Haplotype-resolved, chromosome-level assembly of white clover (*Trifolium repens* L., Fabaceae). Genome Biology and Evolution 15: evad146. [PDF](#) [GitHub](#).
14. **Santangelo, J. S.**, †Roux, C., Johnson, M. T. J. (2022). The effects of environmental heterogeneity within a city on the evolution of clines. Journal of Ecology 100: 2950-2959. [PDF](#) [GitHub](#)
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. (2022). A global horizon scan for urban evolutionary ecology. Trends in Ecology & Evolution 37: 1006-1019. [PDF](#)
12. Innes, S. G., **Santangelo J. S.**, Kooyers, N. J., Olsen, K. M., Johnson, M. T. J. (2022). Evolution in response to climate in the native and introduced ranges of a globally distributed plant. Evolution 76: 1495-1511. [PDF](#)
11. **Santangelo J. S.**, Rob W. Ness, Marc T. J. Johnson, and The Global Urban Evolution Project (GLUE). (2022). 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, †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., †Cohan, B., †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 Keyzer 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

2. Deleon Leandro, Marc TJ Johnson, Adam C Schneider, Adrián Lázaro-Lobo, Aude E Caizergues, Carlos Lara, Carlos Iñiguez-Armijos, César González-Lagos, Christopher Frost, Diana Rennison, Ek Del-Val, Glen Ray Hood, Ilga Porth, Jalene M LaMontagne, **James Santangelo**, Juraj Paule, Kaitlin Stack Whitney, Karen Dyson, Kiyoko M Gotanda, Mattheau Comerford, Michael Just, Philips Akinwole, Spyros Gkelis, Thomas Merritt, William Godsoe, Vera Pfeiffer, Fabio Angeoletto. (2025). GLUEing the World: The GLobal Urban Evolution Project and Its Importance to Urban Biodiversity Conservation. In: *Ecology of Tropical Cities, Volume I: Natural and Social Sciences Applied to the Conservation of Urban Biodiversity*, pp. 217-230. Eds. F. Angeoletto, P. Tryjanowski, M. D. E. Fellowes. [Link](#)
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*, pp. 36-53. M. Szulkin, J. Munshi-South, and A. Charmantier, Eds. Oxford University Press, Oxford, UK. [PDF](#)

Submitted Manuscripts and pre-prints

1. **James S. Santangelo**, Marc T. J. Johnson, and Rob W. Ness. (2024). Signatures of selective sweeps in urban and rural white clover populations. *Evolution. In Revision.* [bioRxiv](#)

Educational resources (not peer reviewed)

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

FUNDING & FELLOWSHIPS

(Total Funding = ≈\$816,900 CAD; ≈\$606,300 USD)

Miller Postdoctoral Fellowship, Miller Institute, UC Berkeley (\$255,000 USD)

2023

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| Long-term Fellowship (LTF) , Human Frontiers Science Program (HFSP, \$202,956 USD) — <i>Declined</i> | 2023 |
| Postdoctoral Fellowship (PDF) , National Engineering and Research Council of Canada (NSERC, \$90,000) — <i>Declined after 6 months</i> | 2022 |
| Canada Graduate Scholarship-Doctoral (CGS-D) , National Engineering and Research Council of Canada (NSERC, \$35,000) | 2020 |
| Postgraduate Scholarship-Doctoral (PGS-D) , National Engineering and Research Council of Canada (NSERC, \$42,000) | 2018 |
| Ontario Graduate Scholarship (OGS) , Government of Ontario, Canada (\$15,000) | 2017 |
| Canada Graduate Scholarship-Masters (CGS-M) , National Engineering and Research Council of Canada (NSERC, \$17,500) | 2016 |

PRIZES, HONORS & AWARDS

(Total Awards = ≈\$18,000 CAD; ≈\$13,400 USD)

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| Hottest Paper Award , University of Toronto Mississauga Biology Department | 2023 |
| Governor General’s Gold Medal , University of Toronto | 2023 |
| Hamilton Award Finalist , Society for the Study of Evolution (\$624) | 2022 |
| Doctoral Excellence Award , Canadian Society for Ecology and Evolution (\$600) | 2022 |
| Peter Abrams Award , University of Toronto Ecology and Evolutionary Biology Department (\$500) | 2022 |
| Roberta Bondar Graduate Student Excellence Award , University of Toronto Mississauga Department of Biology (\$2452) | 2021 |
| Doctoral excellence scholarship , University of Toronto Faculty of Arts and Science (\$5000) | 2020 |
| Rustum H. Dastur Graduate Scholarship , University of Toronto Ecology and Evolutionary Biology Department (\$2602) | 2020 |
| R. Ramsay Wright Graduate Scholarship , University of Toronto Ecology and Evolutionary Biology Department (\$1000) | 2020 |
| Robert L. Jefferies Graduate Scholarship , University of Toronto Ecology and Evolutionary Biology Department (\$396) | 2020 |
| Stephen Stearns Graduate Student Prize , European Society for Evolutionary Biology (\$375) | 2019 |
| Frederick P. Ide Graduate Award , University of Toronto Ecology and Evolutionary Biology Department (\$3000) | 2019 |
| ASN 1st place presentation , Ontario Ecology, Ethology, and Evolution colloquium (OE3C), Kingston, Canada (\$125) | 2017 |
| CSPB best talk in botany , Ontario Biology Day (OBD), Ottawa, Canada (\$100) | 2015 |
| New Phytologist Prize for best presentation in botany , Canadian Society for Ecology and Evolution (CSEE), Saskatoon, Canada (\$100) | 2015 |
| Award for research excellence in evolution , Ontario Biology Day (OBD), Mississauga, Canada | 2014 |
| Undergraduate research grant , University of Toronto Mississauga (\$500) | 2014 |
| Alan F. Coventry Memorial Scholarship , University of Toronto Mississauga Biology Department (\$782) | 2013 |

INVITED TALKS

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| UC Berkeley | Departmental seminar, Integrative Biology | 2024 |
| UC Berkeley | Cal Genomics Summer Research Experience | 2024 |
| University of Ottawa | Departmental seminar, Biology | 2024 |

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| Dovetail Genomics | Genomes of Animals and Plants | 2023 |
| University of Michigan | Early Career Scientists Symposium | 2023 |
| University of Montréal | Departmental seminar, Biology | 2023 |
| University of Louisiana Lafayette | Departmental seminar, Biology | 2022 |
| NSF RCN on Urban Eco-Evo | Virtual seminar series | 2022 |
| University of Toronto Mississauga | Departmental seminar, Biology | 2021 |
| Radcliffe Institute, Harvard University | Next in Evolution | 2018 |
| University of Toronto Mississauga | 19 th annual New Phytologist Workshop | 2017 |

CONTRIBUTED PRESENTATIONS

(# Contributed Talks/Posters = 16; # Talk/Poster Awards = 6)

(*Poster presentation; †Award)

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| SSE-ESEB, Montreal, Canada | | 2024 |
| CSEE, Winnipeg, Canada | | 2023 |
| 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 |
| †Ontario Ecology, Ethology, and Evolution Colloquium (OE3C), Kingston, Canada | | 2017 |
| †Ontario Biology Day (OBD), Ottawa, Canada | | 2015 |
| †Canadian Society for Ecology and Evolution (CSEE), Saskatoon, Canada | | 2015 |
| †Ontario Biology Day (OBD), Mississauga, Canada | | 2014 |
| *Canadian Society of Plant Biologists (CSPB), Mississauga, Canada | | 2013 |

SERVICE, LEADERSHIP, & PROFESSIONAL EXPERIENCE

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| Reviewer , CSEE Doctoral Excellence Awards | | 2024 |
| Reviewer , SSE Rosemary Grant Advanced Awards | | 2023 |
| Grad student rep , UTM Systems Biology Faculty Search | | 2019 - 2020 |
| Editor , UofT EEB Quarterly Review magazine | | 2018 - 2020 |
| Co-organizer/instructor , UTM Bi-weekly Graduate Student Programming Workshops | | 2018 - 2019 |
| Member , UTM Biology Executive Committee | | 2017 - 2019 |
| Member , UTM Biology Seminar Committee | | 2017 - 2019 |
| Member , Tri-campus Graduate Chair Search Committee | | 2018 |
| Member , Ecology and Evolutionary Biology Chair Search Committee | | 2018 |
| UTM campus representative , EEB Graduate Student Association | | 2018 |
| Guest Editor , <i>Proceedings B</i> Special Issue: "The Evolution of City Life" | | 2017 - 2018 |
| Organizer , 19 th annual New Phytologist Workshop: "Synthesis in the City: Urban Evolutionary Ecology" | | 2017 |
| Co-president , UTM Biology Graduate Student Society | | 2017 |
| Treasurer , UTM Biology Graduate Student Society | | 2016 |
| Member , UTM Biology Chair Search Committee | | 2018 |

TEACHING EXPERIENCE

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

(†Co-author on published manuscript)

†**Cindy Roux**, Visiting graduate student from France Summer 2019

Trevor Schmahl, Undergraduate thesis student Sept. 2018 - April 2019

†**Beata Cohan**, Undergraduate thesis student Sept. 2017 - Dec. 2018

†**Carole Advenard**, Visiting graduate student from France Summer 2017

†**Jibran Syed**, Undergraduate thesis student Sept. 2016 - April 2017

REVIEWER

Annals of Botany, Ecology, Ecology and Evolution, Evolution, Evolutionary Applications, Frontiers Ecology and Evolution, Journal of Evolutionary Biology, Journal of Urban Evolution, Nature Cities, Nature Ecology & Evolution, New Phytologist, Plant Cell & Environment, Proceedings of the Royal Society B, Science, Scientific Reports

SOCIETY MEMBERSHIPS

Society for Molecular Biology and Evolution (SMBE) 2024 - present

European Society for Evolutionary Biology (ESEB) 2022 - present

Society for the Study of Evolution (SSE) 2017 - present

Canadian Society of Ecology and Evolution (CSEE) 2015 - present