

MICHELLE LYNN D'SOUZA

**Biodiversity Scientist | Digital Media
Producer | Science Storyteller**

m3dsouza@gmail.com
[linkedin.com/in/michelle-lynn-dsouza](https://www.linkedin.com/in/michelle-lynn-dsouza)
michelledsouza.ca
+1-226-978-1369

EDUCATION

Doctor of Philosophy

Integrative Biology | University of Guelph
Apr. 2018

Bachelor of Science

Honours Biochemistry | University of Waterloo
Apr. 2012

ATTRIBUTES

Qualities colleagues endorse

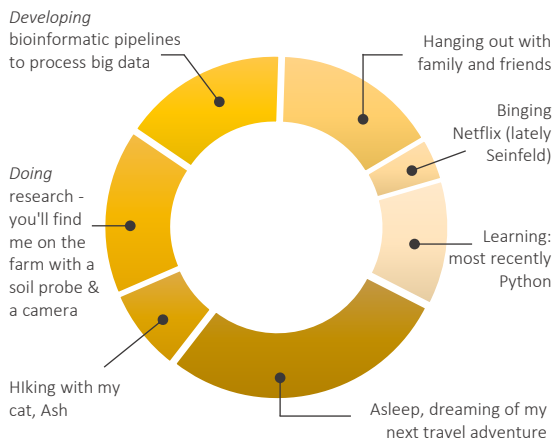
Scientific writing | Public Speaking

Peer mentoring

Personal areas of growth

Coding proficiency | Videography

HOW I SPEND MY TIME



MY PHILOSOPHY

Do rigorous science & tell compelling stories that benefit society & nature

MOST PROUD OF



Community-Engaged Biodiversity Research

Ten years of experience leading and collaborating on international research projects valuing equity and community engagement in my approach



Science Communication & Knowledge Mobilization

Passionate about science literacy & the power of storytelling, I have created a digital body of work that increases the accessibility of scientific research



Commitment to Diversity & Inclusion

Fostered at work through project engagement, mentoring, and volunteering efforts with women and LGBTQ+ communities in STEM

EXPERIENCE

Project Manager, McCain Foods Ltd. Farms of the Future

McCain Food Ltd. & Centre for Biodiversity Genomics / Florenceville-Bristol, NB & Guelph, ON / Aug 2020–present

The integration of industry and academia. I'm leading research to acquire comprehensive baseline data on soil biodiversity (bacteria, fungi, invertebrates) using next-generation sequencing, identifying the regenerative farming practices fostering biological communities that enhance soil productivity, and ensuring local growers' voices are heard on McCain Foods' first [Farm of the Future](#).

Science Research Communications

International Barcode of Life Consortium / Guelph, ON / Jan 2019–Dec 2021

The pivot from research to knowledge mobilization, digital communication & marketing. I engaged diverse audiences & stakeholders using dialogue & digital media including videography, press releases, news articles, blog posts, and social media, that made science research accessible & increased the Consortium's reach 16-fold. I spearheaded the scientific branding and content behind the Consortium website in preparation for the launch of a major \$180-million project, BIOSCAN.

Research coordinator, Kruger Malaise Trap Program

Centre for Biodiversity Genomics / Guelph, ON / May 2018–Jul 2020

The power of passionate engagement. I directed a year-long biodiversity monitoring [project](#) in Kruger National Park, South Africa by engaging local park rangers through open dialogue & creative reporting. As the general manager of research at Kruger noted, my approach ignited interest among the rangers in biodiversity monitoring and was instrumental in the program's success. This work was [featured](#) by CBC's *The National*.

EXPERIENCE continued...

Postdoctoral Fellow

Centre for Biodiversity Genomics / Guelph, ON / May 2018 – present

The growth in international research collaborations. I forged partnerships with international networks to provide institutional support for diverse biodiversity research projects in Costa Rica (Area de Conservación Guanacaste), Ghana (Target Malaria), Honduras (Operation Wallacea), and South Africa (Iziko Museum). I also spearheaded the monthly institutional newsletter to foster lines of communication amongst researchers & staff as well as coordinated [research training](#) for three international trainees from Lebanon and other undergraduate students in Canada.

Invertebrate Senior Scientist

Operation Wallacea / Honduras / Jun. 2013 – Aug. 2016

The integration of science and activism. I actively contributed to key presentations for conservation dialogue with politicians & environmental ministers as well as supported funding applications for carbon credits issued under the Natural Forest Standard. I developed & implemented a standardized invertebrate trapping programme to assess the diversity & abundance of various taxa at numerous remote sites in Cusuco National Park, Honduras, involving collaborations with a diverse group of senior scientists to communicate & publish findings.

Genome Expression Research Assistant

Michigan State University / East Lansing, MI / May 2010 – Apr. 2011

I conducted comprehensive dose-response evaluation of hepatic gene expression following treatment of environmentally prevalent chemicals in C57BL/6 mice. With work with *in vivo* studies, I gained proficiency in rodent husbandry, dosing (oral gavage), blood collection & tissue harvest (liver, intestine, reproductive organs, fat pads). With work *in vitro* studies, I mastered aseptic techniques for tissue culture (rodent leydig cells). I gained proficiency in toxicogenomic studies including RNA & DNA isolation, cDNA synthesis, primer design, Quantitative Real-Time PCR & whole-genome oligonucleotide Agilent microarrays as well as histopathological evaluation of hepatic & intestinal sections. My work with lipidomic studies involved extraction & quantification using Gas Chromatography-Mass Spectrometry.

Genome Expression Research Assistant

Agriculture and Agri-Food Canada / Harrow, ON / Sept. – Dec. 2009

I assisted in the research of Food Grade soybean cultivars & breeding lines which involved the study of genes underlying low cadmium uptake & the development of molecular markers involving soybean gene expression using Quantitative Real-Time PCR. I trained fellow lab technicians on lab procedures such as RNA extraction & cDNA synthesis. I was the first student to conduct a seminar at the Harrow Research Center; titled: Identifying the gene(s) controlling cadmium accumulation in soybean-what a student can accomplish in a semester.

PROFESSIONAL DEVELOPMENT

Mitacs Elevate Training

Online professional skills development courses / August 2000 – May 2020

- Business Writing for Today's Professional
- Communicating Your Research
- Essentials of Productive Teams
- Fostering a culture of reconciliation, equity, diversity, and inclusion
- Presenting with Impact
- Time Management

TEACHING & TRAINING

Climate Emergency, Smart solutions for a sustainable future

Genome BC Annual Genomics Forum / Invited speaker / May 2022

I spoke alongside a diverse panel in a session titled '[Agri-Smart: Feeding the World in a Changing Climate](#)' to highlight the role of genomics in addressing the climate-related challenges faced by agriculture.

Partners in Research Canada (PIR)

PIR Live Event / Invited speaker / May 2019

I completed an [experiential webinar](#) that engaged with high school students across Canada on a biodiversity assessment project that brought rangers & scientists together to understand insects in South Africa.

DNA barcoding workshop facilitator

Canada-Americas Trade Related Technical Assistance (CATRTA)/ Honduras / Aug. 2016 – Feb. 2017

I organized & presented at workshops to build the technical & knowledge capacity for DNA technologies. I initiated dialogue between Honduran government regulatory agencies, biodiversity researchers & other stakeholders on the prospects of adopting DNA-based identification for organisms of economic & conservation importance.

DNA barcoding research facilitator

Operation Wallacea / Honduras / Jun – Aug. 2016

I organized & implemented DNA barcoding projects to facilitate conservation targets in Cusuco National Park including the training of junior staff in invertebrate collection, identification, preservation & export preparation. I also mentored & supervised participating volunteers & student dissertation research in the field as well as contributed to volunteer recruitment efforts in Ontario, Canada.

University of Guelph, Guelph, ON

Teaching Assistant, Jan. – Apr. 2013 – 2017

I led seminars that solidify lecture & assignment concepts that included mentored 100+ students on biological identification, statistical analysis, & writing. Courses included: Methods in Evolutionary Biology; Populations, Communities, & Ecosystems; Conservation Biology; Biostatistics for Integrative Biology; Discovering Biodiversity.

PUBLICATIONS & FEATURES

Scientific Articles

Ashfaq M, ... [D'Souza ML](#), Mansoor S, Hebert PDN (2022) A DNA barcode survey of insect biodiversity in Pakistan.

PeerJ 10, e13267. DOI: [10.7717/peerj.13267](https://doi.org/10.7717/peerj.13267)

[D'Souza ML](#), Shongwe Z, Rattray RD, Stewart RS, van Royen J, Govender D, van der Bank M, Hebert PDN (2021) Biodiversity baselines: Tracking arthropods in Kruger National Park with DNA barcodes. *Biological Conservation* 256, 109034. DOI: [10.1016/j.biocon.2021.109034](https://doi.org/10.1016/j.biocon.2021.109034)

Sharkey MJ, ... [D'Souza ML](#), Jacques B, Hebert PDN, Hallwachs W, Janzen D (2021) Addendum to a minimalist revision of Costa Rican *Braconidae*: 28 new species and 23 host records. *ZooKeys* 1075: 77–136. DOI: [10.3897/zookeys.1075.72197](https://doi.org/10.3897/zookeys.1075.72197)

Martin TE, ... [D'Souza ML](#), ... Reid N, Jocque M (2021) A review of the ecological value of Cusuco National Park: an urgent call for conservation action in a highly threatened Mesoamerican cloud forest. *Journal of Mesoamerican Biology*. 1(1):6–50.

[D'Souza ML](#), Hebert PDN (2018) Stable baselines of temporal turnover in the arthropod communities of a tropical montane forest. *Molecular Ecology* 27(10), 2447–2460. DOI: [10.1111/mec.14693](https://doi.org/10.1111/mec.14693)

Forgacs AL, [D'Souza ML](#), et al. (2013) Triazine herbicides and their chlorometabolites alter steroidogenesis in BLTK1 murine Leydig cells. *Toxicological Sciences* 134(1), 155–167. DOI: [10.1093/toxsci/kft096](https://doi.org/10.1093/toxsci/kft096)

Kopec AK, [D'Souza ML](#), et al. (2011) Non-additive hepatic gene expression elicited by 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and 2,2,4,4,5,5-hexachlorobiphenyl (PCB153) co-treatment in C57BL/6 mice. *Toxicology and Applied Pharmacology* 256 (2), 154–167. DOI: [10.1016/j.taap.2011.08.002](https://doi.org/10.1016/j.taap.2011.08.002)

Popular Science

- Hackett T, Logan K, [D'Souza ML](#) (2021) The important interactions behind the itch: The potential consequences of reducing *Anopheles gambiae* mosquitoes to control Malaria. **International Barcode of Life Barcode Bulletin**. Jun. 12.
Featured – [‘We are at risk of erasing the books of life’: Biologists work to chronicle life on earth](#) by CBC The National. Jun. 2019
Featured – [The Great Insect Dying: The tropics in trouble and some hope](#) by Jeremy Hance. MongaBay. Jun. 2019
[D'Souza ML, Govender](#) (2019) [Starving for data and more: what rangers and scientists stand to learn from one another in South Africa](#). **International Barcode of Life Barcode Bulletin**. Jun. 12.
[D'Souza ML](#) (2013) [DNA barcoding reveals extent of arthropod biodiversity](#). **Biodiversity Science**. Iss. 10. Dec.
[D'Souza ML](#) (2013) [Honduras Malaise Trap Program: DNA barcoding reveals extent of arthropod biodiversity](#). **International Barcode of Life Barcode Bulletin**. Volume 4, No. 2, Dec.

Video Production

- [D'Souza ML](#) (2021) [Using DNA barcodes in the fight against Malaria](#).
[D'Souza ML](#) (2021) [The Kruger Malaise Program – a video abstract](#).
James H, [D'Souza ML](#) (2020) [BIOSCAN: tracking biodiversity on Earth](#).

PRESENTATIONS

- [D'Souza ML, Hebert PDN](#) (2019) [The Kruger Malaise Program: Understanding the role national parks play in supporting biodiversity](#). **8th International Barcode of Life**, Trondheim, Norway, Jun.17-20.
[D'Souza ML](#) (2019) [TRACE: The Kruger Malaise Program as a model project](#). **8th Meeting of the iBOL Scientific Steering Committee**, NTNU, Trondheim, Norway, Jun.15.
[D'Souza ML](#) (2018) [Communicating effectively as we transition from BARCODE 500K to BIOSCAN](#). **7th Meeting of the iBOL Scientific Steering Committee**, Centre for Biodiversity Genomics, University of Guelph, Guelph, ON, Canada, Oct.12-14.
[D'Souza ML](#) (2018) [Interpreting beta diversity with time: an assessment of local- and broad- scale patterns in arthropod communities](#). **Invited seminar**, Stellenbosch University, Stellenbosch, South Africa, May.13.
[Ratray RD, D'Souza ML, van der Bank M, Hebert PDN](#) (2018) [Bugging around: an overview of the Kruger Malaise Program](#). **Foundational Biodiversity Information Programme (FBIP) Forum**, Cape St. Francis, Eastern Cape, South Africa, Aug.13-16
[D'Souza ML, Hebert PDN](#) (2017) High spatial and temporal turnover in the arthropod community of a tropical montane forest. *Genome* 60(11):881-1019. **7th International Barcode of Life**, Kruger National Park, South Africa, Nov.20-24
[D'Souza ML, Hebert PDN](#) (2017) High species turnover in the arthropod community of a tropical montane forest. **54th Annual Meeting of the Association for Tropical Biology and Conservation**, Merida, Mexico, July.9-14
[D'Souza ML](#), (2017) [What DNA barcoding can do for conservation in Honduras: results from 4 years of summer sampling in the cloud forests of Cusuco National Park](#). **First National Workshop on Advancing DNA Barcoding in Honduras**, Zamorano University, Honduras, Jan.19-20 ([Spanish ver.](#))
[D'Souza ML](#), (2015) [Investigating terrestrial arthropod biodiversity in a tropical ecosystem using barcode index numbers and phylogenetic community structure](#). *Genome* 58(8), 163-303. **6th International Barcode of Life**, Guelph, Canada, Aug.18-21
[Kopeck AK, D'Souza ML, Mets BD, Burgoon LD, Harkema JR, Tashiro C, Potter D, Sharrat B, Reese SE, Archer KJ, Zacharewski TR](#) (2011) Dose-response evaluation of non-additive hepatic effects of PCB153 and TCDD in mice. **50th Annual Meeting of the Society of Toxicology**, Washington, D.C., Mar 6-10

AWARDS

- Mitacs Elevate Fellowship**, University of Guelph, Aug. 2020
Diversity Prize for Best Postdoctoral Presentation, International Barcode of Life Conference, Jun. 2019
Food from Thought Conference Bursary, University of Guelph, Jan. 2019
Senior Honours Project Excellence Award, Dept. Biology, University of Waterloo, Apr. 2012
Dean's Honours List, BSc, Honours Biochemistry Co-op, University of Waterloo, Apr. 2012
Educational Travel Award, University of Waterloo, Apr.09 & Sep. 2011
Queen Elizabeth II Aiming for the Top Scholarship, University of Waterloo, Sep. 2008 - Sep. 2012
WACE International Work Integrated Learning Student Achievement, University of Waterloo, Nov. 2010
Provost's International Volunteer Award, University of Waterloo, Sep. 2008 & Sep. 2011