MANUELA DAL FORNO

CURRICULUM VITAE

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EDUCATION

2015 **Ph.D., Environmental Science and Public Policy**
George Mason University (GMU). Fairfax, VA, USA

2009 **M.Sc., Botany**
Universidade Federal do Paraná (UFPR). Curitiba, PR, Brazil

2006 **B.Sc., Biology**
Universidade de Santa Cruz do Sul (UNISC). Santa Cruz do Sul, RS, Brazil

PROFESSIONAL APPOINTMENTS

Current **Research Botanist**
Botanical Research Institute of Texas (BRIT)

Research Associate
National Museum of Natural History (NMNH), Smithsonian Institution

Adjoint Faculty, Department of Biology
University of Texas Arlington (UTA)

Associate Graduate Faculty, Department of Biology
Texas Christian University (TCU)

Affiliate Faculty, Department of Biology
George Mason University

2018–2019 **Peter Buck Postdoctoral Research Fellow – Department of Botany**
National Museum of Natural History, Smithsonian Institution

Research Associate
Botanical Research Institute of Texas

2016–2018 **National Science Foundation Postdoctoral Research Fellow**
NSF PRFB 1609022: Using museum specimens to explore the diversity and variation of lichen microbiomes in space and time
Smithsonian Institution (NMNH) – University of Graz, Austria

2015–2016 **Laboratory Technician**
Center for Conservation Genomics (CCG), Smithsonian Institution

2015–2016 **Herbarium Assistant**
Ted R. Bradley Herbarium, George Mason University

PUBLICATIONS

PEER REVIEWED

36. Yahr R, Allen J, Lymbery C, Batallas-Molina R, Bungartz F, **Dal Forno M,** Hodges M, Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F,

Sharrett S & Villella J. 2021. *Parmotrema hypotropum. The IUCN Red List of Threatened Species* 2021: e.T194661553A194678154. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194661553A194678154.en

35. Yahr R, Allen J, Lymbery C, Bungartz F, Batallas-Molina R, **Dal Forno M,** Howe, N., Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S, Spielmann A, Vargas, R. & Villella J. 2021. *Parmotrema crinitum. The IUCN Red List of Threatened Species* 2021: e.T194661476A194678149. https://dx.doi.org/10.2305/IUCN.UK.2021- 2.RLTS.T194661476A194678149.en

34. Yahr R, Allen J, Lymbery C, Batallas-Molina R, Bungartz F, **Dal Forno M**, Howe, N., Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Parmeliopsis hyperopta. The IUCN Red List of Threatened Species* 2021: e.T194660868A194678144. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194660868A194678144.en

33. Yahr R, Allen J, Lymbery C, Batallas-Molina R, Bungartz F, **Dal Forno M**, Howe N, Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Parmeliopsis ambigua. The IUCN Red List of Threatened Species* 2021: e.T194660719A194678139. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194660719A194678139.en

32. Yahr R, Allen J, Lymbery C, Batallas-Molina R, **Dal Forno M**, Howe N, Lendemer J, McMullin T, Mertens, A., Petix, M., Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Parmelia squarrosa. The IUCN Red List of Threatened Species* 2021: e.T194660642A194678134. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194660642A194678134.en

31. Yahr R, Allen J, Lymbery C, Batallas-Molina R, Bungartz F, **Dal Forno M**, Howe N, Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Parmelia saxatilis. The IUCN Red List of Threatened Species* 2021: e.T194660573A194678129. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194660573A194678129.en

30. Allen J, Yahr R, Lymbery C, Batallas-Molina R, Bungartz F, **Dal Forno M**, Hodges M, Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S, Spielmann A & Villella J. 2021. *Parmotrema perforatum. The IUCN Red List of Threatened Species* 2021: e.T194661584A194678159. https://dx.doi.org/10.2305/IUCN.UK.2021- 2.RLTS.T194661584A194678159.en

29. Allen J, Yahr R, Lymbery C, Batallas-Molina R, **Dal Forno M**, Howe, N., Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Melanohalea halei. The IUCN Red List of Threatened Species* 2021: e.T194662493A194678204. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194662493A194678204.en

28. Allen J, Yahr R, Lymbery C, Batallas-Molina R, Bungartz F, Calabria L, **Dal Forno M**, Howe N, Lendemer J, McMullin T, Mertens A, Paquette H, Petix M, Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Flavoparmelia baltimorensis. The IUCN Red List of Threatened Species* 2021: e.T194662214A194678194. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194662214A194678194.en

27. Allen J, Yahr R, Lymbery C, Batallas-Molina R, Bungartz F, **Dal Forno M**, Howe N, Lendemer J, McMullin T, Mertens, A., Petix, M., Reese Næsborg R, Roberts, F, Sharrett S & Villella J. 2021. *Canoparmelia caroliniana. The IUCN Red List of Threatened Species* 2021: e.T194662208A194678189. https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T194662208A194678189.en

26. **Dal Forno M**, Kaminsky L, Lücking R. 2021. *Cora timucua. The IUCN Red List of Threatened Species* 2021: e.T175711802A175712343. https://dx.doi.org/10.2305/IUCN.UK.2021-1.RLTS.T175711802A175712343.en.

25. Allen J, Beeching S, Bishop G, **Dal Forno M**, Hodges M, Lendemer J, McMullin T, Paquette H & Yahr R. 2020. *Flavoparmelia caperata.* The IUCN Red List of Threatened Species 2020: e.T180096947A180096996. https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T180096947A180096996.en.

24. **Dal Forno M**, Lawrey JD, Sikaroodi M, Gillevet PM, Schuettpelz E, Lücking R. 2021. Extensive photobiont sharing in a rapidly-radiating cyanolichen clade. *Molecular Ecology* (from the cover) 30: 1755–1776. First published: 20 Oct 2020 (https://doi.org/10.1111/mec.15700).

23. Lücking R, Kaminsky L, Perlmutter GB, Lawrey JD, **Dal Forno M**. 2020. *Cora timucua* (Hygrophoraceae), a new and potentially extinct, previously misidentified basidiolichen of Florida inland scrub documented from historical collections. *The Bryologist* 123(4): 657–673.

22. **Dal Forno M**, Kaminsky L, Rosentreter R, McMullin T, Aptroot A, Lücking R. 2019. A first phylogenetic assessment of *Dictyonema* s.lat. in southeastern North America reveals three new basidiolichens, described in honor of James D. Lawrey. *Plant & Fungal Systematics* 64 (2): 383–392.

21. Lücking R, **Dal Forno M**, Wil-Wolf S. 2019. James Donald ('Jim') Lawrey: a tribute to a unique career in lichenology. *Plant & Fungal Systematics* 64 (2): 117–135.

20. **Dal Forno M**, Moncada B, Lücking R. 2018. *Sticta aongstroemii*, a newly recognized species in the *S. damicornis* morphodeme (Lobariaceae) potentially endemic to the Atlantic Forest in Brazil. *The Lichenologist* 50(6): 691–696.

19. Graves G & **Dal Forno M**. 2018. Persistence of Transported Lichen at a Hummingbird Nest Site. *Northeastern Naturalist* 25(4): 656–661.

18. **Dal Forno M**, Bungartz F, Lücking R, Yánez-Ayabaca A, Lawrey JD. 2017. High levels of endemism in Galapagos basidiolichens. *Fungal Diversity* 85: 45–73.

17. Lücking R, **Dal Forno M**, Moncada B, et al. (50 more authors). 2016. Turbo-taxonomy to assemble a megadiverse lichen genus: seventy new species of *Cora* (Basidiomycota: Agaricales: Hygrophoraceae), honouring David Leslie Hawksworth's seventieth birthday. *Fungal Diversity* 84: 139–207.

16. **Dal Forno M**, Lücking R, Bungartz F, Yánez-Ayabaca A, Marcelli MP, Spielmann AA, Coca LF, Chaves JL, Aptroot A, Sikaroodi M, Gillevet PM, Sipman HJM, Lawrey JD. 2016. From one to six: unrecognized species diversity in the genus *Acantholichen* P. M. Jørg. (lichenized Basidiomycota: Hygrophoraceae). *Mycologia* 108(1): 38–55.

15. Ariyawansa HA, Hyde KD, Jayasiri SC, et al. (124 more authors including **Dal Forno M**). 2015. Fungal diversity notes 111–252—taxonomic and phylogenetic contributions to fungal taxa. *Fungal Diversity* 75: 27–274.

14. Lawrey JD, Etayo J, **Dal Forno M**, Driscoll KE, Diederich P. 2015. Molecular data support establishment of a new genus for the lichenicolous species *Neobarya usneae* (Hypocreales). *The Bryologist* 118 (1): 83–92.

13. Schmull M, **Dal Forno M**, Lücking R, Cao S, Clardy J, Lawrey JD 2014. *Dictyonema huaorani* (Agaricales: Hygrophoraceae), a new lichenized basidiomycete from Amazonian Ecuador with presumed hallucinogenic properties. *The Bryologist* 117 (4): 386–394.

12. Lücking R, **Dal Forno M**, Sikaroodi M, Gillevet PM, Bungartz F, Moncada B, Yánez-Ayabaca A, Coca LF, Chaves JD, Lawrey JD 2014. A single macrolichen constitutes hundreds

of unrecognized species. *Proceedings of the National Academy of Sciences of the United States of America* 111 (30): 11091–11096.
(major media coverage: National Geographic, Science News, Charles Darwin Foundation, Field Museum, Smithsonian, The Scientist, Pysics.Org, etc., available at: mbac.gmu.edu/mbac_wp/lichen-project/)

11. Lücking R, Lawrey JD, Gillevet PM, Sikaroodi M, **Dal Forno M**, Berger SA. 2014. Multiple ITS haplotypes in the genome of the lichenized basidiomycete *Cora inversa* (Hygrophoraceae): Fact or artifact? *Journal of Molecular Evolution* 78: 148–162.

10. Lücking R, **Dal Forno M**, Wilk K, Lawrey JD. 2013. Three new species of *Dictyonema* (lichenized Basidiomycota: Hygrophoraceae) from Bolivia. *Acta Nova* 6 (1-2): 4–16. ISSN: 1683-0768.

09. Lücking R, **Dal Forno M**, Lawrey JD, Bungartz, F, Holgado Rojas ME, Hernández JE, Marcelli MP, Moncada B, Morales EA, Nelsen MP, Paz E, Salcedo L, Spielmann AA, Wilk K, Will-Wolf S, Yánez-Ayabaca A. 2013. Ten new species of lichenized Basidiomycota in the genera *Dictyonema* and *Cora* (Agaricales: Hygrophoraceae), with a key to all accepted genera and species in the *Dictyonema* clade. *Phytotaxa* 139: 1–38.

08. **Dal Forno M**, Lawrey JD, Sikaroodi M, Bhattarai S, Gillevet PM, Sulzbacher M, Lücking R. 2013. Starting from scratch: evolution and diversification of the lichen thallus in the basidiolichen *Dictyonema* (Agaricales: Hygrophoraceae). *Fungal Biology* 117 (9): 584–598.

07. Gostel MR, **Dal Forno M**, Weeks A. 2013. A navigation guide to cyberinfrastructure tools for botanical and lichenological systematics research. *Plant Science Bulletin* 59 (3): 111–130. Website: http://www.botany.org/students_corner/systematics_resources.php

06. Yánez A, **Dal Forno M**, Bungartz F, Lücking R, Lawrey JD. 2012. A first assessment of Galapagos basidiolichens. *Fungal Diversity* 52(1): 225–244.

05. Lumbsch HT, Ahti T, Altermann S, et al. (102 more authors including **Dal Forno M**). 2011. One hundred new species of lichenized fungi: a signature of undiscovered global diversity. *Phytotaxa* 18: 1–127.

04. **Dal Forno M**, Eliasaro S. 2010. Two new species of *Graphidaceae* (lichenized *Ascomycota*) from Brazil. *Mycotaxon* 112: 15–20.

03. **Dal Forno M**, Eliasaro S. 2010. Four New Species of *Graphis* (*Ostropales: Graphidaceae*) from Brazil. *The Lichenologist* 42(1): 77–81.

02. Torres-Boeger MR, Soffiatti P, Gomes-Souto MA, Budchen M, Bagatini KP, **Dal Forno M**. 2010. Functional morphology of two *Lepismium* species (Rhipsalideae, Cactaceae). *Revista Mexicana de Biodiversidad* 81: 383–400.

01. **Dal Forno M** & Eliasaro, S. 2009. Two new species of *Acanthothecis* (lichenized *Ascomycota*) from Brazil. *Mycotaxon* 109: 43–47.

MANUSCRIPTS IN PREPARATION OR IN REVIEW

Dal Forno M, Gillevet PM, Sikaroodi M, Lawrey JD, Lücking R, Schuettpelz E, Grube M. First insights into the microbiome of basidiolichens from the *Dictyonema* clade (Hygrophoraceae, Agaricales). In preparation for submission to *The ISME Journal.*

NON-REFEREED ARTICLES

07. **Dal Forno M** & Jacob J. 2020. Lichens of the Thomas Jefferson Memorial. Report submitted to the National Park Services.

06. Campbell K, **Dal Forno M**, Mercado-Diaz J. 2018. The Christmas Lichen (*Herpothallon rubrocinctum*). Glimpses of Jamaica's Natural History. *Jamaica Journal* 37, Nos. 1–2: back cover.

05. Dal Forno M & Jacob J. 2018. Lichens of the Arlington Cemetery Amphitheater. Report submitted to the National Park Services.

04. Dal Forno M. 2016. We Are All Lichens. The Plant Press 19 (4): 1, 13–14. Available at: http://nmnh.typepad.com/files/vol19no4.pdf

03. Aptroot A, Mercado-Díaz JA, Bárcenas-Peña A, Cáceres MES, Coca LF, **Dal Forno M**, Feuerstein SC, Herrera-Campos MA, Joshi S, Kirika PM, Kraichak E, Lumbsch HT, Miranda-González R, Moncada B, Nelsen MP, Pérez REP, Scharnagl K, Medina ES, Yánez-Ayabaca A, Lücking R. 2014. Rapid assessment of the diversity of "vehiculicolous" lichens on a thirty year old Ford Bronco truck in central Puerto Rico. *FUNGI Magazine* 7 (2-3): 22–27. Available at: http://www.fungimag.com/summer-2014-articles/LR1%20V7I2%2022-27%20Vehiculicolous.pdf

02. Lücking R, **Dal Forno M**, Moncada B, Chaves JL, Lawrey JD. 2014. The Enchanted Jungle. *FUNGI Magazine* 7 (2-3): 28–31. Available at: http://www.fungimag.com/summer-2014-articles/LR1%20V7I2%2028-31%20Jungle.pdf

01. Moncada B, Lawrey JD, Chaves JL, **Dal Forno M**, Lücking R. 2012. Lichens of the Costa Rican Premontane Wet Forest. Available at: https://fieldguides.fieldmuseum.org/guides/guide/396

GRANTS, AWARDS AND FELLOWSHIPS

2020	NSF Collaborative Research: Plant discovery in the southern Philippines (PI: P. Fritsch; co-PIs: D. Nickrent & M. Dal Forno, DEB 1754697). **$950,001**
2019	Programming for Evolutionary Biology. €500
2018	Smithsonian Institution Peter Buck Fellowship. **$112,800**
2018	Smithsonian Institution Barcoding Network. **$15,000**
2017	Natural History Society of Styria. €150
2016	Global Genome Initiative 2016 Exploratory Awards Program. **$6,491**
2016	NSF Postdoctoral Research Fellowship in Biology for FY 2016, Research Using Biological Collections. **$138,000**
2015	AJ Sharp Award (best student presentation). American Bryological and Lichenological Society. $500
2015	American Bryological and Lichenological Society; travel award. $600
2015	George Mason University Graduate Student Association; travel award. $250
2014	American Bryological and Lichenological Society; travel award. $900
2013	American Bryological and Lichenological Society; travel award. $600
2007	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) Masters 2-year fellowship. R$28,800
2006	Award for Highest Grade in the Biology Class of 2006. Universidade de Santa Cruz do Sul, Brazil
2005	Award for Best Undergraduate student presentation in the category of scientific research in biology. Universidade de Santa Cruz do Sul, Brazil

2004	Undergraduate Research Fellowship. Programa UNISC de Iniciação Científica (Bolsa PUIC). R$3,600
2003	Undergraduate Research Fellowship. Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS). R$3,000

INVITED RESEARCH TALKS

24. Dal Forno M, Lawrey JD, Lücking R,. 2021. Photobiont diversity and specificity in cyanolichens of the *Dictyonematinae* subtribe. 9th International Association for Lichenology Symposium, Brazil.

23. Dal Forno M. 2021. Espécies brasileiras com dados moleculares com ênfase nos Basidioliquens. I SIMBLIQ, Campo Grande, MS, Brazil.

22. Dal Forno M. 2021. The lichen dilemma: unveiling diversity in multi-species symbioses. 2021 Smithsonian Botanical Symposium.

19. Dal Forno M. 2021. Lichen Diversity and its Multifaceted Symbioses. Ithaca College, Ithaca, NY.

20. Dal Forno M. 2020. El Microbiome de los Líquenes: Conceptos, Desafíos y Oportunidades. IV Congreso Nacional de Liquenología del Perú – I Congreso Nacional de Lomas.

19. Dal Forno M. 2019. Utilizing Integrative Approaches to Tackle Hidden Diversity in Lichens. Duke University, Durham, NC.

18. Dal Forno M. 2019**.** Lichens: 20K Symbioses Wanting Your Attention. Botanical Research Institution of Texas, Fort Worth, TX.

17. Dal Forno M. 2019. It Takes a Village: Lichens as Complex Symbiotic Systems. University of California Berkeley, Berkeley, CA.

16. Dal Forno M. 2018. Lichen microbiomes: How much do we know? Study case of the *Dictyonema* clade (Basidiomycota: Hygrophoraceae). Universidade Federal de Mato Grosso do Sul, Campo Grande, MS, Brazil.

15. Dal Forno M. 2018. Lichen Expeditions in the Blue Mountains, Jamaica and the Mantiqueira Mountains, Brazil. Karl-Franzens-Universität Graz (University of Graz), Graz, Austria.

14. Dal Forno M, Mercado-Diaz J. 2018. Introduction to lichens and overview of their diversity in the Caribbean. The University of The West Indies, Kingston, Jamaica.

13. Dal Forno M. 2017. Lichens: 20K Symbioses Wanting Your Attention. Butler University, Indianapolis, IN.

12. Dal Forno M. 2017. Lichen Collections as Sources of Multiple Data Layers. Technische Universität Graz (Graz University of Technology), Graz, Austria.

11. Dal Forno M. 2017. Lichen Battlefield: Mycobiont versus Photobiont Diversity in Tropical *Dictyonema* Basidiolichens. Karl-Franzens-Universität Graz (University of Graz), Graz, Austria.

10. Dal Forno M. 2017. Utilizing Integrative Taxonomy to Disentangle Lichen Diversity. Senate of Scientists Lighting Talks. National Museum of Natural History, Washington, DC. Talk available at: *https://www.youtube.com/watch?v=qVAUAH-L_r0&t=110s*

09. Dal Forno M. 2017. The multitudes of lichen collections: Examples from the tropical basidiolichen clade *Dictyonema*. Botanical Society of Washington, Washington, DC.

08. Dal Forno M. 2017. The World of Lichens: Modern Concepts and Identification Characters. Virginia Native Plant Society – Winter Workshop, Richmond, VA.

07. Dal Forno M, Lücking R, Lawrey JD. 2016. Filogenia e distribuição de liquens do clado *Dictyonema* no Brasil (Hygrophoraceae: Basidiomycota). VIII Congresso Brasileiro de Micologia, Florianópolis, Brazil.

06. Dal Forno M. 2016. Evolution and diversity of the basidiolichen clade *Dictyonema* (Agaricales: Hygrophoraceae). National Zoo Seminar Series, Washington, DC.

05. Dal Forno M, Lücking R, Lawrey JD. 2015. Comparison of the diversity of symbionts in the lichen *Dictyonema* c. Agardh ex Kunth s. lat. (Hygrophoraceae). VIII Congreso Colombiano de Botánica, Manizales, Colombia.

04. Dal Forno M, Lücking R, Lawrey JD. 2014. Diversidade nos gêneros *Cora* e *Corella* (Agaricales: Hygrophoraceae). VII Encontro do Grupo Brasileiro de Liquenólogos, Porto Alegre, Brazil.

03. Dal Forno M, Lawrey JD, Lücking R. 2014. From a single species to one hundred and sixty and counting: a case of unrecognized diversity in a well-known macrolichen. Annual meetings of the Botanical Society of America and the American Bryological and Lichenological Society, Boise, ID.

02. Dal Forno M, Lawrey JD, Lücking R. 2012. Como identificar *Dictyonema*? Uma tentativa de avaliar importantes características no grupo. VI Encontro do Grupo Brasileiro de Liquenólogos, Botucatu, Brazil.

01. Dal Forno M. 2008. Caracteres de importância taxonômica para identificação de gêneros em Graphidaceae Dumortier. IV Encontro do Grupo Brasileiro de Liquenólogos, Curitiba, Brazil.

TEACHING AND TRAINING EXPERIENCE

INSTRUCTOR

2014–2015	**Graduate Teaching Assistant** Introductory Biology I (instructor of record for 6 classes of 25 students each) George Mason University, VA
2009–2010	**K-12 Instructor** Audubon Center of the North Woods, Sandstone, MN
2007	**Graduate Teaching Assistant** Mycology Laboratory Universidade Federal do Paraná, Brazil
2005	**Biology Visiting Instructor – High School Level** Educar-se, Santa Cruz do Sul, Brazil
2005	**Science Visiting Instructor – 7th Grade** Educar-se, Santa Cruz do Sul, Brazil

WORKSHOPS OFFERED

2017	Utilizing Molecular Resources in Research Universidade de Santa Cruz do Sul, Brazil
2015	Neotropical Lichens Universidad de Caldas, Colombia

MENTORSHIP (8) AND CO-MENTORSHIP (2)*

2019 Smithsonian Graduate Student Fellowship. PhD Student Julia Adams

University of California Riverside (PhD Advisor: Jason Stajich)
Project: Lichen Symbiont Diversity Across Environmental Gradients in the Mojave Desert

2019 Smithsonian YES! Program (two high school students) at NMNH
Project: Investigating Lichen Diversity

2018 Smithsonian YES! Program (two high school students) at NMNH
Project: Investigating Lichen Diversity in the Tropics

2018 Smithsonian Internship Program (one high school student) at NMNH
Project: A glimpse of the past: mining data from lichens in the National Herbarium

2014 Thomas Jefferson High School for Science and Technology (one high school student) and GMU Aspiring Scientists Summer Internship Program
Project: Species circumscription of *Parmotrema tinctorum* in Brazil

2012–2013 Thomas Jefferson High School for Science and Technology (one high school student) and GMU Aspiring Scientists Summer Internship Program
Project: Phylogeny of *Cladonia* Inferred from DNA Sequences

2007 Lichenology Laboratory (two undergraduate students) at UFPR*

STUDENT RESEARCH EXPERIENCE

2013–2014 **Graduate Research Assistant**
Microbiome Analyses Center, George Mason University, USA

2010–2013 **Graduate Research Assistant**
NSF DEB 0841405. Project: Phylogenetic diversity and phenotype evolution in *Dictyonema*, with emphasis on the Neotropics and the Galápagos Islands
George Mason University, USA

2007–2009 **Graduate Research Assistant – Lichenology Laboratory**
Project: The family Graphidaceae in Pontal do Sul, Pontal do Paraná, Brazil
Universidade Federal do Paraná, Brazil

2005 **Undergraduate Intern – Anatomy Laboratory**
Project: Application of 2-(2-hydroxyphenyl) benzazoles as fluorochromes for anatomical assessment of patters of vascularization: part 2. Intestinal vascularization
Universidade de Santa Cruz do Sul, Brazil

2004 **Undergraduate Intern – HCB Herbarium/Botany Laboratory**
Project: Macrolichens of the Cinturão Verde of Santa Cruz do Sul
Universidade de Santa Cruz do Sul, Brazil

2003–2004 **Undergraduate Intern – Biology Laboratory**
Project: Identification of pollen grains and exsiccates (palynology)
Universidade de Santa Cruz do Sul, Brazil

CONFERENCE ACTIVITY/PARTICIPATION

CONFERENCES AND SYMPOSIA ORGANIZED (4)

2019–2021 Symposium Organizer (Gueidan C & Dal Forno M)
New approaches to harness genetic data from herbarium specimens
9th International Association for Lichenology Symposium (2020)

2016–2021 Secretary
9th International Association for Lichenology Symposium (2020)

2018	Symposium Organizer (Dal Forno M & Lücking R) Evolution and diversity of lichenization in the Basidiomycota 11th International Mycological Congress. San Juan, Puerto Rico
2008	Secretary IV Encontro do Grupo Brasileiro de Liquenólogos

PAPERS PRESENTED (27) PRESENTER IS UNDERLINED

Lücking R, Moncada B, Pérez-Pérez RE, **Dal Forno M**, Lawrey JD. 2021. Migration of *Cora* into Central America following diversification in the Northern Andes supports late closure of the Panamanian Isthmus. 9th International Association for Lichenology Symposium, Brazil.

Moncada B, Dal Forno M, Coca LF, Lücking R. 2021. Cuando Una Especie Son Muchas: *Cora*, Un Basidioliquen Ejemplo De Diversidad Subestimada. XXIII Seminario de Investigaciones Biológicas, Colombia.

Fritsch PW, Penneys DS, Nickrent DL, **Dal Forno M**, Amoroso VB, Coritico FP, Shevock JR, Brinda JC, Gerlach A, Mancera JP, Galindon JM, Tandang DN, Handley V. 2020. Plant and lichen discovery in the southern Philippines: results from initial expeditions. Video presentation at online Botany 2020 conference, 27–31 July.

Dal Forno M, Schuettpelz E, Grube M. 2019. Lichen Microbiomes: How Much Do We Know And What's Next? 87th Meeting of the Mycological Society of America, Minneapolis, MN.

Dal Forno M, Sikaroodi M, Lawrey JD, Lücking R, Gillevet PM, Schuettpelz E, Grube M. 2018. Microbiome of basidiolichens of the *Dictyonema* clade (Hygrophoraceae, Agaricales). 11th International Mycological Congress, Puerto Rico.

Cáceres M, **Dal Forno M**, Barreto F, Aptroot A. 2018. Unexpected Basidiolichen diversity discovered in lowland Brazilian forests. 11th International Mycological Congress, Puerto Rico.

Coca LF, Lücking R, Moncada B, **Dal Forno M**. 2018. Diversity and evolution of lichenized basidiomycota from Colombia. 11th International Mycological Congress, Puerto Rico.

Moncada B, **Dal Forno M**, Lücking R. The genus *Cora* in Colombia: Diversification of a hyperdiverse, basidiolichenforming clade in the northern Andes. 11th International Mycological Congress, Puerto Rico.

Lawrey JD, **Dal Forno M**, Lücking R. 2018. The origin and phylogenetic diversity of lichen-forming fungi in the Basidiomycota. 11th International Mycological Congress, Puerto Rico.

Dal Forno M, Sikaroodi M, Lawrey JD, Lücking R, Gillevet PM, Grube M. 2017. First insights into the microbiome of different morphologies in the *Dictyonema* clade. Lichen Genomics Workshop II, Austria.

Dal Forno M, Lücking R, Sikaroodi M, Gillevet PM, Lawrey JD. 2016. Photobiont diversity in cyanolichens of the *Dictyonema* clade (Hygrophoraceae: Basidiomycota). 8th International Association for Lichenology Symposium, Finland.

Lücking R, **Dal Forno M**, Moncada B, Vargas LY, Bungartz F, Lawrey JD. 2016. From one to one hundred and eighty species: phenotypical and ecogeographical diversification in the genus *Cora* (lichenized Basidiomycota: Hygrophoraceae). 8th International Association for Lichenology Symposium, Finland.

Lücking R, Moncada B, **Dal Forno M**. 2016. PhyloKey: A novel method to rapidly and reliably identify species in complex, species-rich genera. 8th International Association for Lichenology Symposium, Finland.

Dal Forno M, Lawrey JD, Lücking R. 2015. Mycobiont versus photobiont diversity in the *Dictyonema* clade (Agaricales: Hygrophoraceae). Annual meetings of the Botanical Society of America and the American Bryological and Lichenological Society, Canada.
(AJ Sharp Award for best student presentation)

Dal Forno M, Lücking R, Bungartz F, Lawrey JD. 2015. High levels of endemism in Galapagos Islands basidiolichens of the *Dictyonema* clade: An updated assessment including molecular data and taxonomic novelties. Annual meetings of the Botanical Society of America and the American Bryological and Lichenological Society, Canada.

Dal Forno M, Lücking R, Lawrey JD. 2014. The genus *Acantholichen* P. M. Jørg. (lichenized Basidiomycota: Hygrophoraceae) revisited. Annual meetings of the Botanical Society of America and the American Bryological and Lichenological Society, Boise, ID.

Dal Forno M, Lawrey JD, Sikaroodi M, Gillevet PM, Lücking R. 2013. Espécies de *Dictyonema* sensu lato (Agaricales: Hygrophoraceae) no Brasil. 7ª Reunião Brasileira de Estudos Liquenológicos, Brazil.

Dal Forno M, Lawrey JD, Sikaroodi M, Gillevet PM, Lücking R. 2013. Evolution and diversity of the tropical basidiolichen clade *Dictyonema* sensu lato: an example of how molecular data and classic taxonomy work well together. Annual meetings of the Botanical Society of America and the American Bryological and Lichenological Society, New Orleans, LA.

Lücking R, **Dal Forno M**, Lawrey JD. 2013. Last but not least: Witnessing the 'birth' of lichenization in the Basidiomycota. Annual meetings of the Botanical Society of America and the American Bryological and Lichenological Society, New Orleans, LA.

Dal Forno M, Lücking R, Sikaroodi M, Lawrey JD. 2012. Filogenis de *Dictyonema* s.l. – novos conceitos genéricos no grupo. VI Encontro do Grupo Brasileiro de Liquenólogos, Brazil.

Dal Forno M, Moncada B, Chaves JL, Lawrey JD, Lücking R. 2012. Tour de liquens em Las Cruces Biological Station, Costa Rica – um modelo de como introduzir os liquens em atividades educacionais. VI Encontro do Grupo Brasileiro de Liquenólogos, Brazil.

Dal Forno M, Lücking R, Bungartz F, Yánez-Ayabaca A, Lawrey JD. 2012. Genus and Species Concepts in *Dictyonema* s.l. 7th International Association for Lichenology Symposium, Thailand.

Dal Forno M, Eliasaro S. 2009. O gênero *Phaeographis* (Graphidaceae) em restinga em Pontal do Sul, Pontal do Paraná, Paraná. IV Reunião Brasileira de Estudos Liquenológicos, Brazil.

Dal Forno M, Eliasaro S. 2008. O gênero *Graphis* Adans. (Graphidaceae Dumort.) em restinga em Pontal do Sul, Pontal do Paraná, Paraná. IV Encontro do Grupo Brasileiro de Liquenólogos, Brazil.

Grisi FA, Bagatini KP, Nogueira L, **Dal Forno M**, Boeger MRT, Soffiatti P. 2007. Morfologia funcional de *Lepismium lumbricoides* Barthlot (Cactaceae), epífito ocorrente em floresta ombrófila mista". XI Congresso Brasileiro de Fisiologia Vegetal, Brazil.

Dal Forno M, Putzke MTL. 2006. Levantamento de gêneros de macroliquens corticícolas encontrados no Cinturão Verde, município de Santa Cruz do Sul, RS, Brasil. 57º Congresso Nacional de Botânica, Brazil.

Dal Forno M, Bartholdy LM, Gobbi L, Nazer MB, Neto LK, Corbelini V. 2006 Aplicação de 2-(2'-hidroxifenil) benzazolas como fluorocromos para avaliação de padrões anatômicos de vascularização: parte 2. Vascularização Intestinal. 58ª Reunião Anual da SBPC, Brazil.

OUTREACH AND SERVICE TO PROFESSION

COMMUNITY INVOLVEMENT AND OUTREACH PROGRAMS (35)

2021 Lichens!
Friends of the Southwest Nature Preserve

2021 The World of Lichens
Trinity Forks Chapter of the Native Plant Society of Texas

2021 The Secret Life of Lichens | Exploring by The Seat of Your Pants
Global Biodiversity Festival

2021 Liberty's Promise Career Panel
Smithsonian National Museum of Natural History, Washington, DC

2021 "Lichen 101"
Galveston Bay Area Chapter Texas Master Naturalist

2021 "Lichens"
Indian Trail Chapter Texas Master Naturalist

2021 Lichen Walk and Collecting Training
Wakefield Heights Park

2020 Intro Lichenology
Texas Master Naturalist Blackland Prairie Chapter

2020 Lichen Lab in Environmental Microbiology Course (invited speaker)
George Mason University

2020 Lichens 101: Everything you need to make lichens part of your naturalist life
Texas Master Naturalist Annual Meeting

2020 Lichens 101
North Texas Master Naturalist

2020 Brookline Public Schools – Heath School

2020 The Lichen Lifestyle: It's More Complex than You Think
Audubon Naturalist Society

2020 iNaturalist City Challenge ID Party

2020 **What's a Lichen? With Lichenologist Manuela Dal Forno Webinar**
Smithsonian Science How. One talk (approx. 1h) available at:
https://naturalhistory.si.edu/education/teaching-resources/life-science/webinar-whats-lichen

2020 You + Me = Symbioses
Smithsonian Associates, Washington, DC

2019 **What's a Lichen? How a Smithsonian Scientist Studies a Unique Symbiosis Live Broadcast**
Smithsonian Science How. Two talks (approx. 48 min) available at:
https://www.ustream.tv/recorded/124607003
https://www.ustream.tv/recorded/124609758

2019 Women in Science Panel (NMNH and L'Oreal partnership)
Smithsonian National Museum of Natural History, Washington, DC

2019 Talk and Walk: Lichens 101
Patuxent Research Refuge and Patuxent Wildlife Research Center

2019 "Herbology" Class: Magic Lichens
Hogwarts Summer Camp, Washington, DC

2019 **Exploring the Amazing World of Lichens Live Broadcast**
Smithsonian Science How. Two talks (approx. 42 min) available at:
http://www.ustream.tv/recorded/120830052
http://www.ustream.tv/recorded/120831187

2019 Why lichens? Or better…Why not lichens?
Teen Science Café – A New Approach to STEM, Washington, DC

2019 Lichens 101
The Mycological Association of Washington, DC

2018-2019 Volunteer in the project "Collection and identification of lichens on the Patuxent Research Refuge and Patuxent Wildlife Research Center"

2018 Talk and Walk: Lichens 101
Patuxent Research Refuge and Patuxent Wildlife Research Center

2018 Nature Challenge Washington DC – Species Identification Evening
Smithsonian National Museum of Natural History, Washington, DC

2018 Nature Challenge Washington DC
Kenilworth Park and Aquatic Gardens, Washington, DC

2018 Talk and Walk: Lichens 101
Long Branch Nature Center, Arlington, VA

2018 Talk and Walk: Lichens 101 – Second Edition
National Association for Interpretation (NAI) Region 2 Chesapeake Beltway Chapter, Riverbend Park, Great Falls, VA

2018 Why Lichens? Or better… Why Not lichens?
Oyster-Adams Bilingual School, Washington, DC

2017 "Herbology" Class: Magic Lichens
Hogwarts Summer Camp, Washington, DC

2017 The Expert is In Series: Liking Lichens
Smithsonian National Museum of Natural History, Washington, DC

2017 Nature Challenge Washington DC
National Museum of Natural History – The Mall, Washington, DC

2017 Talk and Walk: Why Lichens Are The Coolest
Virginia Native Plant Society, Wicomico Church, VA

2017 Talk and Walk: Lichen Basics
Jug Bay Wetlands Sanctuary, Lothian, MD

2017 Talk and Walk: Lichens 101 – First Edition
NAI Region 2 Chesapeake Beltway Chapter, Riverbend Park, Great Falls, VA

2016 YES! Science Speed Date Event. NMNH, Washington, DC

2016 BioBlitz: Lichen Inventory from the Theodore Roosevelt Island
Washington, DC

2013 Observatory Talk Series: The World of Lichens
George Mason University, Fairfax, VA

2013 Observatory Talk Series: Happy FUNGIving – Introduction to Symbiosis
George Mason University, Fairfax, VA

2012 Two lichen tours (day and night), in English and Spanish
Las Cruces Field Station, Costa Rica

2010	Fungi and Lichen Educational Display Audubon Center of the North Woods, Sandstone, MN

PARTICIPATION IN COMMITTEES (6)

Current	IUCN Lichen Specialist Group
2016–2021	Organizing Committee, Secretary 9th International Association for Lichenology Symposium (2016–2021)
2016–2021	Chair of the Scientific Committee 9th International Association for Lichenology Symposium (2018–2021)
2019	Early-Career Scientist Committee Associate Director of Science Search, NMNH
2018	PhD Examining Board Member Universidade Federal do Mato Grosso do Sul, Campo Grande, Brazil
2018	PhD Examining Board Member Universidade Federal do Rio Grande do Norte, Lagoa Nova, Brazil
2017	PhD Examining Board Member Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
2008	Organizing Committee, Secretary Encontro do Grupo Brasileiro de Liquenólogos

PROFESSIONAL MEMBERSHIPS (6)

American Bryological and Lichenological Society (ABLS)
Grupo Brasileiro de Liquenólogos (GBL)
Grupo Colombiano de Liquenólogos (GCOL)
Grupo Latino Americano de Liquenólogos (GLAL)
International Association for Lichenology (IAL)
Mycological Society of America (MSA)

JOURNAL, GRANT AND BOOK PROPOSAL REVIEWER (12)

Brazilian Journal of Botany, Diversity, Fungal Biology, Molecular Phylogenetics and Evolution, Mycologia, Mycotaxon, Plant & Fungal Systematics, Rannís Icelandic Research Fund, Rodriguésia,The Bryologist, The Lichenologist (**Associated Editor**), Willdenowia, Yale University Press

VIDEO RESOURCES (8)

2021	The Secret Life of Lichens | Exploring By The Seat of Your Pants https://www.youtube.com/watch?v=I5eBFzd4D3c&list=PLwKFsJZmdxpEhK9d-PHhHQqQgdM-2Xay0&index=55&ab_channel=ExploringByTheSeatOfYourPants
2021	Flower Power – Collaboration with Amon Carter Museum https://www.youtube.com/watch?v=IQxmB7fjMsk
2020	What is a Lichen? With Lichenologist Manuela Dal Forno https://naturalhistory.si.edu/education/teaching-resources/life-science/webinar-whats-lichen

2019	Meet Lichenologist Manuela Dal Forno https://www.youtube.com/watch?reload=9&v=UBoUk7Q4ppo
2019	What's a Lichen? How a Smithsonian Scientist Studies a Unique Symbiosis Live Broadcast https://www.ustream.tv/recorded/124607003 (AM show) https://www.ustream.tv/recorded/124609758 (PM show)
2019	Exploring the Amazing World of Lichens Live Broadcast http://www.ustream.tv/recorded/120830052 (AM show) http://www.ustream.tv/recorded/120831187 (PM show)
2019	Finding Lichens in Washington, DC with Scientist Manuela Dal Forno https://www.youtube.com/watch?v=jNe3dxXIL3U
2017	Using Integrative Taxonomy to Disentangle Lichen Diversity https://www.youtube.com/watch?v=qVAUAH-L_r0&t=373s

SELECTED MEDIA COVERAGE (7)

2021	Say Hello to the 6 Newest Species of 2021 By Lindsey Botts https://www.sierraclub.org/sierra/say-hello-6-newest-species-2021
2021	Washington Post Piece on *Cora timucua* https://www.washingtonpost.com/science/new-lichen-found-florida/2021/01/21/9bb8f022-5b69-11eb-b8bd-ee36b1cd18bf_story.html
2021	Florida Museum Research News by Halle Marchese https://www.floridamuseum.ufl.edu/science/rare-lichen-unique-to-florida-may-be-extinct/
2016	The Plant Press by Gary Krupnick nmnh.typepad.com/the_plant_press/2016/09/smithsonian-scientists-participate-in-national-bioblitz.html
2016	Last Word on Nothing Blog by Helen Fields www.lastwordonnothing.com/2016/01/28/visit-with-a-lichenologist
2014	News at Mason by Michele McDonald https://www2.gmu.edu/news/3484
2014	National Geographic by Ed Yong http://phenomena.nationalgeographic.com/2014/06/30/one-lichen-species-is-actually-126-and-probably-more/

EXTRA TRAINING (27)

2021	Lichen Photobiont Workshop
2021	Species Delimitation Workshop
2020	Programming for Evolutionary Biologists
2020	IUCN Lichen Specialist Group Workshop
2019	Genome Annotation Workshop
2019	Metabarcoding on Qiime2
2018	Data Carpentry
2017	Lichen Genomics Workshop II
2017	De Novo Genome Sequencing for Organismal Biologists Workshop
2016	Illumina Library Preparation Training

2016	Target Enrichment and Bait Capture Workshop
2014	Lichen Biomonitoring Techniques Course
2014	Practical Course of Microlichens
2014	International Lichen Field Symposium (NSF-funded)
2013	Lichen Photography Course
2013	Identification of Tropical Lichens Course
2012	From the Sequence to the Phylogeny Course
2012	Practical Course of Tropical Corticolous Pyrenocarps Lichens
2012	Production of Lichen Metabolites in Bioreactors
2012	Tropical Lichens and Forest Health (OTS Course)
2010	International Galápagos Lichen Workshop
2009	Neotropical Epiphytic Microlichens II
2007	Neotropical Epiphytic Microlichens
2006	Introduction to Lichenology
2006	Ethnobotany
2002	Greek and Latin Roots in Biology
2002	Course of Lichen Identification

FIELD EXPERIENCE

Austria; Brazil; Colombia; Costa Rica; Ecuador (Continental and Galapagos Islands); Finland; Jamaica; México; Philippines; Puerto Rico; United States; and Thailand.

LANGUAGE SKILLS

English: fluent (speaking, reading, writing)
German: basic (speaking, reading, writing)
Portuguese: native (speaking, reading, writing)
Spanish: advanced (reading); intermediate (writing, speaking)