

Catherine Scott

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ACADEMIC HISTORY

- 2021 **Postdoctoral Fellow**, University of Toronto Scarborough
Supervisor: Maydianne Andrade
- 2020 **Postdoctoral Fellow**, Acadia University
Supervisor: Kirk Hillier
- 2015-2019 **PhD**, Ecology and Evolutionary Biology, University of Toronto
Supervisor: Maydianne Andrade
- 2011-2014 **MSc**, Biology, Simon Fraser University
Supervisor: Gerhard Gries
- 2004-2008 **BSc**, Mathematics, Queen's University

GRANTS AND SCHOLARSHIPS

- 2021 **NSERC Postdoctoral Fellowship** (\$90,000 over two years)
- 2020 **Nova Scotia Museum Research Grant** (\$4,000)
“Who’s walking on the beach? Ground-dwelling spiders and ants of Nova Scotia’s coastal dune ecosystems” (co-applicant with Sean McCann)
- 2019 **Queen Elizabeth II Graduate Scholarship in Science & Technology** (\$15,000)
- 2018 **Ontario Graduate Scholarship** (\$15,000)
- 2018 **General Motors Women in Science and Mathematics Award** (\$5,000)
- 2018 **Entomological Society of Canada PhD Scholarship** (\$2,000)
- 2018 **Entomological Society of Canada Danks Scholarship** (\$1,000)
- 2017 **Toronto Entomologists’ Association W. John D. Eberlie Research Grant** (\$400)
“Sexual selection and chemical communication in a natural population of western black widow spiders”
- 2016 **Experiment Arachnid Challenge Grant** (USD 500 grant plus USD 5,700 raised via crowdfunding at Experiment.com)

“Performance-enhancing substances: How do male black widows use chemical cues to gain a competitive advantage?” (primary applicant, with Sean McCann & Maydianne Andrade as co-applicants)

- 2015 **NSERC Alexander Graham Bell Canada Graduate Scholarship – Doctoral** (\$105,000 over 3 years)
- 2013 **Entomological Society of BC Graduate Student Scholarship** (\$400)
- 2011-2013 **SFU Graduate Fellowships** (3 awards of \$6,250 each)
- 2007 **Norman Miller Fellowship in Mathematics Education** (\$1,000)

OTHER AWARDS

- 2018 International Society for Behavioural Ecology Travel Award (\$600)
- 2016 International Congress of Arachnology: Best student poster in Ecology and Behaviour (\$200)
- 2016 American Arachnological Society Student Travel Grant (\$550)
- 2013 Entomological Society of Canada: President’s Prize for best student talk in Behaviour and Biological Control (\$150)

PEER-REVIEWED PUBLICATIONS

16. Lowe EJ, Wolff J, Aceves-Aparicio A, Birkhofer K, Veiga Branco V, Cardoso P, Chichorro, F, Fukushima C, Goncalves-Sousa T, Haddad C, Isaia M, Krehenwinkel H, Lynn Audisio T, Macias Hernandez N, Malumbres-Olarte J, Mammola S, McLean DJ, Michalko R, Nentwig W, Pekar S, Petillon J, Privet K, **Scott CE**, Uhl G, Urbano Tenorio F, Wong BH, and Herberstein ME. (2020) Towards establishment of a centralized spider traits database. *Journal of Arachnology* 48: 2:103-109. doi: <https://doi.org/10.1636/0161-8202-48.2.103>
15. Faraone N, Light M, **Scott C**, MacPherson S, Hillier NK. (2020) Chemosensory and behavioural responses of *Ixodes scapularis* to natural products: role of chemosensory organs in volatile detection. *Insects* 11: 502. doi:[10.3390/insects11080502](https://doi.org/10.3390/insects11080502)
14. **Scott C**, McCann M, Andrade MCB. (2020) Black widows as plastic wallflowers: female choosiness increases with indicators of high mate availability in a natural population. *Scientific Reports* 10: 8981. doi:[10.1038/s41598-020-65985-z](https://doi.org/10.1038/s41598-020-65985-z)
13. **Scott C**, McCann S, Andrade MCB. (2019) Male black widows parasitize mate-searching effort of rivals to find females faster. *Proceedings of the Royal Society B* 286: 20191470 doi:[10.1098/rspb.2019.1470](https://doi.org/10.1098/rspb.2019.1470)

12. **Scott C**, Anderson A, Andrade MCB. (2018) A review of the mechanisms and functional roles of male silk use in spider courtship and mating. *Journal of Arachnology* 46(2): 173-206. doi: [10.1636/JoA-S-17-093.1](https://doi.org/10.1636/JoA-S-17-093.1)
11. Rosario K, Mettel KA, Benner BE, Johnson R, **Scott C**, Yusseff-Vanegas SZ, Baker CCM, Cassill DL, Storer C, Varsani A, Breitbart M. (2018) Virus discovery in all three major lineages of terrestrial arthropods highlights the diversity of single stranded DNA viruses associated with invertebrates. *PeerJ* doi:[10.7717/peerj.5761](https://doi.org/10.7717/peerj.5761)
10. **Scott C**, Gerak C, McCann S, Gries G. (2017) The role of silk in courtship and chemical communication of the false widow spider, *Steatoda grossa* (Araneae: Theridiidae) *Journal of Ethology* 36(2): 191-197. doi:[10.1007/s10164-017-0539-3](https://doi.org/10.1007/s10164-017-0539-3)
9. Vibert S, Salomon M, **Scott C**, Blackburn GS, Gries G. (2017) Life-history data for the funnel weavers *Eratigena agrestis* and *Eratigena atrica* (Araneae: Agelenidae) in the Pacific Northwest of North America. *The Canadian Entomologist* 149(3): 345-356. doi:[10.4039/tce.2016.73](https://doi.org/10.4039/tce.2016.73)
8. Vibert S, **Scott C**, Gries G. (2016) Vibration transmission through sheet webs of hobo spiders (*Eratigena agrestis*) and tangle webs of western black widow spiders (*Latrodectus hesperus*). *Journal of Comparative Physiology A* 202(11): 749–758. doi:[10.1007/s00359-016-1113-0](https://doi.org/10.1007/s00359-016-1113-0)
7. **Scott C**, Kirk D, McCann S, Gries G. (2015) Web reduction by male black widows renders pheromone-emitting females’ webs less attractive to rivals. *Animal Behaviour* 107: 71-78. doi:[10.1016/j.anbehav.2015.06.009](https://doi.org/10.1016/j.anbehav.2015.06.009)
6. **Scott C**, McCann S, Gries R, Khaskin G, Gries G. (2015) *N*-3-Methylbutyryl-*O*-methylpropanoyl-*L*-serine methyl ester – pheromone component of western black widow females. *Journal of Chemical Ecology* 41(5): 465-472. doi:[10.1007/s10886-015-0582-x](https://doi.org/10.1007/s10886-015-0582-x)
5. McCann S, **Scott C**, Moeri O, Jones T, O’Donnell S, Gries G. (2015) Red-throated Caracara, a falconid raptor, rivals predatory impact of army ants on social wasps. *Insectes Sociaux* 62(1): 101-108. doi:[10.1007/s00040-014-0384-0](https://doi.org/10.1007/s00040-014-0384-0)
4. McCann S, Moeri O, Ibarra Jiminez S, **Scott C**, Gries G. (2015) Developing a paired-target apparatus for quantitative testing of nest defense behavior by vespine wasps in response to con- or heterospecific nest defense pheromones. *Journal of Hymenoptera Research* 46: 151-163. doi:[10.3897/JHR.46.6585](https://doi.org/10.3897/JHR.46.6585)
3. Vibert S, **Scott C**, Gries G. (2014) A meal or a male: the ‘whispers’ of black widow males do not trigger a predatory response in females. *Frontiers in Zoology* 11(1): 4. doi:[10.1186/1742-9994-11-4](https://doi.org/10.1186/1742-9994-11-4)
2. McCann S, Moeri O, Jones T, **Scott C**, Gries R, Khaskin G, O’Donnell S, Gries G. (2013) Strike fast, strike hard: the Red-throated Caracara exploits absconding behavior of social wasps during nest predation. *PLOS ONE* 8(12): e84114. doi:[0.1371/journal.pone.0084114](https://doi.org/10.1371/journal.pone.0084114)
1. **Scott C**, Vibert S, Gries G. (2012) Evidence that web reduction by western black widow males functions in sexual communication. *The Canadian Entomologist* 144(5): 672-678. doi:[10.4039/tce.2012.56](https://doi.org/10.4039/tce.2012.56)

OTHER PUBLICATIONS

2. **Scott C.** (2020) The great black widow race: how males use the silk road to find females faster. *Bulletin of the Entomological Society of Canada* 52(2): 98-103
1. **Scott C.** (2015) Western black widows: unraveling a web of attraction, courtship, manipulation, and rivalry. *Bulletin of the Entomological Society of Canada* 47(2): 46-48

SERVICE

- **Reviewer** for the following journals:
Acta Ethologica, Animal Behaviour, Austral Entomology, Behavioral Ecology, Biological Journal of the Linnean Society, Biotropica, Biological Invasions, BMC Evolutionary Biology, Ethology, Graellsia, Journal of Arachnology, Journal of Animal Ecology, Journal of Ethology, Journal of Insect Behaviour, Journal of Agricultural and Food Chemistry, Naturwissenschaften, New Zealand Journal of Zoology, PeerJ, and Plos One.
- **Education and Outreach Committee member** (co-lead of the Community Science subcommittee) for the **American Arachnological Society** (2020 – present).
- **Entomological Society of Canada Regional Director** representing the Acadian Entomological Society (2020 – 2021).
- **Volunteer** at the membership booth for the **Entomological Society of Canada** at the joint meeting of the Entomological Society of Canada and the Canadian Society for Ecology and Evolution in Fredericton, NB (18 – 21 Aug. 2019).
- **Symposium co-organizer** (with Robb Bennett, Claudia Copley, and Heather Proctor): “Crossing Taxonomic Borders: Challenging Arachnological Traditions in North America” at the joint meeting of the **Entomological Societies of America, Canada, and British Columbia** in Vancouver BC (11 – 14 Nov. 2018).
- **Volunteer** at the membership booths for the **Entomological Society of Canada** and the **Entomological Society of British Columbia** at the joint meeting of the Entomological Societies of America, Canada, and British Columbia in Vancouver BC (11 – 14 Nov. 2018).
- **Volunteer:** AV operator at the annual meeting of the **Animal Behaviour Society** in Toronto, ON (12 – 16 Jun. 2017).
- **Entomological Society of Ontario:**
 - **Student Representative** to the board (2016 – 2018)
 - **Outreach Committee member** (2016 – present)
 - **Scholarship Committee member** (2016 – present)
 - **Bug Eye Photo Competition coordinator** (2018)
- **Vice-president** of Toronto chapter of **Sigma Xi** (2017 – present)
- **Student Representative** on the board of the Toronto chapter of **Sigma Xi** (2016 – 2017).

- **Volunteer:** Maintained the twitter account (@EntSocOnt) for the **Entomological Society of Ontario** (2015 – 2017).
- **Organizing committee member** for Ontario Ecology Ethology and Evolution Colloquium (OE3C) 2016 meeting at the University of Toronto.
- **Volunteer** moderator and AV operator at the Joint Annual Meeting of the **Entomological Societies of Canada and Quebec** in Montréal, QC (8 – 11 Nov. 2015).
- **Volunteer:** scanning and uploading back issues of the **Bulletin of the Entomological Society of Canada** to make them available and searchable online (2013).
- **Volunteer:** AV operator, Joint Annual Meeting of the **Entomological Societies of Canada and Alberta**, in Edmonton, AB (4 – 7 Nov. 2012).
- SFU Biological Sciences Graduate Student Caucus Executive member:
 - Teaching Support Staff Union Representative** (2012 – 2013)
 - Events Committee Officer** (2011 – 2012)

PRESENTATIONS AT SCIENTIFIC MEETINGS

- 2020 ***Scott C**, *McCann S. Arthropods affect everything: lessons from the smaller majority. Annual meeting of the Acadian Entomological Society, Online, 10 Aug. 2020. ***Invited Plenary talk (co-presented)**
- 2019 ***Scott C**, McCann S & Andrade MCB. Sexual selection in western black widow spiders: the role of chemical signals and social information. (Talk) Joint meeting of the Entomological Society of Canada and the Canadian Society for Ecology and Evolution, 18-21 Aug. 2019. ***Talk in the Graduate Student Showcase (inclusion by competition)**
- 2019 ***Scott C**, Anderson A & Andrade MCB. Spider silk and sex: from mating threads to veils and gift-wrap. (Talk) XXI International Congress of Arachnology, Christchurch, New Zealand, 10-15 Feb. 2019. ***Invited symposium talk: Sexual Strategies and Reproductive Morphology in Arachnids**
- 2019 ***Scott C**, Bertone M & Spicer-Rice E. Twitter as a tool for arachnological outreach: reflections on a year of @RecluseOrNot. (Talk) XXI International Congress of Arachnology, Christchurch, New Zealand, 10-15 Feb. 2019. ***Invited symposium talk: Arachnological Outreach for Community Engagement, Conservation and Research**
- 2018 **Scott C**, McCann S & Andrade MCB. You take the high road and I'll take the silk road: male widow spiders follow draglines of rivals to find females faster. (Talk) Joint Annual Meeting of the Entomological Societies of America, Canada, and British Columbia, Vancouver, BC, 10-14 Nov. 2018.
- 2018 **Scott C**, McCann S & Andrade MCB. You take the high road and I'll take the silk road: scrambling male widow spiders find females faster by following silk trails of rivals. (Talk) 17th International Behavioral Ecology Congress, Minneapolis, MN, 11-16 Aug. 2018.

- 2018 **Scott C, McCann S & Andrade MCB.** The amazing race: how male black widows find females faster. (Talk) Toronto Entomologists' Association Student Symposium, Toronto, ON, 24 Mar. 2018.
- 2017 **Scott C, McCann S & Andrade MCB.** Finding females in a sensory storm: How do male western widows localize mates? (Talk) 54th Annual Conference of the Animal Behavior Society, Scarborough, ON, 12-16 Jun. 2017.
- 2016 **Scott C, McCann S & Andrade MCB.** The mating dynamics of western black widows: new insights from field observations. (Talk) Annual General meeting of the Entomological Society of Ontario, Sault Ste. Marie, ON, 19-21 Oct. 2018.
- 2016 ***Scott C, Kirk D, McCann S & Gries G.** Male black widows decrease competition via web reduction. (Poster) International Congress of Arachnology, Golden, CO, 2-9 Jul. 2015. ***Prize for best student poster (*Behaviour and Ecology*)**
- 2016 **Scott C, Kirk D, McCann S & Gries G.** Web reduction behaviour in black widows: a story of attraction, courtship, manipulation, and rivalry. (Talk) Toronto Entomologists' Association Student Symposium, Toronto, ON, 19 Mar. 2016.
- 2015 **Scott C & Gries G.** Factors affecting web reduction behaviour, a mate-monopolization tactic of male western black widow spiders. (Talk) Annual Meeting of the Entomological Society of Canada and the Société d'entomologie du Québec, Montréal, QC, 8-11 Nov. 2015.
- 2015 **Scott C.** #NotABrownRecluse: adventures in (mis)identification of arthropods online, and why Twitter is an excellent tool for entomological outreach. (Talk) Annual Meeting of the Entomological Society of Ontario, Elgin, ON, 18-20 Sept. 2015.
- 2014 ***Scott C.** The truth about spider bites: "Aggressive" spiders and the threat to public health. (Talk) Annual Meeting of the Entomological Society of British Columbia, Burnaby, BC, 28 Sept.-1 Oct. 2014. ***Invited symposium talk: *Arthropods affecting human health: fact and fiction***
- 2014 ***Scott C, Kirk D, McCann S & Gries G.** Web reduction behaviour and the chemical communication system of the western black widow, *Latrodectus hesperus*. (Talk) Joint Annual Meeting of the Entomological Society of Saskatchewan and Entomological Society of Canada, Saskatoon SK, 20-23 Oct. 2013. ***Talk in the Graduate Student Showcase (*inclusion by competition*)**
- 2013 ***Scott C, Kirk D, McCann S & Gries G.** Web reduction behaviour in black widows: a story of attraction, courtship, manipulation, and rivalry. (Talk) Joint Annual Meeting of the Entomological Society of Ontario and the Entomological Society of Canada, Guelph ON, 4-7 Nov. 2012. ***President's Prize for best student talk (*Behaviour and Biological Control*)**
- 2012 **Scott C, Gries R, Khaskin G & Gries G.** Identification of a silk-borne pheromone component of the western black widow *Latrodectus hesperus*. (Talk) Joint Annual Meeting of the Entomological Society of Canada and the Entomological Society of Alberta, Edmonton AB.

- 2011 ***Scott C**, Vibert S & Gries G. Analysis of courtship behaviour in the western black widow, *Latrodectus hesperus*, with insights into vibratory and chemical signals. (Poster) Annual meeting of the International Society of Chemical Ecology, Burnaby BC, , 24-28 Jul. 2011. ***Honorable mention, student poster competition**
- 2010 **Scott, C.**, Vibert, S. & Gries, G. Courtship behavior and mating success in the black widow *Latrodectus hesperus*. (Talk) Joint Annual Meeting of the Entomological Societies of BC and Canada, Vancouver BC, 31 Oct.-3 Nov. 2010.

TEACHING AND MENTORSHIP

- 2019 **Course Instructor:** BIOD53 Special Topics in Behavioural Ecology at UTSC
- 2018 **TA:** BIOD53 Special Topics in Behavioural Ecology (labs) at UTSC
Guest lecturer: Chemical Ecology; Introduction to the biology and diversity of spiders
- 2018 **TA:** BIOB51 Evolutionary Biology (marking) at UTSC
- 2017 **TA:** BIOD53 Special Topics in Behavioural Ecology (labs) at UTSC
Guest lecturer: Courtship behaviour and chemical communication in black widows
- 2017 **TA:** BIOC54 Animal Behaviour (tutorials) at UTSC
- 2017 **TA:** BIOC99 Team Research (supervising 5 undergraduate researchers) at UTSC
 - Sumaya Dano, Ajay David, Nimra Javaid, Dilakshan Srikanthan, & Amanda Yee: Effects of cohabiting offspring on fitness of female western black widow spiders (presented a poster at the 2017 Animal Behaviour Meeting & won 2nd prize at the 2017 UTSC Undergraduate Research Poster Forum)
- 2017 **Supervisor:** BIOD98 Directed Research (1 undergraduate researcher) at UTSC
- 2017 **Supervisor:** BIOB98 Supervised Introductory Research (1 undergraduate) at UTSC
- 2016 **TA:** BIOA01 Life on Earth: Unifying Principles (labs) at UTSC
- 2015 **TA:** BISC 102 General Biology (labs and tutorials) at SFU
- 2014 **TA:** BISC 204 Introduction to Ecology (tutorials) at SFU
Guest lecturer: Ecology of Spiders
- 2013 **Supervisor:** BISC 498 Undergraduate Research Projects at SFU (2 undergraduates)
 - Chloe Gerak: Chemical communication and courtship behaviour in the false widow, *Steatoda grossa* (coauthored paper in Journal of Ethology; won President's Prize for best undergraduate student talk at AGM of the Entomological Society of BC in 2014)
 - Devin Kirk: Chemical communication and web reduction behaviour in the western black widow, *Latrodectus hesperus* (coauthored paper in Animal Behaviour)
- 2013 **TA:** BISC 101 General Biology (labs and tutorials) at SFU

- 2007 **Undergraduate TA:** MATH 121/122 Math Investigations Calculus Program (tutorials and co- course coordinator) at Queen’s University
- 2007 **Undergraduate TA:** drop-in Math Help Centre (office hours) at Queen’s
- 2006 **Undergraduate TA:** MATH 121/122 Math Investigations (tutorials) at Queen’s

SCIENCE COMMUNICATION AND OUTREACH

Invited public talks:

- 2019 **Scott C.** Eat Prey Love: The Secret Lives of Spiders. Halton/North Peel Naturalists Club Speaker Series, Glen Williams, ON, 12 Mar. 2019.
- 2018 **Scott C & McCann S.** The truth about black widow spiders. Cumberland Community Forest Society Pub Night & Fundraiser, Cumberland, BC, 19 Oct. 2018.
- 2018 **Scott C.** The Secret Lives of Spiders. Pickering Naturalists’ Speaker Series, Pickering, ON, 7 Jun. 2018.
- 2018 **Scott C.** Eat Prey Love: The Secret Lives of Spiders. Upper Credit Field Naturalists’ Speaker Series, Orangeville, ON, 27 Mar. 2018.
- 2017 **Scott C & McCann S.** The secret lives of spiders in Ontario and beyond. Durham Region Field Naturalists’ Lecture Series, Durham, ON, 27 Mar. 2017.
- 2016 **Scott C.** Untangling the web-based communication system of black widow spiders. Sigma Xi Toronto Distinguished Lecture Series, Toronto, ON, 8 Dec. 2016.
- 2016 **Scott C.** Eat Prey Love. The lives of the black widow spiders. Victoria Natural History Society, Victoria, BC, 13 Sept. 2016.
- 2016 **Scott C.** From web-based personal ads to sex under silk sheets: courtship and communication in black widows. Royal Canadian Institute for the Advancement of Science Lecture Series, Toronto, ON, 14 Feb. 2016.

Online writing and social media:

- **Maintain a blog** ([spiderbytes](#)) about spiders for a general audience (with on average 1000 views per day in 2020), where I write about spider biology, diversity, and natural history, and post lay summaries of my research publications. (Nov. 2013 – present)
- **Maintain a personal twitter account** ([@Cataranea](#)) with ca. 16,000 followers where I tweet and answer questions about spider biology and engage in spider identification. (Apr. 2013 – present)
- **Co-maintain a twitter account** ([@RecluseOrNot](#)) with ca. 5000 followers as part of the [Recluse Or Not?](#) outreach campaign in collaboration with Eleanor Spicer Rice, Matt Bertone, and Kali Clark. We identify spiders suspected to be recluses and provide resources about the identification, range, and risks associated with these misunderstood spiders. (Sept. 2017 – present)

Radio interviews and podcasts:

- *Scientific American 60-second Science Podcast*, 1 Aug. 2019. “Male Black Widows Poach Rivals' Approaches” ([link](#))
- *But Why: A Podcast for Curious Kids*, NPR, 9 Nov. 2018. “Why don’t spiders get stuck in their webs?” ([link](#))
- *Science Friday*, NPR, 27 Oct. 2017. “In defense of spiders” ([link](#))
- *Science Friday*, NPR, 30 Oct. 2015. “Spider stories that will stick with you” ([link](#))
- *What She Said*, Sirius Radio, 27 Oct. 2015. “Spider expert Catherine Scott” ([link](#))
- *Scientific American 60-second Science Podcast*, 16 July 2015. “Male black widows strive for mate's monogamy” ([link](#))

Other outreach activities:

- Guest speaker (arachnology) via Skype to elementary and high school science classrooms in BC, Ontario, Saskatchewan, Kentucky, UK, and China (2017 – present).
- Contributed to an online webinar (arthropod natural history and identification) for the Maritime Backyard Bioblitz, part of the City Nature Challenge, in Kentville, NS, 28 Apr. 2020.
- Organized and led arachnology-related activities (games and discussion, with live spiders, via Skype) for a Brownies (Girl Guides of Canada) group in Wolfville, NS, 19 Apr. 2020.
- Organized and led entomology-related activities (games, crafts, and discussion, with live arthropods) for a Sparks (Girl Guides of Canada) group in Toronto, ON, 19 Mar. 2018.
- Co-organized and led (with Sean McCann) guided arthropod bioblitzes (focused on spiders and pollinators) for the public as part of the Rouge National Urban Park Bioblitz in Toronto, ON, 24-25 Jun. 2017.
- Guest speaker (entomology and arachnology) for careers class at The Study Academy, Toronto, ON, 15 Jan. 2016.
- Led a discussion and activity about spider biology for grade 2 and 3 students as a Science Mentor for SFU Science Al!ve Quarks camp 2 Jul. 2015.
- Organized and presented an interactive educational display communicating information about spiders at the Iona Beach Regional Park ‘Spiders Unraveled’ event, 13 Sept. 2014.
- Organized and presented an interactive educational display communicating information about arthropods to families at the Richmond Nature Park ‘Bugs Galore!’ event, 8 Sept. 2013 and 7 Sept. 2014.
- Guest speaker at spider club for grade 2 and 3 students at Upper Lynn elementary school, 7 and 21 May 2014.
- Organized and presented an interactive educational display about arthropods and science to children at SFU’s Halloween ‘Science Spooktacular’ event, 26 Oct. 2013.