

# LOTUS A. LOFGREN

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## EDUCATION

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### Ph.D.

2019 University of Minnesota Plant and Microbial Biology

### Bachelor of Science

2013 University of Minnesota  
Major: Horticulture (Deans list)  
Program of Study: Mycology  
Minor: Plant Biology (Deans list)

## EMPLOYMENT RECORD

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### Tri-I MMPTP (NIH T-32) Research Fellow

2022-present Duke University  
Dep. of Biology  
Vilgalys Lab

### Postdoctoral Research Associate

2021-2022 Duke University  
Dep. of Biology  
Vilgalys Lab

### Postdoctoral Research Associate

2019-2021 University of California Riverside  
Dep. of Microbiology and Plant Pathology  
Stajich Lab

### UMN Doctoral Dissertation Fellow

2018-2019 University of Minnesota  
College of Biological sciences  
Kennedy Lab

### NSF Graduate Research Fellow

2014-2018 University of Minnesota  
Dep. of Plant and Microbial Biology,  
Kennedy Lab

### USDA Laboratory Research Technician

2013-2014 USDA Ag. Research Service  
Cereal Disease Laboratory  
Kistler Lab

### Undergraduate Research Assistant

2012-2013 University of Minnesota  
Dep. of Plant Pathology  
Peay Lab

## PUBLICATIONS

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### Refereed Journal Articles:

15. **Lofgren L**, Ross B, Cramer R, Stajich J. The pan-genome of *Aspergillus fumigatus* provides a high-resolution view of its population structure revealing high-levels of lineage-specific diversity driven by recombination. *Accepted and in press at PLOS Biology*.  
<https://www.biorxiv.org/content/10.1101/2021.12.12.472145v1>
14. West A, Digby A, Armstrong D, Armstrong-James D, Bromley M, Buckley E, Chatterton J, Cox M, Cramer R, Crane J, Dearden P, Eason D, Fisher M, Gago S, Gartrell B, Gemmell N, Glare T, Guhlin J, Howard J, Lacap-Bugler D, Le Lec M, Xiao L, **Lofgren L**, Mackay J, Meis J, Morelli K, Perrott J, Petterson M, Quinones-Mateu M, Rhodes J, Roberts J, Stajich J, Tebbutt S, Truter-Meyer A, Uddstrom L, Urban L, van Rhijn N, Vercoe D, Vesely E, Weir B, Winter D, Yeung J, Taylor M. **2022**. Influence of management practice on the microbiota of a critically endangered species: a longitudinal study of kākāpō chick faeces and associated nest litter. *Animal Microbiome*.

- [DOI: 10.1186/s42523-022-00204-w](https://doi.org/10.1186/s42523-022-00204-w)
13. **Lofgren L**, Lorch J, Cramer R, Blehert D, Berlowski-Zier B, Winzeler M, Gutierrez-Perez C, Kordana N, Stajich J. **2022**. Avian-associated *Aspergillus fumigatus* displays broad phylogenetic distribution, no evidence for host specificity, and multiple genotypes within individual epizootic events. *G3*.  
[DOI:10.1093/g3journal/jkac075](https://doi.org/10.1093/g3journal/jkac075)
  12. Erlandson S, Margis R, Ramirez A, Nguyen N, **Lofgren L**, Kuo A, Grigoriev I, Kennedy P, Vilgalys R, Peay K. **2022**. Transcriptional acclimation and spatial differentiation characterize drought response by the ectomycorrhizal fungus *Suillus pungens*. *New Phytologist*.  
[DOI:10.1111/nph.17816](https://doi.org/10.1111/nph.17816)
  11. Kirkland M, Stannard M, Kowalski C, Mould D, Caffrey-Carr A, Temple R, Ross B, **Lofgren L**, Stajich J, Cramer R, Obar J. **2021**. Host lung environment limits *Aspergillus fumigatus* germination through a SskA-dependent signaling response. *mSphere*.  
[DOI:10.1128/msphere.00922-21](https://doi.org/10.1128/msphere.00922-21)
  10. **Lofgren L**, Stajich J. **2021**. Fungal Biodiversity and Conservation Mycology in light of New Technology, Big Data, and Changing Attitudes. *Current Biology*.  
[DOI:10.1016/j.cub.2021.06.083](https://doi.org/10.1016/j.cub.2021.06.083)
  9. Ross B, **Lofgren L**, Ashare A, Stajich J, Obar J, Cramer R. **2021**. *Aspergillus fumigatus* In-Host HOG Pathway Mutation for Cystic Fibrosis Lung Microenvironment Persistence. *mBio*.  
[DOI: 10.1128/mBio.02153-21](https://doi.org/10.1128/mBio.02153-21)
  8. Jones J, Liu W-K, Wang X, Kowalski C, Ross B, Mills K, Kerkaert J, Hohl T, **Lofgren L**, Stajich J, Obar J, Cramer R. **2021**. *Aspergillus fumigatus* Strain-Specific Conidia Lung Persistence Causes an Allergic Broncho-Pulmonary Aspergillosis-Like Disease Phenotype *mSphere*.  
[DOI: 10.1128/mSphere.01250-20](https://doi.org/10.1128/mSphere.01250-20)
  7. **Lofgren L**, Vilgalys R, Nguyen N, Ruytinx J, Liao H-L, Bronco S, Barry K, Kuo A, LaButti K, Lipzen A, Andreopoulos W, Pangilinan J, Riley R, Hundley H, Na H, Grigoriev I, Barry K, Stajich J, Kennedy P. **2021**. Comparative genomics reveals dynamic genome evolution in host specialist ectomycorrhizal fungi. *New Phytologist*.  
[DOI:10.1111/nph.17160](https://doi.org/10.1111/nph.17160)
  6. Kennedy P, Gagne J, Perez-Pazos E, **Lofgren L**, Nguyen NH. **2020**. Does fungal competitive ability explain host specificity or rarity in ectomycorrhizal symbioses? *PLOS ONE*.  
[DOI:10.1101/2020.05.20.106047](https://doi.org/10.1101/2020.05.20.106047)
  5. **Lofgren L**, Uehling J, Branco S, Bruns T, Martin F, Kennedy PG. **2019**. Genome-based estimates of fungal rDNA copy number variation across phylogenetic scales and ecological lifestyles *Molecular Ecology*.  
[DOI:10.1111/mec.14995](https://doi.org/10.1111/mec.14995)
  4. **Lofgren L**, Nguyen NH, Kennedy PG. **2018**. Ectomycorrhizal host specificity in a changing world: can legacy effects explain anomalous current associations? *New Phytologist*.  
[DOI:10.1111/nph.15008](https://doi.org/10.1111/nph.15008)
  3. **Lofgren L**, LeBlanc N, Certano A, Nachtigall J, LaBine K, Riddle J, Broz K, Dong Y, Bethan B, Kafer C, Kistler HC. **2018**. *Fusarium graminearum*: Pathogen or endophyte of North American grasses? *New Phytologist*. (featured article)  
[DOI:10.1111/nph.14894](https://doi.org/10.1111/nph.14894)
  2. **Lofgren L**, Riddle J, Dong Y, Kuhnem P, Cummings J, DelPonte E, Bergstrom G, Kistler HC. **2017**. A high proportion of NX-2 mycotoxin producing strains are found among *Fusarium graminearum* isolates from northeastern New York State. *European Journal of Plant Pathology*.  
[DOI:10.1007/s10658-017-1314-6](https://doi.org/10.1007/s10658-017-1314-6)
  1. Liang J, **Lofgren L**, Ma Z, Ward TJ, Kistler HC. **2015**. Population subdivision of *Fusarium graminearum* from barley and wheat in the upper Midwestern United States at the turn of the century. *Phytopathology*.  
[DOI:10.1094/PHYTO-01-15-0021-R](https://doi.org/10.1094/PHYTO-01-15-0021-R)

## PENDING AWARDS

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### NSF-DEB

Pending	Lead PI <i>Active Competition in Nutritional Mutualisms: Metabolites to Models of Evolutionary Stability</i> \$1.2M over four years	Nat. Sci. Foundation Synthetic Communities Solicitation
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## FUNDED AWARDS

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### DOE JGI

2022-present	Lead PI <i>Functional Roles of Secondary Metabolism in Ectomycorrhizal Fungi</i> \$165k of in-kind support over two years	Department of Energy Joint Genome Institute CSP
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### Tri-I MMPTP Fellowship

2022-present	Tri-Institutional Molecular Mycology and Pathogenesis Training Program NIH Postdoctoral pay-scale, renewable 3 years	Nat. Institute of Health Kirschstein-NRSA T32
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### Doctoral Dissertation Fellowship

2018-2019	Competitive merit based \$25k + \$1k for travel	University of MN
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### Philip C. Hamm Memorial Scholarship in Plant Sciences

2018	Competitive merit based award \$2000	University of MN
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### NSF Graduate Research Fellowship

2015-2018	Microbiology section \$138k over three years	Nat. Sci. Foundation
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### DOE JGI Graduate Student/Postdoc Challenge

2015	Whole-genome sequencing	Joint Genome Institute
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### Research and Travel Grants

2019	<b>College of Biological Sciences Travel Grant</b> \$250 To present at the Ecological Society of America Meeting Louisville KY	UMN col. of bio. sci
2019	<b>Plant and Micro. Bio. Dep. Travel Award</b> 1) \$800 to present the Fungal Genomics Conference Pacific Grove CA	University of MN
2017	2) \$700 to present at the ICOM9 conference in Prague, CZ	
2015	3) \$700 to present at the ICOM8 conference Flagstaff AZ, USA	
2018	<b>Plant and Micro. Bio. Exceptional Travel Grant</b> \$2000 to attend workshop on Fungal Genomics Wellcome Genome Center, Cambridge, UK	University of MN
2018	<b>Microbial and Plant Genomics Institute Award</b> 1) \$800 for research travel to the Hawksburry Institute on the Environment Richmond, Australia	University of MN
2016	2) \$775 to attend training on RNAseq at Duke University Durham, NC	

## HONORS AND AWARDS

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### Best graduate Student Poster Award

2018	The International Mycological Congress	San Juan, PR
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**Mycological Society of America Orson K. Miller Award**

2018 The International Mycological Congress San Juan, PR

**Harley Medal**

2017 The International Mycorrhizal Society Prague, CZ

**Best Student Oral Paper Presentation Award**

2016 Mycological Society of America Berkeley, CA

**PRESENTATIONS**

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**Invited Talks:**

- 2022 Competition in Mutualisms: Cold war or Active Battle? Department of Integrative Biology Seminar Series. University of Colorado Denver. Denver, CO. *(to take place 2-Dec-2022)*
- 2022 Genomic Strategies for Detecting and Visualizing Population Structure and Lineage-Specific Diversity in Fungi. DUMRU Seminar Series. Duke University. Durham, NC.
- 2022 Genomic Signatures of Host Specificity in Ectomycorrhizal Fungi. CIFAR program Fungal Kingdom: Threats and Opportunities. Pacific Grove, CA.
- 2022 Combined Pan-, Population-, and Phylo-Genomic Analysis of *Aspergillus fumigatus* Reveals Population Structure and Lineage-Specific Diversity. GSA Fungal Genetics Conference. Pacific Grove, CA.
- 2021 The Pangenome of *Aspergillus fumigatus*: Population Structure and Clade-Specific Diversity. PopBio Seminar Series. Duke University. Durham, NC.
- 2021 A Framework for Genome-Enabled Biodiversity Discovery and Conservation in Mycology. CanFunNet21: Canadian Fungal Research Network and Great Lakes Mycology Conference. Conservation Mycology Symposium. Ontario, Canada.
- 2020 Evidence for a Host-Specificity Toolkit in Mutualisms. Department of Plant Pathology Seminar Series. University of Florida. Gainesville, FL.
- 2020 Ectomycorrhizal Comparative Genomics. Genetics Genomics and Bioinformatics Symposium. Keynote Address. University of California Riverside. Riverside, CA.
- 2019 rDNA copy number variation as a variable trait across phylogenetic scales, ecological lifestyles, and genome size. Ecological Society of America Conference, Louisville, KY.
- 2018 Non-binary Fungal Ecology: How Avoiding Labels of Guild and Lifestyle can Advance our Understanding of Multi-trophic, Multi-host, and Context-dependent Interactions. Department of Biology Seminar Series. University of Wisconsin La Crosse. La Crosse, WI.
- 2017 Modification of host specificity “rules” in light of forest history: the curious case of host generalism for *Suillus subaureus*. Talk and discussion panel member. 9<sup>th</sup> International Conference on Mycorrhizas, August 2017, Prague, CZ.

**Contributed Oral Papers Presented at Professional Meetings, Conferences, etc.:**

- 2021 **Lofgren L**, Cramer R, Stajich J. Combined Pan- and Population-Genomic analysis of *Aspergillus fumigatus* Reveals Global Structure and Clade-Specific Diversity. Mycological Society of America Meeting. Remote.
- 2019 **Lofgren L**. Genomic signatures of ectomycorrhizal host specificity encoded by the hyper-specialist genus *Suillus*. Mycological Society of America Meeting. Minneapolis, MN.

- 2017 **Lofgren L**, Nguyen NH, Kennedy PG. The influence of ITS copy number variation on fungal metabarcoding. UMN UMycoNet Fungal Symposium, St. Paul, MN.
- 2016 **Lofgren L**, Nguyen NH, Kennedy PG. Tracking ghosts of mycorrhizal past: Broad host associations of the enigmatic ectomycorrhizal fungus *Suillus subaureus*. Annual meeting of the Mycological Society of America, Berkeley, CA.
- 2014 **Lofgren L**, Praphapan L, Roelfs A, Kistler HC. *Fusarium* Inhabitants of Asymptomatic Wild Grasses. Annual meeting of the Mycological Society of America, East Lansing, MI.

**Posters Presented at Professional Meetings, Conferences, etc.:**

- 2019 **Lofgren L**, Vilgalys R, Nguyen N, Ruytinx J, Liao HL, Kennedy P. Genomic Signatures of Ectomycorrhizal Host Specificity. Fungal Genetics. Pacific Grove, CA.
- 2018 **Lofgren L**, Uehling J, Branco S, Bruns T, Francis M, Kennedy PG. Genome-based estimates of fungal rDNA copy number variation across phylogenetic scales and ecological lifestyles. International Mycological Congress. San Juan, PR.
- 2017 **Lofgren L**, Nguyen NH, Kennedy PG. Estimating Fungal barcode variation using an *in silico* genomics approach. 9<sup>th</sup> International Conference on Mycorrhizas. Prague, CZ.
- 2017 **Lofgren L**, Nguyen NH, Kennedy PG. The influence of ITS copy number variation on fungal metabarcoding. Minnesota Supercomputing Institute Research Exhibition. Minneapolis, MN.
- 2015 **Lofgren L**, Nguyen NH, Kennedy PG. Breaking out of a specific host lineage: confirming *Suillus subaureus* on an angiosperm host. 8<sup>th</sup> International Conference on Mycorrhizas, Flagstaff, AZ.

TEACHING EXPERIENCE

**Graduate Teaching Assistant for Introductory Biology**

2015 University of Minnesota College of Biological sciences

**Teaching Assistant for Writing and Research Skills**

2009-2011 Inverhills Department of English

SERVICE AND OUTREACH

**Grant Peer Review:**

*NSF ad-hock (2022)*

**Journal Peer Review:**

*New Phytologist (9), Mycologia (3), Fungal Ecology (1), PLOS ONE (1), Molecular Phylogenetics and Evolution (1), Molecular Biology and Evolution (1), Molecular Ecology (1), Environmental Microbiology (1), Ecology (1), G3 (1), FACETS (1), Frontiers in Fungal Biology (1).*

2021-present **Board member - Mycological Society of America Diversity Committee**

Dedicated to recruiting, retaining, and supporting diverse membership across MSA

2020 **Volunteer R-ladies Riverside**

Bioinformatic programming and data visualization instruction

2020 **Campus Chair - UAW5810**

UC Riverside Campus Chair for the Union of Postdocs and Academic Researchers  
Committee member Anti-racist working group

2019-2020 **Board member - Mycological Society of America Student Section**

Postdoctoral Representative

2018 **Mycology curriculum development**

Bell Museum of Natural History Day Camps – *life in the undergrowth!*

**Board member - University of Minnesota Mycology Club**

*co-founder of science outreach organization UMNMC*

2017- 2019

**1) President**

2015-2017

**2) Vice President**

2012-2015

**3) Officer**

2015-2016

**Planting Science Instructor**

Scientist mentor and scientist-teacher liaison for the Ecological Society of America's Planting Science Program. Mentored a total of four high school classes over two terms to develop testable hypothesis, conduct experiments, and give research presentations. Included one accelerated class and one special ed class

2011-2019

**Co-founder/manager - Fungal Garden**

A living laboratory for fungal cultivation and active learning housed on the UMN's St. Paul Campus

MEMBERSHIP IN PROFESSIONAL SOCIETIES

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American Society for Microbiology (2017 - present)

Ecological Society of America (2015 - present)

Mycological Society of America (2012 - present)

International Mycorrhizal Society (2015 - present)

Genetics Society of America (2018 - present)

Last Updated 27.Oct.2022