

# ADRIAN FORSYTHE

## Postdoctoral Researcher

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AdrianForsythe

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## PROGRAMMING LANGUAGES

Bash  
R  
Python



## KEY SKILLS

Unix CLI Bioinformatic pipelines

Genome Assembly and Annotation Metagenomics

Metabarcoding Comparative Genomics

Applying ML to Genomic data

Hypothesis testing Data Vis. Statistical Analysis

Multidimensional data Network Analyses

Clean room/aseptic techniques Microbial genetics

## EMPLOYMENT

### Postdoctoral Researcher

#### Uppsala University

Sept 2020 - Ongoing Uppsala, SWE

I currently work in the Guschanski Lab, where my research focuses on both the ancient and modern microbiomes of wild mammals and identifying antimicrobial resistance factors within these communities. The goal of my research is to ultimately contribute to conservation efforts to curb disruptions to microbial ecosystems.

## EDUCATION

### Ph.D. in Microbiology

#### McMaster University

Sept 2016 - Aug 2020 Hamilton, Canada

Thesis title: Population Genetic Investigation of the White-Nose Syndrome Pathogen, *Pseudogymonascus destructans*, in North America

### M.Sc. in Microbiology

#### McMaster University

Sept 2014 - Aug 2016 Hamilton, Canada

### B.Sc. in Biology, Honours

#### Trent University

Sept 2010 - May 2014 Peterborough, Canada

## COLLABORATIVE PROJECTS

### Probiotic Prophylaxis to treat White-Nose Syndrome

#### Research Project

2019-Ongoing McMaster/Thompson Rivers

Developed probiotic treatment for White-Nose Syndrome in bats which are currently undergoing field trials in British Columbia. I contributed to this project by screening bacterial strains for antifungal activity and optimizing the dosage and delivery system in preparation for field trials. I monitored probiotic levels in the field using quantitative assays. I also processed all genomic data generated from this project.

cbc.ca/news/canada/british-columbia/bats-white-nose-syndrome-scientists-1.5247454

### Standards, Precautions, and Advances in Ancient Metagenomics (SPAAM)

#### Academic Community

2021-Ongoing

Contributed to curating a resource of all published shotgun-sequenced ancient metagenome samples. Primarily meant to act as a reference guide to help point researchers toward any relevant public data for comparative analysis.

github.com/SPAAM-community

### Novel Data Streams to Track the Spread of Wildlife Disease

#### Research Project

2020-Ongoing McMaster University

What remains relatively unknown is how much human activity has the potential to influence the spread of fungal disease in wild populations. In order to estimate the levels of human activity, we created a pipeline for collecting public records of human activity. This was applied to test specific hypotheses concerning the spread of White-Nose Syndrome in North America.

github.com/AdrianForsythe/Pd\_Geocache

## ACHIEVEMENTS

### Academic Publishing Record

7 first-author papers (3 in prep.). 77 citations, h-index = 5

### Lead organizer for Ontario Ethology, Ecology, and Evolution 2019 conference.

The largest graduate student-organized biology/psychology event in Ontario

### Advising/Consulting

An advisor for the McMaster chapter of the Society of Industrial and Applied Mathematics (SIAM). Overleaf Advisor overleaf.com/advisors/members

# ACADEMIC AWARDS

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- Ontario Graduate Scholarship (OGS) during the 2019-2020 academic year. (\$10 000)
- Joseph and Joanne Lee Ontario Graduate Scholarship 2019-2020 (\$5 000)
- Canadian Botany Association Luella K. Weresub Memorial Award for 2019 (\$500)
- McMaster Biology: Outstanding Research Publication in Ecology and Evolution for the 2018-2019 academic year. (\$350)
- McMaster Biology: Outstanding Leadership Award for the 2018-2019 academic year. (\$350)
- McMaster Biology: Service to the Department Award during the 2017-2018 academic year. (\$350)
- Awarded an Ontario Graduate Scholarship (OGS) during the 2016-2017 academic year. (\$15 000)

# PUBLICATIONS

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## Journal Articles

- Forsythe, A., Brealey, J. C., Gadhvi, M., Su, J., & Guschanski, K. (2022). Dynamics and metagenomics of oral disease in scandinavian brown bears (*ursus arctos*). *In prep*.
- Forsythe, A., Fontaine, N., Bissonnette, J., Hayashi, B., Insuk, C., Ghosh, S., ... Cheeptham, N. (2022). Microbial isolates with anti-*Pseudogymnoascus destructans* activities from western canadian bat wings. *Scientific Reports*, under review.
- Moraitou, M., Forsythe, A., Fellows Yates, J. A., Brealey, J. C., Warinner, C., & Guschanski, K. (2022). Dental calculus metagenomics suggest that ecology, not host phylogeny, shapes the oral microbiome in closely related species. *eLife*, submitted.
- Forsythe, A., Vanderwolf, K. J., & Xu, J. (2021). Landscape genetic connectivity and evidence for recombination in the north american population of the white-nose syndrome pathogen, *pseudogymnoascus destructans*. *Journal of Fungi*, 7(3), 182.
- Insuk, C., Pongpamorn, P., Forsythe, A., Matsumoto, A., Ōmura, S., Pathom-Aree, W., ... Xu, J. (2021). Taxonomic and metabolite diversities of moss-associated actinobacteria from thailand. *Metabolites*, 12(1), 22.
- Ashu, E. E., Kim, G. Y., Roy-Gayos, P., Dong, K., Forsythe, A., Giglio, V., ... Xu, J. (2018). Limited evidence of fungicide-driven triazole-resistant *aspergillus fumigatus* in hamilton, canada. *Canadian journal of microbiology*, 64(2), 119–130.
- Du, J., Guo, H.-B., Li, Q., Forsythe, A., Chen, X.-H., & Yu, X.-D. (2018). Genetic diversity of *lepista nuda* (agaricales, basidiomycota) in northeast china as indicated by srp and issr markers. *PLoS One*, 13(8), e0202761.
- Forsythe, A., Giglio, V., Asa, J., & Xu, J. (2018). Phenotypic divergence along geographic gradients reveals potential for rapid adaptation of the white-nose syndrome pathogen, *pseudogymnoascus destructans*, in north america. *Applied and environmental microbiology*, 84(16), e00863–18.
- Forsythe, A., & Xu, J. (2017). The complete mitochondrial genome of the white-nose syndrome pathogen, *pseudogymnoascus destructans*. *Mitochondrial DNA Part B*, 2(1), 48–49.
- Ashu, E., Forsythe, A., Vogan, A., & Xu, J. (2016). Filamentous fungi in fermented foods. *Fermented Foods, Part I: Biochemistry and Biotechnology*, 60–90.
- Ferreira, C., Bastille-Rousseau, G., Bennett, A. M., Ellington, E. H., Terwissen, C., Austin, C., ... Forsythe, A., et al. (2016). The evolution of peer review as a basis for scientific publication: Directional selection towards a robust discipline? *Biological Reviews*, 91(3), 597–610.
- Forsythe, A., Vogan, A., & Xu, J. (2016). Genetic and environmental influences on the germination of basidiospores in the *cryptococcus neoformans* species complex. *Scientific reports*, 6(1), 1–12.