A. Elizabeth Arnold, Ph.D.

Professor, School of Plant Sciences, College of Agriculture and Life Sciences

Professor, Department of Ecology and Evolutionary Biology, College of Science

Professor, Graduate Interdisciplinary Program in Genetics

Professor, Professional Science Masters Program, Applied Biological Sciences

Honors Professor, Honors College

Curator, Robert L. Gilbertson Mycological Herbarium, College of Agriculture and Life Sciences

Fellow, The Bart Cardon Academy of Teaching Excellence, College of Agriculture and Life Sciences

1885 Research Scholar, The University of Arizona

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# **I. Education**

2002 Ph.D., Ecology and Evolutionary Biology, The University of Arizona

Dissertation title: Neotropical fungal endophytes: diversity and ecological roles

Dissertation advisor: Dr. Lucinda A. McDade

1995 B.S., Biology, with Honors, Duke University (*cum laude*)

# **II. Employment**

2015-present Professor, School of Plant Sciences, The University of Arizona; Professor, Department of Ecology & Evolutionary Biology; Professor, Graduate Interdisciplinary Program in Genetics; Curator, Robert L. Gilbertson Mycological Herbarium

2010-2015 Associate Professor, Plant Sciences and Ecology and Evolutionary Biology; Curator, as above

2005-2010 Assistant Professor, Plant Sciences and Ecology and Evolutionary Biology; Curator, as above

2003-2004 National Science Foundation Postdoctoral Fellow: Microbial Biology, Duke University

1996-2002 National Science Foundation Graduate Research Fellow; Fellow, National Science Foundation Research Training Grant in Biological Diversification; Graduate Teaching Assistant (TA), Ecology, Evolution, Conservation Biology Internship Program

# **III. Honors and awards (**\* peer-nominated, \*\* student-nominated) (since faculty appointment only)

2017 Warren Herb Wagner Lecturer in Plant Evolution, University of Michigan\*

2016 William H. Weston Award for Outstanding Teaching in Mycology, awarded annually to one recipient, Mycological Society of America\*,\*\*

2016 Fellow, Bart Cardon Academy of Teaching Excellence, University of Arizona\*

2014 Graduate Students’ Outstanding Seminar Speaker, Rancho Santa Ana Botanic Garden\*\*

2013 1885 Distinguished Scholar, The University of Arizona\*

2013 Staff Award for Excellence, Women in Science and Engineering, awarded annually to one outstanding contributor to women in science; The University of Arizona\*\*

2012 Alexopoulos Prize, Outstanding Early Career Mycologist, awarded annually to one honoree by the Mycological Society of America\*

2011 AH Buller Medal, Outstanding Young Mycologist in North America, inaugural recipient, International Mycological Association\*

2011 David E. Cox Teaching Award, Outstanding Instructor, College of Agriculture and Life Sciences, The University of Arizona\*

2009 Tsujimoto Lecturer, University of California, Berkeley\*,\*\*

2006-2017 Graduate Student Invited Speaker, University of Massachusetts, Amherst; Pennsylvania State University; University of California, Berkeley; University of Minnesota; University of Wisconsin-Madison; Northern Arizona University\*\*

# **IV. Refereed publications**

‡*, Graduate student author;* #*, undergraduate student author; °, K-12 teacher author;* **\****substantially based on work done while Arnold was a graduate student.*

110. Zalamea, P.-C., J.W. Dalling, C. Sarmiento, A.E. Arnold, C. Delevich‡, M.A. Berbow, A. Ndobegang, S. Gripenberg, A.S. Davis. 2018. Dormancy-defense syndromes and trade-offs between physical and chemical defenses in seeds. *Ecology,* Accepted pending revisions.

109. Huang‡, Y.-L., E.A. Bowman, N.C. Massimo, N.P. Garber, J.M. U’Ren, D.C. Sandberg, A.E. Arnold. 2018. Using collections data to infer biogeographic, environmental, and host structure in communities of endophytic fungi. *Mycologia,* in press.

108. Padumadasa, C., Y.-M. Xu, E.M. Kithsiri Wijeratne, P. Espinosa, J.M. U’Ren, A.E. Arnold, A.A.L. Gunatilaka. 2018. Cytotoxic and non-cytotoxic metabolites from *Teratosphaeria* sp. FL2137, a fungus associated with *Pinus clausa. Journal of Natural Products,* in press.

107. Chen‡, K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. 2018. Metatranscriptomic analysis of active fungal

communities across a senescence gradient of the moss *Dicranum scoparium. New Phytologist,* in press.

106. Bowman‡, E.A., A.E. Arnold. 2018. Distributions of ectomycorrhizal and foliar endophytic fungal communities associated with *Pinus ponderosa* along a spatially constrained elevation gradient. *American Journal of Botany,* in press.

105. Epps‡, M.J. and A.E. Arnold. 2018. Quantifying beetle-macrofungal associations in a temperate biodiversity hotspot. *Mycologia,* in press.

104. Sarmiento, C., P.-C. Zalamea, J.W. Dalling, A.S. Davis, S.M. Stump‡, J.M. U’Ren, A.E. Arnold. 2017. Soilborne fungi have host affinity and host-specific effects on seed germination and survival in a lowland tropical forest. *Proceedings of the National Academy of Sciences USA*, in press*.*

103. Araldi-Brondolo‡, S.A., J.S. Spraker, J.P. Shaffer‡, E.H. Woytenko‡, D.A. Baltrus, R.E. Gallery, A.E. Arnold. 2017. Bacterial endosymbionts: master modulators of fungal phenotypes. *Microbiology Spectrum* 5: e0056.

102. Gubiani, J., K. Wijeratne, T. Shi, A. Araujo, A.E. Arnold, E. Chapman, A.A.L. Gunatilaka. 2017. An epigenetic modifier induces production of (10S)-verruculide B, an inhibitor of protein tyrosine phosphatases by *Phoma* sp. nov. LG219, a fungal endophyte of *Parkinsonia microphylla. Bioorganic and Medicinal Chemistry* 25: 1860-1866.

101. Shaffer‡, J.P., J.M. U’Ren, D.A. Baltrus, R.E. Gallery, A.E. Arnold. 2017. An endohyphal bacterium (*Chitinophaga,* Bacteroidetes) influences carbon source use by *Fusarium keratoplasticum* (*F. solani* species complex, Nectriaceae). *Frontiers in Microbiology* 8: 350.

100. Torres-Cruz‡, T.J., T.L.B. Tobias, M. Almatruk, C. Hesse, C.R. Kuske, A. Desiro, G.M.N. Benucci, G. Bonito, J. Stajich, C. Dunlap, A.E. Arnold, A. Porras-Alfaro. 2017. *Bifiguratus adelaidae*, gen. nov. sp. nov., a new lineage of Mucoromycotina with endophytic and soil-dwelling strains. *Mycologia* 109: 363-378.

99. Arnold, A.E., E.M. Andersen‡, M.J. Taylor#, R.J. Steidl. 2017. Using cytochrome b to identify nests and museum specimens of cryptic songbirds. *Conservation Genetics Resources* 9: 451-458.

98. Luo, J.-G.., Y.-M. Xu, D.C. Sandberg, A.E. Arnold, A.A.L. Gunatilaka. 2017. Montagnuphilones A-G, azaphilones from Montagnulaceae sp. DM0194, a fungal endophyte of submerged roots of *Persicaria amphibia. Journal of Natural Products* 80: 76-81.

97. Baltrus, D.A., K. Dougherty, K.R. Arendt, M. Huntemann, A. Clum, M. Pillay, K. Palaniappan, N. Varghese, N. Mikhailova, D. Stamatis, T.B.K. Reddy, C.Y. Ngan, C. Daum, N. Shapiro, V. Markowitz, N. Ivanova, N. Kyrpides, T. Woyke, A.E. Arnold. 2017. Absence of genome reduction in diverse, facultative endohyphal bacteria. *Microbial Genomics* 3: 000101.

96. Bashyal, B.P., E.M. Kithsiri Wijeratne, J. Tillotson, A.E. Arnold, E. Chapman, A.A.L. Gunatilaka. 2017. Chlorinated dehydrocurvularins and alterperylenepoxide A from *Alternaria* sp. AST0039, a fungal endophyte of *Astragalus lentiginosus. Journal of Natural Products* 80:427-433.

95. Carbone, I.C., J.B. White‡, J. Miadlikowska, A.E. Arnold, M.A. Miller, F. Kauff, C. Schoch, J.M. U’Ren, G. May, F. Lutzoni. 2016. Enhancing fungal species discovery and description using T-BAS: Tree-Based Alignment Selector toolkit for phylogenetic-based placement, alignment downloads, and metadata visualization. *Bioinformatics* 33: 1160-1168.

94. U’Ren, J.M. and A.E. Arnold. 2016. Diversity, taxonomic composition, and functional aspects of fungal communities in living, senescent, and fallen leaves at five sites across North America. *PeerJ* 4: 2768.

93. Shaffer‡, J.S., C. Sarmiento, P.-C. Zalamea, R.E. Gallery, A.S. Davis, D.A. Baltrus, A.E. Arnold. 2016. Diversity, specificity, and phylogenetic relationships of endohyphal bacteria in fungi that inhabit tropical seeds and leaves. *Frontiers in Ecology and Evolution* 4: 116.

92. Del Olmo-Ruiz‡, M. and A.E. Arnold. 2016. Community structure of fern-affiliated endophytes in three neo-tropical forests. *Journal of Tropical Ecology* 33: 60-73.

91. Arendt‡, K.R., K.L. Hockett, S.J. Araldi-Brondolo, D.A. Baltrus, A.E. Arnold. 2016. Isolation of endohyphal bacteria from foliar fungi and *in vitro* establishment of their symbiotic associations. *Applied and Environmental Microbiology* 82: 2943-2949.

90. U’Ren, J.M., J. Miadlikowska, N. Zimmerman, F. Lutzoni, J. Stajich, A.E. Arnold. 2016. Contributions of North American endophytes to the phylogeny, ecology, and taxonomy of the Xylariaceae. *Molecular Phylogenetics and Evolution* 98: 210-232.

89. Sousa, J., M. Aguilar-Perez, A.E. Arnold, N. Rios, P.D. Coley, T.A. Kursar, and L. Cubilla-Rios. 2016. Chemical constituents and their antibacterial activity from the tropical endophytic fungus *Diaporthe* sp. F2934. *Journal of Applied Microbiology* 120: 1501-1508.

88. Kithsiri Wijeratne, E.M., G.M.K.B. Gunaherath, V.M. Chapla, J. Tillotson, F. de la Cruz, M. Kang, J. U’Ren, A.R. Araujo, A.E. Arnold, E. Chapman, and AA.L. Gunatilaka. 2016. Oxaspirol B with p97 inhibitory activity and other oxaspirols from *Lecythophora* sp. FL1375 and FL1031, endolichenic fungal strains inhabiting *Parmotrema tinctorum* and *Cladonia evansii.* *Journal of Natural Products* 79: 340-352.

87. Ohkura, M., J.J. Worley, J.E. Hughes-Hallett, J.S. Fisher, B.C. Love, A.E. Arnold, and M. J. Orbach. 2016. *Ophidiomyces ophiodiicola* on a captive black racer ([*Coluber constrictor*](http://en.wikipedia.org/wiki/Coluber_constrictor)) and a garter snake (*Thamnophis sirtalis)* in Pennsylvania. *Journal of Zoo and Wildlife Medicine* 47: 341-346.

86. Chagnon, P.-L., J.M. U’Ren, F. Lutzoni, J. Miadlikowska, and A.E. Arnold. 2016. Interaction type influences

ecological network structure more than local abiotic conditions: evidence from fungal symbionts at a continental scale. *Oecologia* 180: 181-191.

85. Huang‡, Y.-L., M.M.N. Devan, J.M. U’Ren, S.H. Furr, and A.E. Arnold. 2016. Pervasive effects of wildfire on foliar endophyte communities in montane forest trees. *Microbial Ecology* 71: 452-468.

84. Xu, Y., B.P. Bashyal, M.X. Liu, P. Espinosa-Artiles, J.M. U’Ren, A.E. Arnold, and A.A.L. Gunatilaka.

2015. Cytotoxic cytochalasins and other metabolites from Xylariaceae sp. FL0390, a fungal endophyte

of Spanish moss. *Natural Products Communications* 10:1655-1658.

83. Xu, Y., J. Mafezoli, M.C.F. Oliveira, J.M. U’Ren, A.E. Arnold, and A.A.L. Gunatilaka. 2015. Anteaglonialides

A–F, Spironaphtho-1,8-dioxincyclohexa-**-butyrolactones and Palmarumycins CE1–CE3 from

*Anteaglonium* sp. FL0768, a fungal endophyte of sand spikemoss, *Selaginella arenicola. Journal of*

*Natural Products* 78: 2738-2747.

82. Wei, H., Y. Xu, P., Espinosa-Artiles, M.X. Liu, J.-G. Luo, J.M. U’Ren, A.E. Arnold, and A.A.L. Gunatilaka. Sesquiterpenes and other constituents of *Xylaria* sp. NC1214, a fungal endophyte of the moss *Hypnum* sp. *Phytochemistry* 118: 102-108.

81. Wijeratne, E.M.K., Y. Xu, A.E. Arnold, A.A.L. Gunatilaka. 2015. Pulvinulin A, graminin C, and cis-gregatin B--new natural furanones from *Pulvinula* sp. 11120, a fungal endophyte of *Cupressus arizonica*. *Natural Product Communications* 10: 107-111.

80. Martinson‡, E., J. Hackett, C. Machado, A.E. Arnold. 2015. Metatranscriptome analysis of fig flowers suggests mechanisms for mutualism stability and gall induction. *PloS ONE* 10: e0130745.

79. Zalamea, P.C., C. Sarmiento, A.E. Arnold, A. Davis, J. Dalling. 2015. Do microbes and abrasion by soil particles influence seed persistence and loss of physical dormancy in tropical seedbanks? *Frontiers in Plant Science* 5: 799 (doi: 10.3389/fpls.2014.00799).

78. Corrales‡, A.O., A.E. Arnold, A. Ferrer, B. Turner, J.W. Dalling. 2015. Variation in ectomycorrhizal communities associated with *Oreomunnea mexicana* (Juglandaceae) in tropical montane forests. *Mycorrhiza* 26: 1-17.

77. Massimo#, N., M.M.N. Devan#, K.R. Arendt‡, M. Wilch°, J.M. Riddle#, S.H. Furr°, C. Steen#, J.M. U’Ren, D.C. Sandberg‡, A.E. Arnold. 2015. Fungal endophytes of desert plants: infrequent in culture, but diverse and distinctive symbionts. *Microbial Ecology* DOI 10.1007/s00248-014-0563-6.

76. Chen‡, K.H., J. Miadlikowska, K. Molnar, A.E. Arnold, J.M. U’Ren, E. Gaya, C. Gueidan, F. Lutzoni. 2015. Phylogenetic analyses of eurotiomycetous endophytes reveal their close affinities to Chaetothyriales, Eurotiales, and a new order – Phaeomoniellales. *Molecular Phylogenetics and Evolution* 85: 117-130.

75. Luo, J.O., X.B. Wang, Y.M. Zu, J.M. U’Ren, A.E. Arnold, L.Y. Kong, A.A.L. 2014. Gunatilaka. Delitschiapyrone A, a pyrone-naphthalenone adduct bearing an unprecedented pentacyclic ring system from the leaf-associated fungus *Delitschia* sp. FL1581. *Organic Letters* 16: 5944-5947.

74. U’Ren, J.M., J.M. Riddle#, J.T. Monacell‡, I. Carbone, J. Miadlikowska, A.E. Arnold. 2014. Tissue storage and primer selection influence pyrosequencing-based inferences of diversity and community structure of endophytic fungi. *Molecular Ecology Resources* 14:1032-1048.

73. Higginbotham, S.J., W.R. Wong, R.G. Linington, C. Spadafora, L. Iturrado, A.E. Arnold. 2014. Sloth fur as a novel source of fungi with potent anti-parasitic and anti-bacterial activity. *PLoS One* 9: e84549 (*top-viewed paper, early 2014; > 71,600 views in January; extensive popular press*).

72. Sandberg‡, D.C., L.J. Battista#, A.E. Arnold. 2014. Fungal endophytes of aquatic macrophytes: diverse host-generalists characterized by tissue preferences and geographic structure. *Microbial Ecology* 67: 735-747.

71. Del Olmo‡, M. and A.E. Arnold. 2014. Interannual variation and host affiliations of endophytic fungi associated with ferns at La Selva, Costa Rica. *Mycologia* 106: 8-21.

70. Higgins‡, K.L., A.E. Arnold, P. Coley, T. Kursar. 2014. Communities of fungal endophytes in tropical forest grasses: highly diverse host- and habitat generalists characterized by strong spatial structure. *Fungal Ecology* 8: 1-11.

69. Oono, R., F. Lutzoni, A.E. Arnold, L. Kaye#, J.M. U’Ren, G. May, I. Carbone. 2014. Genetic variation in horizontally transmitted symbionts of pine needles reveals population structure in cryptic species. *American Journal of Botany* 101: 1362-1374.

68. Almeida, C., H. Ortega, S. Higginbotham, C. Spadafora, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2014. Chemical constituents from Microthyriaceae sp., an endophytic fungus from a tropical grass. *Letters in Applied Microbiology* 59: 58-64.

67. Miadlikowska, J.M., F. Kauff, F. Hognabba, J.C. Oliver, K. Molnar, E. Fraker, E. Gaya, J. Hafellner, V. Hofstetter, C. Gueidan, M. Kukwa, M. Lücking, C. Björk, H.J. M. Sipman, A.R. Burgaz, A. Thell, A. Passo, L. Myllys, T. Goward, S. Fernandez-Brime, G. Hestmark, J. Lendemer, H.T. Lumbsch, M. Schmull, C. Schoch, E. Serusiaux, D.R. Maddison, A.E. Arnold, F. Lutzoni, S. Stenroos. 2014. Multigene phylogenetic analysis for 1307 fungi representing 1139 infrageneric taxa, 312 genera, and 66 families of the class Lecanoromycetes (Ascomycota). *Molecular Phylogenetics and Evolution* 79: 132-168 *(Editor’s Choice)*

66. Nilsson, R.H., K.D. Hyde, J. Pawlowska, M. Ryberg, L. Tedersoo, A.B. Aas, S.A. Alias, A. Alves, C.L. Anderson, A. Antonelli, A.E. Arnold, B. Bahnmann, M. Bahram, J. Bengtsson-Palme, A. Berlin, S. Branco, P. Chomnunti, A. Dissanayake, R. Drenkhan, H. Friberg, T.G. Frøslev, B. Halwachs, M. Hartmann, B. Henricot, R. Jayawardena, A. Jumpponen, H. Kauserud, S. Koskela, T. Kulik, K. Liimatainen, B. Lindahl, D. Lindner, J.K. Liu, S. Maharachchikumbura, D. Manamgoda, S. Martinsson, M.A. Neves, T. Niskanen, S. Nylinder, O.L. Pereira, D.B. Pinho, T.M. Porter, V. Queloz, T. Riit, M. Sanchez-García, F. de Sousa, E. Stefaczyk, M. Tadych, S. Takamatsu, Q. Tian, D. Udayanga, M. Unterseher, Z. Wang, S. Wikee, J. Yan, E. Larsson, K-H. Larsson, U. Kõljalg, K. Abarenkov. 2014. A distributed effort to improve the annotation of public ITS sequence data for plant pathogenic fungi. *Fungal Diversity* 67: 11-19.

65. Higginbotham, S.J., A.E. Arnold, A. Ibañez, C. Spadafora, P.D. Coley, T.A. Kursar. 2013. Bioactivity of fungal endophytes as a function of their taxonomy and the taxonomy and distribution of host plants. *PLoS One* 8: e73192.

64. Lau‡, M., N.C. Johnson, A.E. Arnold. 2013. Factors influencing communities of foliar fungal endophytes in riparian woody plants. *Fungal Ecology* 6: 365-378.

63. Hoffman‡, M.T., M. Gunatilaka, E.M.K. Wijeratne, A.A.L. Gunatilaka, A.E. Arnold. 2013. Endohyphal bacterium enhances production of indole-3-acetic acid by a foliar fungal endophyte. *PLoS One* 8: e73132.

62. Tedersoo, L., A.E. Arnold, K. Hansen. 2013. Novel aspects in the life cycle and biotrophic interactions in the Pezizomycetes. *Molecular Ecology* 22: 1488-1493.

61. Martinson‡, E.O., K.C. Jander, Y.Q. Peng, H.H. Chen, C.A. Machado, A.E. Arnold, E.A. Herre. 2013. Relative investment in egg loads and poison sacs in fig wasps: implications for physio-logical mechanisms underlying seed and wasp production in figs. *Acta Oecologica* 57: 58-66.

60. Ortega, H.E., P.R. Graupner, Y. Asai, K. TenDyke, D. Qui, Y.Y. Shen, N. Rios, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2013. Mycoleptodiscin A and B, cytotoxic alkaloids from the endophytic fungus *Mycoleptodiscus*. *Journal of Natural Products* 76: 741-744.

59. Wanigesekara, A., E.M. Kithsiri Wijeratne, A.E. Arnold, A.A.L. Gunatilaka. 2013. 10’-Deoxy-10’ alpha-hydroxyascochlorin, a new cell migration inhibitor and other metabolites from *Acre-monium,* an endophyte in *Ephedra trifurca. Natural Products Communications* 8: 601-604.

58. Xu, Y.M., P. Espinosa-Artiles, M.P. Liu, A.E. Arnold, A.A.L. Gunatilaka. 2013. Secoemestrin D, a cytotoxic epitetrathiodioxopiperizine, and emericellenes A-E, five sesterterpenoids from *Emericella* sp. AST0036, a fungal endophyte of *Astragalus lentiginosus. Journal of Natural Products* 12: 2330-2336.

57. Bascom-Slack, C., A.E. Arnold, S.A. Strobel. 2012. Student-directed discovery of the plant microbiome and its products. *Science* 338: 485-486.

56. Martinson‡, E.O., E.A. Herre, C.A. Machado, A.E. Arnold. 2012. Culture-free survey reveals diverse fungal communities associated with figs (*Ficus*) in Panama. *Microbial Ecology* 64: 1073-1084.

55. U’Ren‡, J., F. Lutzoni, J. Miadlikowska, A. Laetsch, A.E. Arnold. 2012. Host and geographic structure of endophytic and endolichenic fungi at a continental scale. *American Journal of Botany* 99: 898-914.

54. Gazis‡, R., J. Miadlikowska, F. Lutzoni, A.E. Arnold, P. Chaverri. 2012. Culture-based study of endophytes associated with rubber trees in Peru reveals a new class of Pezizomycotina: Xylonomycetes. *Molecular Phylogenetics and Evolution* 65: 294-304.

53. Milani‡, N.A., D.P. Lawrence, A.E. Arnold, H.D. vanEtten. 2012. Origin of pistatin demethylase (PDA) in the genus *Fusarium*. *Fungal Genetics and Biology* 49: 933-942.

52. Varughese, T., N. Riosa, S. Higginbotham, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2012. Antifungal depsidone metabolites from *Cordyceps dipterigena,* an endo-phyte antagonistic to the phytopathogen *Giberella fujikoroi. Tetrahedron Letters* 28: 1624-1626.

51. Molinar, E., N. Rios, C. Spadafora, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2012. Coibanoles, a new class of meroterpenoids produced by *Pycnoporus sanguineus. Tetrahedron Letters* 53: 919-922.

50. Martinez-Luis, S., L. Cherigo, A.E. Arnold, C. Spadafora, W.H. Gerwick, L. Cubilla-Rios. 2012. Antiparasitic and anticancer constituents of the endophytic fungus *Aspergillus* sp. Strain F1544. *Natural Products Communications* 7: 165-168.

49. Wijeratne, E.M.K., B.P. Bashyal, M.X. Liu, D.D. Rocha, G.M. Gunaherath, J.M. U’Ren‡, M.K. Guna-tilaka, A.E. Arnold, L. Whitesell, and A.A.L. Gunatilaka. 2012. Geopyxins A-E, *ent-*kaurane diterpenoids from endolichenic fungi, *Geopyxis* aff. *majalis* and *Geopyxis* sp. AZ-0066: structure-activity relationships of geopyxins and their analogues. *Journal of Natural Products* 75: 361-369.

48. Lawrence‡, D.P., B.M. Pryor, S.B. Kroken, A.E. Arnold. 2011. Interkingdom horizontal gene transfer of a hybrid NRPS/PKS from bacteria to filamentous Ascomycota. *PLoS ONE* 6: e28231.

47. Dalling, J.W., A.S. Davis, B.J. Schutte‡, A.E. Arnold. 2011. Seed survival in soil: integrating effects of predation, dormancy, and the soil microbial community. *Journal of Ecology* 99: 89-95.

46. Higgins‡ K.L., P.D. Coley, T.A. Kursar, A.E. Arnold. 2011. Culturing and direct PCR suggest prevalent host-generalism among fungal endophytes of tropical grasses. *Mycologia* 103: 247-260.

45. Wang, X.N., B.P. Bashyal, E.M. Wijeratne, J. U’Ren‡, M. Gunatilaka, A.E. Arnold, A.A.L. Gunatilaka. 2011. Smardaesidins A-G, new isopimarane and 20-*Nor-*isopimarane diterpenoids isolated from *Smardaea* sp., endophyte of *Ceratodon purpureus*. *Journal of Natural Products* 74: 2052-2061.

44. Moreno, E., T. Varughese, C. Spadafora, A.E. Arnold, P.D. Coley, T.A. Kursar, W.H. Gerwick, L. Cubilla-Rios. 2011. Chemical constituents of the new endophytic fungus *Mycosphaerella* sp. nov. and their antiparasitic activity. *Natural Products Communications* 6: 835-840

43. Martinez-Luis, S., L. Cherigo, S. Higginbotham, A.E. Arnold, C. Spadafora, A. Ibañez, W.H. Gerwick, L. Cubilla-Rios. 2011. Screening and evaluation of antiparasitic and in vitro anticancer activities of Panamanian endophytic fungi. *International Microbiology* 14: 95-102.

42. Vega, F.E., A. Simpkins, M.C. Aime, F. Posada, S.W. Peterson, S.A. Rehner, F. Infante, A. Castillo, A.E. Arnold. 2010. Fungal endophyte diversity in coffee plants from Colombia, Hawai’i, Mexico, and Puerto Rico. *Fungal Ecology* 3: 122-138.

41. U’Ren‡, J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. 2010. Community analysis reveals close affinities between endophytic and endolichenic fungi in mosses and lichens. *Microbial Ecology* 60: 340-353.

40. Epps‡, M.J. and A.E. Arnold. 2010. Diversity, abundance, and community network structure in sporocarp-associated beetle communities in the Appalachian Mountains. *Mycologia* 102: 785-802.

39. Hoffman‡, M.T. and A.E. Arnold. 2010. Diverse bacteria inhabit living hyphae of phylogenetically diverse foliar endophytes*. Applied and Environmental Microbiology* 76: 4063-4075.

38. Arnold, A.E., L.J. Lamit‡, M. Bidartondo, C. Gehring, H.S. Callahan. 2010. Interwoven branches of the plant and fungal trees of life. *New Phytologist* 185: 874-878.

37. Peay, K., M. Bidartondo, A.E. Arnold. 2010. Not every fungus is everywhere: scaling the biogeography of fungal-plant interactions across roots, shoots, and ecosystems. *New Phytologist* 185: 878-882.

36. Parrent‡, J.L., K. Peay, A.E. Arnold, L.H. Comas, P. Avis, A. Tuininga. 2010. Moving from pattern to process in fungal symbioses: linking functional traits, community ecology, and phylogenetics. *New Phytologist* 185: 882-886.

35. Arnold, A.E., J. Miadlikowska, K.L. Higgins#, S.D. Sarvate#, P. Gugger#, A. Way#, V. Hofstetter, F. Kauff, F. Lutzoni. 2009. A phylogenetic estimation of trophic transition networks for ascomycetous fungi: are lichens cradles of symbiotrophic fungal diversification? *Systematic Biology* 58: 283-297 (cover article).

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30. Feldman‡, T.S., H.E. O’Brien‡, A.E. Arnold. 2008. Moths that vector a plant pathogen also transport endophytic fungi and mycoparasitic antagonists. *Microbial Ecology* 56: 742-750.

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6. Lutzoni, F., F. Kauff, C. Cox, D. McLaughlin, G. Celio‡, B. Dentinger‡, M. Padamsee‡, D. Hibbett, T.Y. James‡, E. Baloch, M. Grube, V. Reeb‡, V. Hofstetter, C. Schoch, A.E. Arnold, J. Miadlikowska, J. Spatafora, D. Johnson, S. Hambleton, M. Crockett, R. Shoemaker, G.-H. Sung‡, R. Lücking, T. Lumbsch, K. O’Donnell, M. Binder, P. Diederich, D. Ertz‡, C. Gueidan‡, K. Hansen, K. Hosaka, Y.-W. Lim, B. Matheny‡, H. Nishida, D. Pfister, J. Rogers, A. Rossman, I. Schmitt, H. Sipman, J. Stone, J. Sugiyama, R. Yahr‡, R Vilgalys. 2003. Assembling the fungal tree of life: progress, classification, and the evolution of subcellular traits. *American Journal of Botany* 91: 1446-1480.

5. Arnold\*, A.E. and E.A. Herre. 2003. Canopy cover and leaf age affect colonization by tropical fungal endophytes: Ecological pattern and process in *Theobroma cacao* (Malvaceae). *Mycologia* 95: 388-398.

4. Arnold\*, A.E. and N.M. Asquith. 2002. Herbivory in a fragmented tropical forest:  patterns from islands at Lago Gatún, Panamá.  *Biodiversity and Conservation* 11: 1663-1680.

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2. Arnold\*, A.E., Z. Maynard, G. Gilbert, P.D. Coley, T.A. Kursar. 2000. Are tropical fungal endophytes hyperdiverse?  *Ecology Letters* 3: 267-274.

1. Asquith\*, N.M., J. Terborgh, A.E. Arnold, M. Riveros-C. 1999. The fruits the agouti ate:  *Hymenaea courbaril* seed fate when its disperser is absent: evidence from Lago Guri, Venezuela. *Journal of Tropical Ecology* 15: 229-235.

**V. Manuscripts currently in review/revision**

1. Baltrus, D.A. and A.E. Arnold. Unusual sulfur requirements during laboratory growth of *Luteibacter*.

2. Harrington‡, A.H., M. Del Olmo-Ruiz, D.C. Sandberg, M. Hoffman, Y.-L. Huang, J.M. U’Ren, A.E. Arnold. *Coniochaeta endophytica* sp. nov., a foliar endophyte that showcases challenges in defining species boundaries, even with multiple lines of evidence.

3. Lutzoni, F., M. Nowak, M. Alfaro, J. Miadlikowska, D. Swofford, A.E. Arnold, D. Hibbett, K. Hilu, T. James, D. Quandt, S. Magallón. Synchronized radiations in plants and fungi linked to symbiosis.

4. McIntosh, M.E., A.E. Boyd, A.E. Arnold, R.J. Steidl, L.A. McDade. Demography of a declining population of the endangered Nichol's Turk's head cactus, *Echinocactus horizonthalonius* var. *nicholii*.

5. Ohkura‡, M., A.E. Arnold, M.J. Orbach. Emergence of *Chrysosporium*-like pathogens of reptiles indicates the need for revision of *Chrysosporium*.

6. Shaffer‡, J.P., P.-C. Zalamea, C. Sarmiento, R.E. Gallery, J.W. Dalling, A.S. Davis, D.A. Baltrus, A.E. Arnold. Endohyphal bacteria mitigate negative effects of fungi on seeds of tropical trees.

7. Taylor#, M.J., R.W. Mannan, J.M. U’Ren, N.P. Garber, R.E. Gallery, A.E. Arnold. Age-related variation in the oral microbiome of urban Cooper’s hawks (*Accipiter cooperii*).

**VI. Chapters in scholarly books**

Van Bael, S.A., Estrada C., and Arnold, A.E. 2017. Foliar endophyte communities and leaf traits in tropical trees. The Fungal Community: its organization and role in the ecosystem (J.F. White, Jr., J. Dighton, & P. Oudemans, eds). 4th Edition. Marcel-Dekker, pp. XX-XX.

Arnold, A.E. and L.C. Lewis. 2005.  Evolution of fungal endophytes, and their roles against insects. *Ecological and Evolutionary Advances in Insect-Fungus Associations* (F. Vega and M. Blackwell, eds.).  Oxford University Press, pp. 74-96.

Van Bael\*, S.A., Z. Maynard, N. Robbins, J.F. Bischoff, A.E. Arnold, E. Rojas, L.C. Mejía‡, D.A. Kyllo, and E.A. Herre. 2005.  Emerging perspectives on the ecological roles of endophytic fungi in tropical plants. The Fungal Community: its organization and role in the ecosystem (J.F. White, Jr., J. Dighton, & P. Oudemans, eds). 3rd Edition. Marcel-Dekker, pp. 181-191.

Herre\*, E.A., S. A. Van Bael, Z. Maynard, N. Robbins, J. Bischoff, A.E. Arnold, E. Rojas, L. C. Mejía‡, R. A. Cordero, C. Woodward, and D.A. Kyllo. 2005. Tropical plants as chimera: some implications of foliar endophytic fungi for the study of host plant defense, physiology, and genetics. Biotic Interactions in the Tropics (D.F.R.P. Burslem, M.A. Pinard, & S.E. Hartley, eds.) Cambridge University Press. pp. 226-237.

**VII. Technical writing and other materials**

Bidartondo, M., and 125 others. 2008. Preserving accuracy in GenBank. *Science* 319: 1616 (published commentary/open letter from mycological community).

Arnold, A.E. 2008. Hidden within our botanical richness, a trove of fungal endophytes. *Plant Press* 32: 13-15.

Hoffman‡, M., M. Gunatilaka, J. Ong#, M. Shimabukuro, and A.E. Arnold. 2008. Molecular analysis reveals a distinctive endophyte community associated with foliage of montane oaks in southeastern Arizona. *Journal of the Arizona-Nevada Academy of Science* 40: 91-100.

Bashyal, B.P., A.M. Burns, M.X. Liu, P.A. Paranagama, C.J. Seliga, T.J. Turbyville, E.M.K. Wijeratne, J. Zhan, M.K. Gunatilaka, A.E. Arnold, S.H. Faeth, L. Whitesell, and A.A.L. Gunatilaka. 2007. Discovery of small molecule bioactive agents from endophytic fungi of the Sonoran Desert. Proceedings of the 6th International Symposium on Fungal Endophytes of Grasses. Grassland Research and Practice Series No. 13, New Zealand Grassland Association, Christchurch.

Arnold, A.E. 2005. Diversity and ecology of fungal endophytes in tropical forests. Current Trends in Mycological Research (S. Deshmukh, ed.). Oxford IBH Publishing, New Delhi:  pp. 49-68.

Mejía, L.C., E. Rojas, Z. Maynard, A.E. Arnold, D. Kyllo, N. Robbins, and E.A. Herre. 2003. Inoculation of beneficial endophytic fungi into Theobroma cacao tissues. In *Proceedings of the 14th International Cocoa Research Conference*, Accra-Ghana.

Arnold\*, A.E. 2001. Fungal endophytes in neotropical trees:  Abundance, diversity, and ecological inter-actions.  In Tropical Ecosystems: Structure, Diversity and Human Welfare (K.N. Ganeshaiah, R. Uma Shaanker, & K. S. Bawa, eds.). Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.  pp. 739-743.

Arnold, A. E., L. Mejía, E. Rojas, Z. Maynard, N. Robbins and E. A. Herre. 2001. Organismos endofíticos:  Microorganismos en plantas.  (Endophytic organisms:  microorganisms in plants.) *El Uso de Micro-organismos Benéficos en la Agricultura Moderna*. Universidad E.A.R.T.H., Limón, Costa Rica.

Arnold, A.E. 1999. Fungal endophytes of tropical trees: methods and potential for biological control of fungal pathogens of cocoa.  *Proceedings of the Research Methodology of Biocontrol of Plant Diseases Workshop*, San Jose: CATIE.

Arnold\*, A.E. 1999. Sustainable cocoa: the fungal community component. *American Cocoa Research Institute Features in Integrated Pest Management for Cocoa*:  Online: http://www.oardc.ohiostate.edu/cocoa/main\_ftr.htm.

Arnold, A.E. 2005-present. Web content for research and outreach websites relevant to National Science Foundation funding: see http://www.arnoldlab.net, http://www.EnDoBiodiversity.org, and <http://publish.illinois.edu/tropicalseeds>.

**VIII. Grants awarded** (since faculty appointment)

*Percents indicate percent effort in the intellectual development, preparation, and administration of the grant and associated research. For some grants, effort is decoupled from budget allocations. Therefore, dollar amounts indicate either (1) total award amounts (“total budget”), reflecting circumstances where I, as co-PI, have played a sufficiently substantial role in garnering the funds to merit inclusion of the total amount here; or (2) the amount awarded to me, reflecting circumstances where I am sole PI or I am co-PI, but the grant proposal and associated research have distinct components based in different research labs.*

### 1. Federal grants awarded

2016 National Science Foundation, Ecology: Collaborative Research: Extending leaf functional trait ecology to leaf symbionts. PI. Total, $371,844; Arnold, $184,872. 2016-2019.

2015 National Science Foundation, Genealogy of Life: GoLife: Collaborative Research: Filling the largest void

in the fungal genealogy of life (the Pezizomycotina) and integrating symbiotic, environmental and physiological data layers. PI. Total, $2,498,809; Arnold, $734,765. 2016-2020.

2014 National Science Foundation, Ecology. Research Experiences for High School Students: Understanding tropical seed-associated fungi. PI. (100%). Arnold, $9000. 2015-2016.

2014 National Science Foundation, Integrative Organismal Systems: Bacterial controls of endophyte pheno-

types: an unexplored dimension of diverse plant-fungal symbioses. Co-PI. Total, $653,072. 2014-2017.

2014 National Science Foundation, Systematics: The future of comparative biology in a phylogenetic age: enabling the power and potential of the genealogy of life. Co-principal investigator (20%) with M. Westneat (PI), and R. Knight, L. McDade, and D.R. Maddison (Co-PIs). Total, $650,259. 2014-2017.

2014 National Science Foundation, Ecology. Research Experiences for Teachers: Understanding tropical seed-associated fungi. PI (100%). Arnold, $15,322. 2014-2015.

2014 Department of Energy-Joint Genome Institute (JGI). Mechanisms of interaction in the foliar fungal microbiome of *Populus trichocarpa.* Co-principal investigator (20%) with P. Busby (PI) and R. Vilgalys, G. Newcombe, and N. Zimmerman (Co-PIs). Provides support for large-scale sequencing at JGI.

2013 National Science Foundation, Ecology. Research Experiences for Undergraduates: Understanding endohyphal bacteria in tropical seed-associated fungi. PI (100%). Arnold, $7,762. 2013-2014.

2012 National Science Foundation, Ecology. Collaborative Research: Seed defense syndromes in tropical trees: emergent properties of seed dormancy, defense, and microbial interactions. PI (100%). Arnold, $100,000. 2012-2015.

2012 National Science Foundation, Ecology. Research Experiences for Teachers: Seeds of Change: integrating seed defense syndromes into high school curricula at Tucson High Magnet School. PI (100%). Arnold, $15,000. 2012-2014.

2012 National Science Foundation, Thematic Collections Network: Collaborative: The Macrofungi

Collection Consortium: unlocking a biodiversity resource for understanding biotic interactions, nutrient cycling and human affairs. Subcontractor. Arnold, $38,477 for Mycological Herbarium. 2013-2014.

2012 National Science Foundation, Dimensions of Biodiversity. Research Experiences for Undergraduates: Endohyphal bacteria in boreal fungal endophytes: an unexplored dimension of biodiversity. PI (100%). Arnold, $17,447. 2011-2015.

2011 National Science Foundation, Dimensions of Biodiversity. Collaborative Research: An inter-disciplinary study of hyperdiverse endophytic fungi and their function in boreal forests. PI (100%). Arnold, $999,011. 2011-2015.

2010 National Science Foundation, Dissertation research: Diversification and evolution of major trophic modes in the Xylariaceae: exploring the roles of previously unknown symbiotrophic and saprotrophic fungi. PI (100%). (DDIG, Jana U’Ren). Arnold, $11,162. 2010-2012.

2009 National Science Foundation, URM: Undergraduate Research and Mentoring at a Hispanic Serving Institution: Investigating a Rare Ecosystem (ARRA/Stimulus; The University of Texas-Pan American). Collaborator; lead UA PI as of 2011. Total budget, $171,200. 2009-2013.

2009 National Institutes of Health: P41. Diverse molecular libraries from unique symbiotic fungi. Co-principal investigator (50%) with AAL Guantilaka (PI). Arnold, $91,496. 2009-2014.

2009 US Army. Fungal endophytes as anti-malarial drug leads. Contractor. Arnold, $68,700. 2010-2012.

2009 °National Institutes of Health: R01: Anticancer Agents from Plant- and Lichen-Associated Fungi of the Sonoran Desert. Co-PI (50%), Arnold, $127,855.

2009 National Science Foundation, Biological Research Collections: Safe specimen storage for plant and fungal collections in peril at the University of Arizona Herbarium (ARIZ). Co-Principal investigator (40%) with M. McMahon (PI) and P. Jenkins. Co-PI. Total, $350,197.

2007 National Science Foundation, Microbial Interactions and Processes: Bacterial endosymbionts of phyllosphere fungi: resolving the endophyte/saprophyte/pathogen continuum on the Navajo Nation. PI. (100%). Arnold, $404,258.

2007 National Science Foundation, Systematics:Collaborative research: Hyperdiverse endolichenic and endophytic fungi: A large-scale, multi-gene phylogenetic survey and estimation of trophic transition networks. PI. (100%). Arnold, $153,391.

2007 National Science Foundation,Research Coordination Networks (RCN): Fungal Environmental Sampling and Informatics Network (FESIN). Co-PI; funds administered through UC Berkeley. Total, $335,555. 2007-2012.

2006 National Science Foundation, Integrative Organismal Systems: Bacterial endosymbionts of endo-phytic fungi: diversity, coevolution, ecological roles. NSF Starter Grant. PI. (100%). Arnold, $29,938.

2006 National Science Foundation, Ecology:Research Experiences for Undergraduates: Diversity, distribution, and demographic effects of seed-associated fungi. PI. (100%). Arnold, $6,498.

2006 United States Department of Agriculture:Cryptic fungal diversity of Dine Bikeyah (Navajo Nation). Co-PI (90%) with tribal college faculty; funds administered through Diné College. Total,: $75,000.

2005 National Science Foundation, Ecology:Collaborative Research: Diversity, distribution, and demographic effects of seed-associated fungi in neotropical *Cecropia*. PI (100%). Arnold, $143,165.

**2. State and university grants awarded**

2014 The University of Arizona, 1885 Distinguished Scholar Award: research funds for discretionary use. Arnold, $10,000.

2012 The University of Arizona, Faculty Foreign Development Grant: Cultivating new collaborations in plant-fungal biology and chemistry with the University of Panama. Principal investigator (100%). Arnold, $660.

2007 The University of Arizona, Faculty Small Grant:Bacterial endosymbionts: hidden masterminds of fungal-plant interactions. Principal investigator (100%). Arnold, $9,046.

2007 College of Agriculture and Life Sciences, The University of Arizona, Pilot funding:Cellulolytic enzyme activity of fungi in the Robert L. Gilbertson Mycological Herbarium. Co-principal investigator (50%) with B Pryor. Arnold, $4000.

2006 The University of Arizona, Faculty Foreign Travel Award:Support for attending the International Botanical Congress in Vienna, Austria. Principal investigator (100%). Arnold, $700.

### 3. Grants by private groups and international agencies

2013 Life Sciences Research Foundation. Understanding plant-fungal interactions in leaves: how labile are life histories? Co-principal investigator (50%) with N. Zimmerman. Total budget, $180,000. 2013-2015.

2013 Huron Mountain Wildlife Foundation. Evaluating the previously unknown diversity of endophytic symbionts of boreal plants and lichens in the Huron Mountains. Principal investigator (100%). Arnold, $4222. 2013-2014.

2008 SENACyT (National science foundation of Panama): Inventory and phylogenetic analysis of fungi associated with marine sponges from protected areas of the Republic of Panama. Co-principal investigator (50%); funds administered through INDICASAT-Panama. Arnold, $17,395.

2008 National Geographic Society:Uncovering multiple layers of biodiversity: viruses of fungal endo- phytes within tropical forest trees. Co-principal investigator (40%); funds administered through Venezuelan Research Council. Total budget: $29,893.

2006 Center for Tropical Forest Studies:Tropical microbial diversity at multiple scales: cryptic fungal symbionts of tropical trees. Principal investigator (100%). Arnold, $19,540.

2006 Indo-US Technology Forum:Tropical microbial diversity at multiple scales: training in molecular methods at the University of Arizona. Co-principal investigator (50%); funds administered through Vivekananda College, Ramakrishna Mission, India. Total budget: $2,741.

**4. Other funding and research support from public sources**

2017 Department of Energy-Joint Genome Institute (JGI). Comparative and population genomics of Xylariaceae: exploring the roles of endophytic fungi in lignocellulose degradation, nutrient cycling, and secondary metabolite production. Co-principal investigator (30%) with J. U’Ren and J. Wisecaver. Covers genome sequencing for 100 + endophytic fungi plus release by JGI; no funds received directly from this competitive award. 2017-2019.

2013 Department of Energy-Joint Genome Institute (JGI). Convergent evolution of an endohyphal lifestyle and mutualism in phylogenetically diverse bacteria. Co-principal investigator (60%) with D. Baltrus. Covers genome sequencing for 12 endohyphal bacteria and data release by JGI; no funds received directly from this competitive award. 2013-2015.

2012 Department of Energy-Joint Genome Institute (JGI). 1000 Fungal Genomes Initiative. Collaborator with 15 others. Covers genome sequencing and data release for 20 endophytic fungi for Arnold, as well as fungal strains of interest from other groups; also provides mechanism for community nomination of strains for sequencing. No funds received directly from this competitive award. 2012-2015.

2005-present United States Department of Agriculture/Agricultural Experiment Station (Hatch). Molecular ecology, evolution, and systematics of cryptic plant symbionts: fungal endophytes of foliage. Principal investigator (100%). 2014-2018.

2005-present United States Department of Agriculture/Agricultural Experiment Station (Hatch). Robert L. Gilbertson Mycological Herbarium. Principal investigator (100%). 2005-2025.

2005-2009 Arizona Department of Agriculture:Research on threatened and endangered Arizona plants. Co-principal investigator (20%). Indirect costs supported infrastructure and research in the Mycological Herbarium.

## IX. Invited scholarly presentations (since faculty appointment)

*Presented as first author or sole author (\*) except when indicated. Invitations that were declined are not listed. 2005-present.*

2018 University of Minnesota, Ecology and Evolutionary Biology\*; University of Massachusetts, Amherst, Plant Biology Group\* (graduate student invited speaker); University of Arizona, Controlled Environment Agriculture Center\*

2017 Botanical Society of America, Ft. Worth, TX (invited symposium); University of Michigan, Ecology and Evolution\* (Wagner Lecture); Future Arctic: Global Initiative on bryophyte and lichen Arctic research from species to ecosystems, Quebec, Canada (invited symposium, coauthor); University of Arizona, Ecology and Evolutionary Biology\*; Yosemite Symbiosis Workshop, Yosemite National Park\* (keynote).

2016 Mycological Society of America, UC Berkeley (invited symposium); Botanical Society of America, Savannah, GA (invited symposium, coauthor); International Association of Lichenologists International Symposium, Helsinki, Finland (invited symposium, coauthor); National Science Foundation (invited poster, senior author and invited poster, coauthor); Stanford University, Biology\*

2015 Swedish University of Agricultural Sciences, Uppsala, Sweden\* (two presentations); Association for Tropical Biology and Conservation, Hawai’i (invited presentation, senior author); International Workshop on Ascomycete Systematics, Amsterdam, The Netherlands (invited presentation, senior author; invited presentation, first author; two invited presentations, coauthor); Fungal Genetics Conference, Asilomar, CA (two invited presentations, senior author); University of Pittsburgh, Biology\*; University of Oregon, Ecology and Evolution\*; University of Arizona, Natural Resources and the Environment\*

2014 International Mycological Congress, Bangkok, Thailand (invited symposium). Arnold, A.E., J. U’Ren, V.L. Wong, K.R. Arendt‡, K-H. Chen‡, R. Oono, J. Miadlikowska, I. Carbone, D. Baltrus, G. May, F. Lutzoni. What can >50,000 cultures tell us about the ecological specificity of endophytes and related fungi?

2014 University of Arizona, School of Plant Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal symbioses.

2014 NIH International Cooperative Biodiversity Group (invited presentation). Arnold, A.E. Using epigenetic modifiers and new substrates to enhance the pace and impact of ecologically-guided discovery of bioactive metabolites from tropical fungi.

2014 University of Virginia, Department of Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2014 Tulane University, Evolution and Ecology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2013 Cornell University, Department of Plant Pathology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2013 Michigan State University, Department of Plant Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2013 Northern Arizona University, Department of Forestry (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2013 University of Georgia, Plant Sciences Annual Research Retreat (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2013 Association for Tropical Biology and Conservation (invited symposium). Del Olmo‡, M. and Arnold, A.E. Diversity, distributions, and host affiliations of endophytes associated with tropical ferns.

2013 Association for Tropical Biology and Conservation (invited symposium). Corrales‡, A.O., J.W. Dalling, A.E. Arnold, K. McGuire. Variation in ectomycorrhizal community composition along a soil nutrient gradient in a montane forest in western Panama.

2013 British Mycological Society (invited symposium). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2012 Yale University, Department of Ecology and Evolutionary Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2012 Pennsylvania State University, Department of Plant Pathology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2012 Oregon State University, Department of Botany and Plant Pathology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2012 University of Nebraska Biotechnology Center (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2012 International Symbiosis Society Congress, Krakow, Poland (invited symposium). Lutzoni, F., M. Nowak, M. Alfaro, J.M. U’Ren, A.E. Arnold, J. Miadlikowska, S. Magallon. A multidimensional exploration of plant-fungal symbioses and their associated shifts in diversification rate.

2012 University of Illinois/Illinois Natural History Survey (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2012 International Symbiosis Society Congress, Krakow, Poland (invited symposium). Arnold, A.E., J.M. U’Ren, K. Arendt‡, J. Miadlikowska, B. Ball, E. Lefevre, I. Carbone, G. May, F. Lutzoni. Emerging perspectives on endophytic and endolichenic symbioses.

2012 International Lichenology Symposium, Bangkok, Thailand (invited symposium). U’Ren, J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. Diversity and biogeography of endophytic and endolichenic fungi.

2012 American Chemical Society, Southeastern Region, Raleigh, NC (invited symposium). Arnold, A.E. New perspectives on the diversity, distributions, and applications of endophytic fungi.

2011 26th Fungal Genetics Conference (plenary presentation). Arnold, A.E. Evolutionary origins of endophytic fungi.

2011 American Society for Microbiology (plenary presentation). Arnold, A.E. Distributions of hyperdiverse fungal endophytes: from leaves to landscapes.

2011 Latin American Congress of Mycology, San Jose, Costa Rica (invited symposium). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2011 Mycological Society of America (invited symposium). Lutzoni, F., J. Miadlikowska, V. Reeb, M. Nowak, K. Molar, J.M. U’Ren, F. Kauff, E. Gaya, M. Alfaro, S. Magallon, A.E. Arnold. A comprehensive phylogenetic overview of spatial and host distribution of endolichenic and endophytic fungi based on 15,000 tissue samples.

2011 National Science Foundation Research Coordination Network, Fungal environmental sampling and informatics network (invited presentation). Furr, S. and A.E. Arnold. One-day ‘science camp’ on fungal diversity for middle-school students – experiences, suggestions.

2011 National Science Foundation Research Coordination Network, Fungal environmental sampling and informatics network (invited presentation). Arnold, A.E. Understanding broader impacts in grant-writing for fungal ecology.

2010 International Mycological Congress, Edinburgh, Scotland, UK (invited symposium). Arnold, A.E., J.M. U’Ren‡, F. Kauff, J. Miadlikowska, K. Molnar, F. Lutzoni. Origins and co-evolution of endolichenic and endophytic fungi.

2010 International Mycological Congress, Edinburgh, Scotland, UK (invited symposium). Hoffman‡, M.T. and A.E. Arnold. Endohyphal bacteria of foliar endophytes: secret drivers of plant-endophyte interactions?

2010 Gordon Research Conference, Fungal cellular and molecular biology (invited speaker). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2010 University of Texas, Austin, Department of Integrative Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of plant-fungal associations.

2010 University of California, Riverside, Department of Plant Pathology and Microbiology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra.

2009 Yale University, Department of Molecular Biophysics and Biochemistry (invited presentation). Arnold, A.E. Fungal endophytes: biodiversity and pharmaceutical potential.

2009 Yale University, Department of Molecular Biophysics and Biochemistry (invited presentation). Arnold, A.E. Fungal endophytes: tools for outreach to under-represented students in the sciences.

2009 NIH International Cooperative Biodiversity Group – Panama, annual meeting (invited presentation). Arnold, A.E. Perspectives on the diversity and pharmaceutical potential of tropical endophytic fungi.

2009 University of California, Berkeley, Tsujimoto Lecturer, Department of Plant and Microbial Biology (invited seminar). Arnold, A.E. Fungal endophytes and the evolution of fungal symbioses.

2009 Indiana University, Department of Biology (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.

2009 Arizona State University, School of Life Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: clues to the evolution of fungal symbioses.

2009 International Symbiosis Society, 6th International Congress (invited symposium). Arnold, A.E. Evolutionary origins of endophyte symbioses: implications for host defense.

2009 Botanical Society of America (invited symposium). Arnold, A.E. Evolutionary origins of endophyte symbioses.

2009 Mycological Society of America (invited symposium). Lutzoni, F., J. Miadlikowska, J. U’Ren‡, K. Molnar, E. Gaya, A.E. Arnold. The lichen microbiome and the evolution of fungi.

2008 Louisiana State University, Department of Biological Sciences (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: cryptic mutualism, hidden diversity, and clues to the evolution of plant-fungal symbioses.

2008 Rancho Santa Ana Botanical Garden, Claremont Graduate University (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra: cryptic mutualism, hidden diversity, and clues to the evolution of plant-fungal symbioses.

2008 University of Arizona, Department of Plant Sciences (invited seminar). Arnold, A.E. The Robert L. Gilbertson Mycological Herbarium: Old dead fungi in boxes…and so much more.

2008 Diné College, Navajo Nation (invited seminar). Arnold, A.E. Fungal enodphytes and endolichenics on the Navajo Nation.

2008 International Lichenology Congress (invited symposium). Arnold, A.E., J. U’Ren‡, J. Miadlikowska, F. Lutzoni. Endolichenic fungi: diversity, distributions, and evolutionary origins.

2008 NSF Research Coordination Network ‘FESIN’, Workshop/meeting, Ecological Society of America (invited symposium). Arnold, A.E. Metadata needed for environmental sequences.

2008 Ecological Society of America (invited symposium). Arnold, A.E., B. Klein, M. Shimabukuro. Fungal endophytes from leaves to landscapes: alpha, beta, and gamma diversity of foliar symbionts of plants.

2008 5th Annual Arizona Botanists’ Meeting (invited symposium). Arnold, A.E. Symbiotic fungi within the plants of Arizona: a new perspective on our ‘botanical’ richness.

2007 University of Wisconsin, Madison, Department of Plant Pathology (Women in Evolution seminar series; invited seminar). Arnold, A.E. Fungal endophytes and the evolution of fungal symbioses.

2007 Harvard University, Department of Organismic and Evolutionary Biology (Microbial Science Initiative series, invited seminar). Arnold, A.E. Understanding the evolution of fungal symbioses: clues from hyperdiverse fungal endophytes.

2007 University of Minnesota, Department of Plant Pathology (Graduate student invited speaker). Arnold, A.E. Endophyte diversity and ecology: what can we learn in terms of fungal evolution?

2007 Botanical Society of America (invited symposium). Arnold, A.E. Cryptic fungal endophytes elucidate the evolution of fungal symbioses with plants.

2007 Mycological Society of America (invited symposium). Arnold, A.E. FESIN: A new research coordination network in fungal ecology.

2007 Mycological Society of America (invited symposium). Arnold, A.E. Barcoding endophytes: lessons, limitations, and linkages with multilocus datasets.

2007 Mexican Botanical Congress, Zacatecas, Mexico (invited symposium). Arnold, A.E. Endophytic fungi: diversity, ecology, and importance in the evolution of plants.

2007 National Science Foundation, RCN Awardees Meeting, Washington, DC (invited presenter). Arnold, A.E., T. Bruns, K. Hughes. FESIN: Fungal environmental sampling and informatics network.

2007 Diné College, Navajo Nation (invited seminar). Arnold, A.E. The ecology and diversity of fungal endophytes in Diné Bikéyah.

2006 University of California, Davis, Department of Plant Pathology (invited seminar). Arnold, A.E. Cryptic diversity, hidden mutualism: fungal endophytes from the tropics to the tundra.

2006 Northern Arizona University, Department of Biology, Flagstaff, AZ (invited seminar). Arnold, A.E. From the tropics to the tundra, endophytes inform our understanding of fungal symbioses.

2006 University of Nevada at Las Vegas, Department of Biology, Las Vegas, NV (invited seminar). Arnold, A.E. Fungal endophytes provide cryptic clues to the evolution of fungal symbioses.

2006 Diné College, Navajo Nation, Tsaile, AZ (invited seminar). Arnold, A.E. The ecology and diversity of fungal endophytes.

2006 Diné College, Navajo Nation, Tsaile, AZ (invited seminar). Arnold, A.E. Effects of biotic and abiotic factors on endophyte diversity in the Chuska Mountains.

2006 Mycological Society of America, Annual meeting, Québec, Canada (invited symposium). Arnold, A.E. From leaves to landscapes: endophyte diversity at small and large spatial scales.

2006 International Mycological Congress, Cairns, Australia (invited symposium). Miadlikowska, J., A.E. Arnold, F. Lutzoni. Leaves and lichens are cradles of fungal diversification.

2005 University of Michigan, Department of Ecology and Evolutionary Biology, Ann Arbor, MI (invited seminar). Arnold, A.E. Fungal endophytes: clues to the evolution of plant-fungus symbioses.

2005 University of Illinois, Department of Plant Biology, Urbana, IL (invited seminar). Arnold, A.E. Cryptic diversity, hidden mutualism: fungal endophytes from the tropics to the tundra.

2005 University of Minnesota, Department of Ecology and Evolutionary Biology, St. Paul, MN (invited seminar). Arnold, A.E. Fungal endophytes from the tropics to the tundra – and the evolution of fungal symbioses.

2005 Harvard University, Department of Organismic and Evolutionary Biology, Cambridge, MA (invited seminar). Arnold, A.E. Fungal endophytes: clues to the evolution of plant-fungus symbioses.

2005 International Botanical Congress, Vienna, Austria (invited symposium). Arnold, A.E., J. Miadlikowska, K.L. Higgins#, S.D. Sarvate#, E.C. Davis‡, F. Lutzoni. Inferring symbiont evolution across land plants: Endophytic fungi from the tropics to the tundra.

2005 International Botanical Congress, Vienna, Austria (invited symposium). Lutzoni, F., A.E. Arnold, J. Miadlikowska. Are fungi living in lichens and plants the missing link to our understanding of fungal and plant evolution?

2005 International Botanical Congress, Vienna, Austria (invited symposium). Miadlikowska, J., A.E. Arnold, K.L. Higgins#, S.D. Sarvate#, P. Gugger#, V. Hofstetter, and F. Lutzoni. Endolichenic fungi: random inhabitants or symbiotic partners?

2005 International Botanical Congress, Vienna, Austria (invited symposium). Davis‡, E.C., J. Rogers, J. Miadlikowska, F. Lutzoni, A.E. Arnold: Phylogeny of Xylariaceous endophytes

2005 Mycological Society of America, Annual meeting, Hilo, Hawaii (invited symposium). Arnold, A.E., K.L. Higgins#, F. Lutzoni. Environmental sampling reveals a high diversity of endophytic fungi from living leaves.

2005 Deep Hypha Research Coordination Network, Tucson, AZ (invited symposium). Hofstetter, V., J. Miadlikowska, A.E. Arnold, F. Lutzoni. Update on the non-lichenized Ascomycota.

2005 Frugivory and Seed Dispersal: Theory and Applications, Brisbane, Australia (invited symposium). Gallery‡, R.E., J.W. Dalling, K.L. Higgins#, A.E. Arnold: Role of seed-infecting fungi in recruitment limitation of neotropical pioneer species.

2005 Diversitas, An International Programme of Biodiversity Science, Oaxaca, Mexico (invited symposium). Lutzoni, F., A.E. Arnold, J. Miadlikowska. Are fungi living in lichens and plants the missing link to our understanding of fungal and plant evolution?

**X. Contributed scholarly presentations**(since faculty appointment)

2017 Ecological Society of America, Portland, OR. Tellez‡, P., A.E. Arnold, S. Van Bael. Tropical plants and fungal symbionts: leaf functional traits as drivers of plant-fungal endophyte interactions. (Oral presentation)

2017 Ecological Society of America, Portland, OR. Zimmerman, N.B., J.M. U’Ren, and A.E. Arnold. High resolution genotyping reveals extensive diversification of trichome-associated fungi at high elevation sites in Hawai'i. (Oral presentation)

2017 Association for Tropical Biology and Conservation, Merida, Mexico. Tellez‡, P., A.E. Arnold, S. Van Bael. Tropical plants and fungal symbionts: leaf functional traits as drivers of plant-fungal endophyte interactions. (Oral presentation)

2017 Association for Tropical Biology and Conservation, Merida, Mexico. Sarmiento, C., P.-C. Zalamea, V. Kuo, C. Delevich, A.S. Davis, T.A. Brown, A.E. Arnold, and J.W. Dalling. Impact of decadal persistence of tropical pioneer seeds on seed-associated fungal communities. (Poster presentation)

2017 Association for Tropical Biology and Conservation, Merida, Mexico. P.-C. Zalamea, C. Sarmiento, A.S. Davis, A.E. Arnold, and J.W. Dalling. Seed-associated fungi in neotropical pioneers influence seed persistence, germination, and survival. (Oral presentation)

2017 Yosemite Symbiosis Meeting, Wawona, CA. Bowman‡, E.A. and A.E. Arnold. Ectomycorrhizal and foliar endophytic fungal communities differ in sensitivity to climate-related factors along a spatially constrained elevation gradient. (Oral presentation)

2016 Mycological Society of America, Berkeley, CA. Shaffer‡­, J.P. and A.E. Arnold. Endohyphal bacterium (*Chitinophaga* sp.) influences broad-spectrum substrate use by its host fungus (*Fusarium keratoplasticum*). (Oral presentation)

2016 Mycological Society of America, Berkeley, CA. Bowman‡, E.A. and A.E. Arnold. Fungal symbionts of ponderosa pine across a spatially constrained elevation gradient. (Poster presentation)

2016 Mycological Society of America, Berkeley, CA. Chen‡, K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Metatranscriptomic analysis of the moss *Dicranum scoparium* reveals active fungal communities and functionalities across a senescence gradient. (Oral presentation)

2016 Ecological Society of America, Berkeley, CA. Zimmerman, N.B., J. E. Johnson, Y.-L. Huang‡, D.J.P. Moore, A.E. Arnold. The effects of foliar fungal endophytes on plant physiological performance. (Oral presentation)

2015 Mycological Society of America, Edmonton, Alta. Chen‡, K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Using metatranscriptomics to characterize functional shifts in endophytic fungi at plant senescence: Are endophytic fungi latent saprotrophs? (Poster presentation)

2015 Mycological Society of America, Edmonton, Alta. Huang, Y.-L., M.M.N. Devan, J.M. U’Ren, S.H. Furr, A.E. Arnold. Pervasive effects of wildfire on foliar endophytes in montane forest trees. (Poster presentation)

2015 Mycological Society of America, Edmonton, Alta. Shaffer J.P.‡, R.E. Gallery, D.A. Baltrus, A.E. Arnold.

Endohyphal bacteria of tropical Sordariomycetes: community structure and relationships with other functional groups of bacteria in a lowland tropical rainforest. (Oral presentation)

2015 Ecological Society of America. Zimmerman, N.B., A.E. Arnold, P. Vitousek. A highly diverse clade of melanized fungi associated with leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (Oral presentation)

2015 Fungal Genetics Conference, Asilomar, CA. Shaffer J.P.‡, R.E. Gallery, D.A. Baltrus, A.E. Arnold.

Endohyphal bacteria of tropical Sordariomycetes: community structure and relationships with other functional groups of bacteria in a lowland tropical rainforest. (Poster presentation)

2015 Fungal Genetics Conference, Asilomar, CA. Zimmerman, N.B., A.E. Arnold, P. Vitousek.

A highly diverse clade of melanized fungi associated with leaves and trichomes of the endemic tree *Metrosideros polymorpha* at high elevation sites in Hawai'i. (Poster presentation)

2015 Fungal Genetics Conference, Asilomar, CA. Chen‡, K.-H., H.-L. Liao, A.E. Arnold, F. Lutzoni. Using metatranscriptomics to characterize functional shifts in endophytic fungi at plant senescence: Are endophytic fungi latent saprotrophs? (Poster presentation)

2014 Ecological Society of America, Sacramento, CA. Arendt‡, K., D. Baltrus, A.E. Arnold. Bacterial symbionts of endophytic fungi mediate functional shifts in plant-fungal interactions. (Poster presentation)

2014 Society for the Study of Evolution, Raleigh, NC. Baltrus, D., K. Arendt‡, A.E. Arnold. Facultative endohyphal bacterial symbionts alter phenotypes of fungal endophyte hosts. (Oral presentation)

2014 International Mycological Congress, Bangkok, Thailand. Chen‡, K., J. Miadlikowska, K. Molnar, A.E. Arnold, J. U'Ren, E. Gaya, F. Lutzoni. Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order within the class Eurotiomycetes. (*Award, best student poster in systematics*)

2014 International Mycological Congress, Bangkok, Thailand. Nilsson, R.H., K.D. Hyde, J. Pawlowska, M. Ryberg, L. Tedersoo, A.B. Aas, S.A. Alias, A. Alves, C.L. Anderson, A. Antonelli, A.E. Arnold, B. Bahnmann, M. Bahram, J. Bengtsson-Palme, A. Berlin, S. Branco, P. Chomnunti, A. Dissanayake, R. Drenkhan, H. Friberg, T.G. Frøslev, B. Halwachs, M. Hartmann, B. Henricot, R. Jayawardena, A. Jumpponen, H. Kauserud, S. Koskela, T. Kulik, K. Liimatainen, B. Lindahl, D. Lindner, J.K. Liu, S. Maharachchikumbura, D. Manamgoda, S. Martinsson, M.A. Neves, T. Niskanen, S. Nylinder, O.L. Pereira, D.B. Pinho, T.M. Porter, V. Queloz, T. Riit, M. Sanchez-García, F. de Sousa, E. Stefaczyk, M. Tadych, S. Takamatsu, Q. Tian, D. Udayanga, M. Unterseher, Z. Wang, S. Wikee, J. Yan, E. Larsson, K-H. Larsson, U. Kõljalg, K. Abarenkov. Improving ITS sequence data for identification of plant-pathogenic fungi. (Poster presentation)

2014 Latin American Congress of Mycology, Medellin, Colombia. Corrales‡, A.O., A.E. Arnold, A. Ferrer, J. Dalling. Variation in ectomycorrhizal communities associated with stands of *Oreomunnea mexicana* (Juglandaceae) in montane tropical forests of western Panama. (Oral presentation)

2013 American Society for Microbiology, Denver, CO. Shaffer‡, J., R. Gallery, D. Baltrus, A.E. Arnold. Phylogenetic relationships and diversity of endohyphal bacteria of plant-associated Pezizomycotina. (Poster presentation)

2013 Association for Tropical Biology and Conservation, San Jose, Costa Rica. Sarmiento, C., D. Roche#, P. Zalamea, A.E. Arnold, A. Davis, J. Dalling, Physical defenses, persistence in the soil, and fungal associations of tropical pioneer tree seeds. (Oral presentation)

2013 Association for Tropical Biology and Conservation, San Jose, Costa Rica. Zalamea, P., C. Sarmiento, J. Dalling, J., A. Davis, AE. Arnold. Seed - fungal interactions in tropical trees: Exploring fungal diversity in pioneer seeds. (Oral presentation)

2013 Mycological Society of America, Austin, TX. Corrales‡ A.O., J. Dalling, A.E. Arnold, K. McGuire. Variation in ectomycorrhizal community composition along a soil nutrient gradient in montane forest in western Panama. (Oral presentation)

2013 Mycological Society of America, Austin, TX. Chen‡, K., J. Miadlikowska, K. Molnar, A.E. Arnold, J. U'Ren, E. Gaya, F. Lutzoni. Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order within the class Eurotiomycetes. (Oral presentation)

2013 Mycological Society of America, Austin, TX. Wong, V., J. U'Ren, J. Miadlikowska, J. Monacell‡, K. Arendt‡, J. Shaffer‡, A.E. Arnold, I. Carbone, G. May. Genomic comparison of closely related boreal endophytes. (Oral presentation)

2013 Mycological Society of America, Austin, TX. U'Ren, J., N. Massimo#, J. Riddle#, C. Steen#, K. Arendt‡, Y-L. Huang‡, J. Miadlikowska, E. LeFevre, B. Ball, V. Wong, J. Monacell‡, I. Carbone, F. Lutzoni, G. May, A.E. Arnold. A culture-based and culture-free assessment of geographic and temporal variation of boreal endophytic and endolichenic fungal communities. (Oral presentation)

2013 Mycological Society of America, Austin, TX. Garcia#, K., J. Shaffer‡, C. Sarmiento, P. Zalamea, J. Dalling, A. Davis, D. Baltrus, R. Gallery, A.E. Arnold. Diversity and evolutionary relationships of bacteria affiliated with tropical seeds and seed-associated fungi. (Poster presentation)

2013 Mycological Society of America, Austin, TX. Arendt‡, K., D. Baltrus, A.E. Arnold. Diversity and specificity of phenotypic effects of endohyphal bacteria on foliar fungal endophytes. (Poster presentation) (*Award,* best poster)

2013 Mycological Society of America, Austin, TX. Sandberg‡, D., L. Battista#, A.E. Arnold. Host affiliations and geographic distributions of fungal symbionts of aquatic plants. (Poster presentation)

2013 Mycological Society of America, Austin, TX. Huang‡, Y., M.M.N. Devan#, S. Furr, A.E. Arnold. Persistent effects of wildfire on foliar endophytes of *Quercus hypoleucoides* and *Juniperus deppeana* in southeastern Arizona. (Poster presentation)

2013 Mycological Society of America, Austin, TX. Shaffer‡, J., R. Gallery, D. Baltrus, A.E. Arnold. Phylogenetic relationships and diversity of endohyphal bacteria of plant- associated Pezizomycotina. (Poster presentation)

2013 Mycological Society of America, Austin, TX. LeFevre, E., K. Arendt‡, B. Ball, J. Miadlikowska, K. Picard‡, J.M. U'Ren, A.E. Arnold, F. Lutzoni, Understanding the spatial scaling of boreal endophytic fungal communities using environmental cloning and ion semiconductor amplicon sequencing. (Poster)

2013 Fungal Genetics Conference, Asilomar, CA. Oono, R. L. Kaye#, A.E. Arnold, G. May, F. Lutzoni, I. Carbone. Population structures of horizontally-transmitted fungal endophytes associated with southeastern US pine hosts. (Poster presentation)

2013 Society for the Study of Evolution Society for the Study of Evolution, Snowbird, UT. Chen‡, K., J. Miadlikowska, K. Molnar, A.E. Arnold, E. Gaya, F. Lutzoni. Phylogenetic relationships of endophytic and endolichenic fungi reveal a new order in Eurotiomycetes. (Poster presentation

2013 Society for the Study of Evolution, Snowbird, UT. Oono, R. L. Kaye#, A.E. Arnold, G. May, F. Lutzoni, I. Carbone, I. Population structures of horizontally-transmitted fungal endophytes associated with southeastern US pine hosts. (Poster presentation)

2013 Dimensions of Biodiversity Annual Meeting, Tucson, AZ. Arendt‡, K., D. Baltrus, A.E. Arnold. Diversity and specificity of phenotypic effects of endohyphal bacteria on foliar fungal endophytes. (Oral)

2013 Dimensions of Biodiversity Annual Meeting, Tucson, AZ. Shaffer‡, J., D. Baltrus, A.E. Arnold. Phylogenetic relationships and diversity of endohyphal bacteria of plant-associated Pezizomycotina. (Oral)

2013 Dimensions of Biodiversity Annual Meeting, Tucson, AZ. U’Ren, J. and A.E. Arnold. A culture-based and culture-free assessment of the geographic and temporal variation of boreal endophytic and endolichenic fungal communities. (Oral presentation).

2012 International Symbiosis Society Congress, Krakow, Poland. Oono, R. L. Kaye#, A.E. Arnold, G. May, F. Lutzoni, I. Carbone, I. Population structures of horizontally-transmitted fungal endophytes associated with southeastern US pine hosts. (Poster presentation)

2012 Mycological Society of America, New Haven. U’Ren‡, J.M. and A.E. Arnold. Multilocus phylogenetic analysis of the Xylariaceae: what are the roles of previously unknown endophytic and endolichenic fungi? (Poster presentation)

2012 Mycological Society of America, New Haven. U’Ren‡, J.M. and A.E. Arnold. Surveys at five sites across North America reveal taxonomic and functional differences among fungi from living, senescent, and fallen leaves. (Oral presentation)

2011 Ecological Society of America, Pittsburgh, PA. Epps‡, M.J. A.E. Arnold. Specialization, general-ization, and community structure in Appalachian beetle-fungus associations. (Oral presentation)

2011 Ecological Society of America, Pittsburgh, PA. Wong, V., C. Schwebach#, A.E. Arnold, J.M. U’Ren, R. Montgomery, P. Reich, S. Hobbie, A. Stefanski, R. Rich, G. May. Effects of climate warming on the occurrence of endophytic fungi in boreal *Picea* and *Populus.* (Poster presentation)

2011 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). Bazan#, E. and A.E. Arnold. Microbial diversity affiliated with fruits of saguaro (*Carnegiea gigantea*), the iconic Sonoran Desert cactus. (Poster presentation)

2011 Society for the Advancement of Chicanos and Native Americans in Science (SACNAS). Peña#, B. and A.E. Arnold. Arsenic-tolerant fungi improve the growth of corn (*Zea mays*) in soils impacted by arsenate. (B*est poster award*)

2011 Mycological Society of America, Fairbanks, AK. Riddle#, J. and A.E. Arnold. Diversity and phylogenetic affinities of endohyphal bacteria associated with foliar fungal endophytes of the Sonoran Desert. (*Best poster award*)

2011 Mycological Society of America, Fairbanks, AK. Oono, R., A.E. Arnold, G. May, F. Lutzoni, I. Carbone. Population structure of *Lophodermium* spp., a dominant endophyte in loblolly pine. (Poster presentation)

2011 Mycological Society of America, Fairbanks, AK. U’Ren‡, J.M., F. Lutzoni, J. Miadlikowska, A.E. Arnold. Diversity and biogeography of endophytic and endolichenic fungi. (Oral presentation)

2011 Congress of European Mycologists, Thessalonki, Greece. Suurmeyer‡, E., E.A. Herre, C. Machado, A.E. Arnold. Fungal communities in flowers of *Ficus* in Panama. (Oral presentation)

2011 Congress of European Mycologists, Thessalonki, Greece. Epps‡, M.J. and A.E. Arnold. Diversity, abundance, and nestedness in mushroom-associated beetle communities. (Oral presentation)

2011 Research in Semi-arid Ecosystems Symposium, Tucson, AZ. Moy#, J.K., A.E. Arnold, K. Predick, E.M. Levi, S.R. Archer. Effects of microbial communities on *in vitro* and *in situ* degradation of plant material in an arid ecosystem. (Poster presentation)

2010 University of Arizona ‘Micro-Lunch’ Microbiology Seminar. Arnold, A.E. Fungal symbionts of plants.

2009 Mycological Society of America, Snowbird, UT. U’Ren‡, J.M, F. Lutzoni, J. Miad-likowska, A.E. Arnold. Community analysis of symbiotrophic and saprotrophic Ascomycota from multiple biogeographic provinces reveals the ecological novelty of the endolichenic symbiosis. (Oral presentation)

2009 Mycological Society of America, Snowbird, UT. Epps‡, M.J. and A.E. Arnold. Diversity, abundance, and nestedness in mushroom-associated beetle communities. (Oral presentation)

2009 Mycological Society of America, Snowbird, UT. Hoffman‡, M. and A.E. Arnold. Fungal endophytes harbor diverse, horizontally transmitted bacterial endosymbionts that can alter the fungal phenotype *in vitro*. (Oral presentation)

2009 Mycological Society of America, Snowbird, UT. Kandalepas‡, D., A.E. Arnold, G. Shaffer, W. Platt. Mycophylla communities are influenced by the interaction between plant host and environmental conditions. (Oral presentation)

2009 Mycological Society of America, Snowbird, UT. Del Olmo-Ruiz‡, M., J. Santos-Rodriguez, A.E. Arnold. Surveys of endophytic fungi in lowland tropical ferns reveal diverse communities of relatively recently derived fungal groups. (Oral presentation)

2009 International Symbiosis Society, International Congress, Madison, WI. Hoffman‡, M. and A.E. Arnold. Fungal endophytes harbor diverse, horizontally transmitted bacterial endosymbionts that can alter the fungal phenotype *in vitro*. (Poster presentation)

2009 25th Fungal Genetics Conference, Asilomar, CA. Worley#, J., A.E. Arnold, J. Hughes-Haller, C. Kodhira, S. Rounsley, M.J. Orbach. Analysis of a fungal pathogen of snakes reveals a potentially novel genus in the Onygenales. (Poster presentation)

2008 Ecological Society of America, Milwaukee, WI. U’Ren‡, J.M., J. Miadlikowska, F. Lutzoni, A.E. Arnold. Diversity, host specificity, and evolution of trophic modes among endophytic, endolichenic, and saprotrophic fungi. (Oral presentation)

2008 Ecological Society of America, Milwaukee, WI. Hoffman‡, M. and A.E. Arnold. Geographic locality and host identity shape fungal endophyte communities in cupressaceous trees. (Oral presentation)

2008 Ecological Society of America, Milwaukee, WI. Kandalepas‡, D., A.E. Arnold, W. Platt. Coastal processes may affect endophytic fungal diversity within coastal wetland plants. (Poster presentation)

2008 Mycological Society of America, State College, PA. U’Ren‡, J.M., J. Miadlikowska, F. Lutzoni, A.E. Arnold. Evolutionary relationships of endophytic, endolichenic, and saprotrophic fungi in the Chiricahua Mountains. (Oral presentation)

2008 Mycological Society of America, State College, PA. Epps‡, M.J. and A.E. Arnold. Patterns of community structure and host visitation in mushroom-associated beetles and other insects. (Poster presentation)

2008 Association for Tropical Biology and Conservation, Paramaribo, Suriname. Gallery‡, R.E., A.E. Arnold, J.W. Dalling. Diversity and heterogeneity of fungal communities: implications for seedling emergence from tropical forest seed banks. (Oral presentation)

2007 Mycological Society of America, Baton Rouge, LA. U’Ren‡, J., R. Gallery‡, J.W. Dalling, D.R. Maddison, A.E. Arnold. Diversity and origins of seed-associated fungi in tropical forests. (Poster presentation)

2007 Mycological Society of America, Baton Rouge, LA. Higgins‡, K.H., A.E. Arnold, T.A. Kursar, P.D. Coley. Diversity and abundance of fungal endophytes in tropical grasses. (Poster presentation)

2006 Ecological Society of America, Memphis, TN. Feldman‡, T.S., H. O’Brien‡, A.E. Arnold. Moth dispersal of mycoparasites and endophytes associated with *Claviceps paspali* and the grass *Paspalum* (Poaceae). (Oral presentation)

2006 Ecological Society of America, Memphis, TN. Gallery‡, R.E., J.W. Dalling, A.E. Arnold. Fungi in the seed bank: Distinguishing between seed and seedling pathogens. (Oral presentation)

2006 Mycological Society of America, Québec, Canada. Hoffman‡, M. and A.E. Arnold. Fungal endophytes in native vs. non-native Cupressaceae: community structure in xeric and mesic sites. (Poster presentation)

2006 Mycological Society of America, Québec, Canada. Lee‡ M.-M, M. Shimabukuro, M. Hoffman‡, F. Lutzoni, A.E. Arnold. High diversity of endophytic fungi associated with *Pinus* spp. (Poster presentation)

2005 Society for the Study of Evolution, Anchorage, AK. Miadlikowska, J., A.E. Arnold, K.L. Higgins#, S.D. Sarvate#, P. Gugger#, A. Way#, V. Hofstetter, F. Lutzoni. Endolichenicolous fungi: random inhabitants or symbiotic partners? (Oral presentation)

2005 Mycological Society of America, Hilo, HI. Gallery, R.E.‡, J.W. Dalling, K.L. Higgins#, A.E. Arnold. Diversity and demographic impacts of seed-infecting fungi: A case study with neotropical *Cecropia* spp. (Poster presentation)

2005 Mycological Society of America, Hilo, HI. Higgins#, K.H., A.E. Arnold, J.M. Miadlikowska, F. Lutzoni. Diversity, species composition, and evolution of fungal endophytes across three major plant lineages: cultured and unculturable species. (Poster presentation)

2005 Mycological Society of America, Hilo, HI. Miadlikowska, J., A.E. Arnold, K.L. Higgins#, S.D. Sarvate#, P. Gugger#, A. Way#, V. Hofstetter, F. Lutzoni. Endolichenicolous fungi: random inhabitants or symbiotic partners? (Oral presentation)

2005 Mycological Society of America, Hilo, HI. Ryall‡, K.R., E.C. Davis‡, A.E. Arnold, A. Shaw. Fungal endophytes of mosses. (Poster presentation)

2005 Botanical Society of America, Austin, TX. Ryall‡, K.R., E.C. Davis‡, A.E. Arnold, A. Shaw. Fungal endophytes of mosses. (Poster presentation)

**X. Other/intramural presentations**(since faculty appointment)

*Does not include outreach/service presentations or science projects by high school researchers (4-10/year).*

2017 Eight presentations by undergraduate and graduate students and postdoc: First Year Honors Expo (1), CALS Poster Symposium (1), ABBS Recruitment Poster Session (1), UA GradSlam (1), School of Plant Sciences departmental seminar series (4, including defenses).

2016 Six presentations by undergraduate and graduate students: Summer Research Institute/Native American program (2), Native American Cancer Research Program (2), School of Plant Sciences departmental seminar series (2)

2014 Eight presentations by undergraduate and graduate students and K-12 educators: Summer Research Institute (2); Microbiology Undergraduate Poster session (1); Ecology and Evolutionary Biology poster session (1); IGERT symposium (1); Partners in Science (1); Latin American Fall Research Program (2)

2013 Twelve presentations by undergraduate and graduate students: Summer Research Institute (8); School of Plant Sciences Research Retreat (3); EEB Undergraduate Student Poster Session (1); Smithsonian Tropical Research Institute evening seminar series (1).

2012 Five presentations by undergraduates: Summer Research Institute (4); Ecology and Evolutionary Biology poster session (1).

2011 Four presentations by undergraduates: Summer Research Institute (2); Ecology and Evolutionary Biology poster session (2).

2010 Four presentations by undergraduates and K-12 teachers: AZ START symposium (2); Ecology and Evolutionary Biology poster session (1); IGERT symposium (1).

2009 Five presentations by undergraduates, graduate students, and K-12 teachers: AZ START symposium (2); Ecology and Evolutionary Biology poster session (1); IGERT symposium (1); Arizona Biology Network symposium (1).

2006 Three presentations by undergraduates and graduate students: Arizona Biology Network symposium (1), 50th Anniversary of the Arizona-Nevada Academy of Sciences poster session (2).

2005 One presentation by undergraduate: Arizona Biology Network symposium.

# **XI. Service**

**A. INTRAMURAL SERVICE**

**1. Departmental service, School of Plant Sciences**

2017 Member, Search committee, Professor of Practice, Biotechnology, Plant Sciences, UA

2016- Member, Peer review committee, Plant Sciences, UA

2015-2016 Member, Search committee, SPLS faculty position in Extension Plant Pathology

2012-2016 Director of Graduate Studies, Plant Sciences and Plant Pathology graduate majors

2012-2016 Chair, Graduate Program Committee, School of Plant Sciences

2011-2016 Chair, Plant Pathology faculty group, School of Plant Sciences (elected position; informal)

2006-2016 Chair, Gilbertson Endowment Committee, School of Plant Sciences

2005-2016 Member, Plant Pathology Endowment Committee, School of Plant Sciences

2006-2012 Member, Graduate Program Committee, School of Plant Sciences

2007-2008 Chair, Graduate Student Recruitment Committee, School of Plant Sciences (two majors)

2012-2013 Member, Academic Program Review Committee, School of Plant Sciences

2010-2012 Member, Curriculum Committee, School of Plant Sciences

2011-2012 Member, Director's Advisory Committee, School of Plant Sciences

2011-2012 Member, Outreach and Recruitment Committee, School of Plant Sciences

2011-2012 Member, Curriculum Committee, Sustainable Plant Systems (Plant Sciences/SWES)

2010-2011 Member, Awards Committee, School of Plant Sciences

2010 Member, Search committee for Director, School of Plant Sciences

2010 Member, Search committee, PLS faculty position in plant-microbe interactions

2007-2008 Member, Seminar Committee, School of Plant Sciences

2005-2007 Member, Curriculum Committee, School of Plant Sciences

**2. College service, College of Agriculture and Life Sciences (CALS)**

2017 Member, Awards committee, CALS Staff Team Award

2017 Member, Awards committee, CALS Classified Staff Award

2016-2017 Member, Review Committee, five-year review, Dr. Gary Thompson, Head, AREC

2016-2017 Chair, Search Committee, Director, Boyce Thompson Arboretum and State Park

2016-2017 Member, Search Committee, faculty position, Sch. Animal & Comparative Biomedical Sciences, UA

2016- Chair, Steering Committee, inter-departmental leadership of Microbiology major

2016 Member, Academic Program Review Committee, UA Dept. of Soil, Water, Environmental Sciences

2015-2017 Co-chair, Dean’s Research Advisory Committee (DRAC)

2015-2016 Vice-chair, Steering Committee, inter-departmental leadership of Microbiology major

2015- Member, CALS Promotion and Tenure Committee (P&T)

2014-2015 Member, Search Committee, faculty position, Sch. of Natural Resources and the Environment

2012- 2015 Member, Dean's Research Advisory Committee (DRAC)

2010-2016 Member, Steering Committee, inter-departmental leadership of Microbiology major

2014-2015 Member, Academic Program Review Committee, Entomology/Insect Science GIDP

**3. University committees and other service**

2018- Member, Review Committee, Koffler Awards

2017- Co-Chair, Search Committee, Ecosystem Genomics

2016-2017 Member, Committee for Five-year Review of Dean Shane Burgess, UA

2016-2017 Member, Search Committee, Dean of the Honors College, UA

2016-2018 Member, Review Committee, McGinnies Scholarship in Arid Lands Studies

2016-2017 Chair, Interview Committee, Plant Ecological/Evolutionary Genomics (Ecosystem Genomics)

2015-2016 Member, Cluster Hire Search Committee, Ecosystem Genomics (five positions)

2014 Member, Search Committee, Department Head, Ecology and Evolutionary Biology, UA

2012-2016 Member, Executive committee, AZ Biomedical/Biological Sciences Graduate Program

2009-2015 Member, Steering committee, NSF-IGERT Program in Genomics

2005 Panelist, Arizona Science Center, for planning science outreach through Bio5

**4. Other campus- and local service and outreach**

2016 Invited speaker, Arizona Mushroom Society

2016 Invited speaker, UA Honors College SMART talks

2014 Invited speaker, UA Science Café, Tumamoc Hill

2014 Invited speaker, PEO, Philanthropic & Educational Organization for women, Prescott, AZ

2014, 2006 Invited speaker, Arizona Native Plant Society, Tucson chapter

2014 Presenter on behalf of Plant Sciences/Herbarium, Arizona Science City/Festival of Books

2014 Supported group involvement, Plant Sciences Family Fun Night

2013 Invited speaker, Tucson Rotary Club, Saguaro chapter

2013 Invited speaker, 1885 Society, University of Arizona

2013 Invited panelist, UA Summer Research Institute panel on graduate school

2013 Supported group involvement, Plant Sciences Family Fun Night

2012 Speaker, Arizona Biological and Biomedical Sciences (ABBS) Graduate Program

2012 Presenter and student coordinator, representing Plant Sciences: FunFest outreach

2012-2016 Coordinator, ABBS graduate rotation talks (one session, 5-10 speakers/year)

2011-2015 New faculty mentor, School of Plant Sciences (three junior faculty)

2010-2014 Mentor, Arizona Assurance Program, for incoming freshmen (three students)

2009 Invited speaker, College of Agriculture and Life Sciences Faculty-Staff Luncheon

2007, 2009 Invited speaker, NSF-ADVANCE Data-Blitz series in Genomics (2007) and Ethics (2009)

2005-2008 Poster presenter, BIO5 Life Sciences Graduate Recruitment Weekend

2005-2008 Volunteer, three undergraduate “Meet Your Major Day” events for Plant Sciences

**5. Service as Curator, Robert L. Gilbertson Mycological Herbarium**

I am charged with maintaining and expanding the University of Arizona Mycological Herbarium, which comprises >40,000 specimens of fungi and fungus-like organisms. The Herbarium serves UA students, the public, agency staff, and researchers at local, state, national, and international levels. Significant activities include garnering extramural support (see Grants); developing a new specimen database, now with >34,000 records; developing a new photographic database, now with >1200 images of fungi for teaching and research; developing a new teaching collection (418 specimens, now available to UA faculty); archiving >5000 new specimens since 2005; leading >300 public tours and >100 class tours for > 1000 visitors; preparing >1200 specimen loans; repatriating hundreds of specimens that were loaned out by previous curators; coordinating >$2000 in charitable donations; collaborating with visiting researchers, student users, and student employees (>280 user-days per year); identifying ca. >50 specimens/year for stakeholders; transferring specimen records to national digitization/databasing efforts (see Grants); coordinating infrastructure improvements and specimen maintenance activities; and serving as the on-call mycologist for Arizona Poison Control.

**B. EXTRAMURAL SERVICE**

**1. Grant and policy review as panelist (invited)**

2017 National Science Foundation, panelist, Postdoctoral Fellowships using Biological Collections

2016 National Science Foundation, panelist, Symbiotic Systems/integrative organismal systems

2016 National Science Foundation, panelist, Graduate Research Fellowship Program

2015 National Science Foundation, panelist, Graduate Research Fellowship Program

2014 National Science Foundation, grant review panelist: population/community ecology

2013 National Science Foundation, grant review panelist: population/community ecology

2012 National Science Foundation, grant review panelist: population/community ecology

2007 National Science Foundation, grant review panelist: phylogenetic biogeography

2006 National Science Foundation, panelist: Frontiers in Ecology Workshop

2005 National Science Foundation, grant review panelist: population/community ecology

**2. Grant and policy review, ad hoc (invited)**

2005-present National Science Foundation: Ecology, Environmental Genomics, Evolution, Molecular/Cellular Biology, Antarctic Biology and Medicine, Dimensions of Biodiversity, International Research Fellowship Program: 1-7 proposals annually, in addition to panel service; total reviewed, >40).

2008-2014 National Science Foundation: Research Coordination Network, Fungal Environmental Sampling and Informatics Network, student outreach and travel grants: 25-40 annually; total reviewed, 184.

2005-present *Ad hoc* review for diverse national and international agencies: National Geographic Society, Graduate Women in Science, National Institutes of Health IDeA Network for Biomedical Research Excellence-Nebraska, Natural Sciences and Engineering Research Council of Canada, Austrian Science Fund, United States Department of Agriculture–Hatch; 2-10 annually; total reviewed, >25.

**3. Editorial positions**

2017- Speciality **Chief Editor**, *Frontiers in Ecology and Evolution: Coevolution*

2017- Associate Editor, *Plant and Fungal Systematics*

2016- **Executive Editor**, *Mycologia*

2015- Associate Editor, *American Journal of Botany*

2014- Subject Editor, *Microbial Ecology*

2010- Subject Editor, *Biotropica*

2015 Guest Editor, *American Journal of Botany*

2007-2009 Associate Editor, *Journal of Plant Pathology*

**4. Manuscript review**

2005- Manuscript referee, >250 manuscripts for >70 journals including *American Journal of Botany; The American Naturalist; Biological Control; Biotropica; Ecology; Evolution; Functional Ecology; Fungal Ecology; Journal of Tropical Ecology; Microbial Ecology; Molecular Ecology; Molecular Phylogenetics and Evolution; Mycologia; Mycological Progress; Nature Reviews Genetics; New Phytologist; Oikos; Phytopathology; Planta; Plant Physiology; PLOS One; Proceedings of the National Academy of Sciences; Proceedings of the Royal Society B; Science; Symbiosis*

**5. External review of dissertations**

2005- External reviewer, PhD dissertations, University of New South Wales, Australia (1); Swedish Agricultural University, Sweden (2)

**6. Symposia and workshops organized at national and international meetings/institutions**

2005- Symposium co-organizer:

Mycological Society of America, Berkeley, CA, 2016

26th Fungal Genetics Conference, Asilomar, CA, 2013

International Symbiosis Society conference, Krakow, Poland, 2012

Mycological Society of America, Fairbanks, AK, 2011

Ecological Society of America, Milwaukee, WI, 2010

International Mycological Congress, Cairns, Australia, 2010

International Botanical Congress, Vienna, Austria, 2005

2011- Coordinator, NSF Dimensions of Endophyte Biodiversity annual meetings (12-19 participants):

Mycological Society of America meetings (Austin, TX; one day), 2013

Mycological Society of America (Fairbanks, AK; one day), 2011

University of Arizona (four days), 2011

2011 Workshop leader and co-coordinator, NSF Research Coordination Network: Fungal Molecular Ecology, Madison, WI; two-day workshop, 98 participants

2009 Workshop leader and coordinator, The Institute for Scientific Research and Technology Services (INDICASAT), National Scientific Research Institute of Panama, Fungal Molecular Systematics and Phylogenetics; five-day bilingual workshop, 21 participants.

2008 Workshop leader and co-coordinator, NSF Research Coordination Network: Metamycology (teaching and outreach at the interface of ecology and mycology), Fairbanks, AK; two-day workshop, 72 participants

2005 Meeting co-host, National Science Foundation Research Coordination Network, Deep Hypha; three-day conference on fungal systematics, 78 participants.

**7. Research consultantships and steering committees, national and international**

2015- Expert witness, biotechnology patent disputes, State of Victoria, Australia

2015- Member, Scientific Advisory Board, Symbiota (now Indigo Agriculture)

2014- Member, Steering Committee, National Science FoundationFuturePhy

2012-2015 Member, Steering Committee, DIVERSITAS, an international program of biodiversity science: http://www.diversitas-international.org/activities/research/biogenesis

2006-2015 Member, Steering Committee, National Science Foundation Research Coordination Network: Fungal Environmental Sampling and Informatics Network: community effort to improve insights from environmental sampling in fungal biodiversity

2006-2014 Consultant, NIH International Cooperative Biodiversity Group (ICBG), Panama: Smithsonian Tropical Research Institute, UC San Diego, and the National Institutes of Health: http://linington.chemistry.ucsc.edu/ICBG/research.html

2007 Invited delegate, European Mycological Collaboration (UNITE), Denmark

**8. Elected and appointed positions, professional societies**

2017- Chair, Karling Annual Lecture Committee, Mycological Society of America

2017- Member, Distinctions Committee, Mycological Society of America

2015- Member, Biodiversity Committee, Mycological Society of America

2015-2016 Member, Karling Annual Lecture Committee, Mycological Society of America

2010-2011 Member, Program Committee, Mycological Society of America

2006-2010 Chair, Endowment Committee, Mycological Society of America (raised >$8,000/yr)

2007-2009 Councilor (elected), fungal ecology, Mycological Society of America

**9. Professional society memberships (current)**

Botanical Society of America, Ecological Society of America, Mycological Society of America

**10. Other service**

2017- Member, search committee, Microbial Ecology staff scientist position, Smithsonian Tropical Research Institute

2005-present On-call mycologist, AZ Poison Control; emergency identification of fungi

2005-present Ad hoc identification of fungi for public, government, agencies, and students

In these roles I identify an average of 20-25 fungal specimens per year, for a total

of ca. 120 hours of service.

# **XII. Teaching**

**A. UNDERGRADUATE TEACHING (Formal)** (\* = sections offered online) (all lecture-based courses)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Semester** | **Course** | **% Effort** | | **Credits** | **Enrollment** |
| Fall 2018 | PLP 329A • Microbial Diversity\* | 100 | | 3 | TBA |
| Summer 2018 | PLP 329A • Microbial Diversity\* | 100 | | 3 | TBA |
| Spring 2018 | HNRS195 • Freshman Colloquium | | 100 | 1 | 18 |
| Fall 2017 | PLP 329A • Microbial Diversity\* | 100 | | 3 | 54 |
| Summer 2017 | PLP 329A • Microbial Diversity\* | 100 | | 3 | 25 |
| Fall 2016 | PLP 329A • Microbial Diversity\* | 100 | | 3 | 90 |
| Fall 2016 | HNRS 195I • Freshman Colloquium | 100 | | 1 | 19 |
| Fall 2015 | PLP 329A • Microbial Diversity\* | 100 | | 3 | 80 |
| Fall 2015 | HNRS 195I • Freshman Colloquium | 100 | | 1 | 18 |
| Fall 2014 | PLP 329A • Microbial Diversity | 100 | | 3 | 80 |
| Fall 2014 | HNRS 195I • Freshman Colloquium | 100 | | 1 | 18 |
| Fall 2012 | PLP 329A • Microbial Diversity | 100 | | 3 | 105 |
| Spring 2011 | PLP 329A • Microbial Diversity | 100 | | 3 | 65 |
| Fall 2011 | PLP 329A • Microbial Diversity | 100 | | 3 | 60 |
| Spring 2010 | PLP 329A • Microbial Diversity | 100 | | 3 | 58 |
| Spring 2009 | PLP 329A • Microbial Diversity | 100 | | 3 | 50 |
| Spring 2008 | PLP 329A • Microbial Diversity | 100 | | 3 | 49 |
| Spring 2007 | PLP 329A • Microbial Diversity | 100 | | 3 | 41 |
| Spring 2006 | PLP 329A • Microbial Diversity | 100 | | 3 | 19 |

**B. GRADUATE TEACHING**

***Lecture-based courses***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Semester** | **Course** | **% Effort** | **Credits** | **Enrollment** |
| Spring 2018 | PLP 550 • Prin. Plant Microbiology | 100 | 4 | 16 |
| Spring 2018 | PLP 575 • Advanced Mycology | 50 | 3 | 8 |
| Spring 2016 | PLP 550 • Prin. Plant Microbiology | 100 | 4 | 9 |
| Spring 2015 | PLP 575 • Advanced Mycology | 50 | 3 | 10 |
| Spring 2014 | PLP 550 • Prin. Plant Microbiology | 100 | 4 | 16 |
| Spring 2009 | PLP 475/575 • Advanced Mycology | 33 | 3 | 5 |
| Spring 2007 | PLP 575 • Advanced Mycology | 25 | 3 | 12 |
| Fall 2006 | PLS 560 • Topics in Plant Science | 15 | 4 | 3 |
| ***Discussion-based courses*** | | | | |
| **Semester** | **Course** | **% Effort** | **Credits** | **Enrollment** |
| Spring 2018 | PLP 596b • Research Discussions | 100 | 1 | TBA |
| Fall 2017 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2017 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Fall 2016 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2016 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2015 | PLP 596b • Research Discussions | 100 | 1 | 4 |
| Spring 2015 | PLP 695A • SPLS Journal Club | 50 | 1 | 16 |
| Fall 2014 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2014 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2014 | PLP 695A • SPLS Journal Club | 50 | 1 | 14 |
| Fall 2012 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2011 | PLP 596b • Research Discussions | 100 | 1 | 7 |
| Fall 2010 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Spring 2010 | PLP 596b • Research Discussions | 100 | 1 | 8 |
| Spring 2008 | PLP 596b • Research Discussions | 100 | 1 | 5 |
| Fall 2009 | PLP 596b • Research Discussions | 100 | 1 | 6 |
| Spring 2009 | PLP 596b • Research Discussions | 100 | 1 | 9 |
| Fall 2008 | PLP 596b • Research Discussions | 100 | 1 | 7 |

**C. TEACHING WORKSHOPS PRESENTED**

2017 Contributed to development and co-led teaching workshop for graduate teaching assistants in CALS, UA.

2016 Contributed to development and co-led teaching workshop for graduate teaching assistants in CALS, UA.

2011 Developed and led two-day workshop through the NSF Research Coordination Network in fungal ecology.

2012 Developed and led semester-long, informal course for graduate students and postdocs (Teaching in Plant Pathology and Microbiology). We met for 2-4 hours/week to discuss best practices in inquiry-based learning, new perspectives in pedagogy, syllabus design, development of teaching statements for employment applications, and mentored/peer-evaluated teaching experience in laboratory- and lecture-based courses.

**D. TEACHING WORKSHOPS ATTENDED**

|  |  |  |
| --- | --- | --- |
| **Year** | **Activity** | **Sponsor or other relevant information** |
| 2017 | Colloquium: Peer evaluation of teaching | College of Agriculture and Life Sciences, UA |
| 2017 | Colloquium: Peer review of teaching | College of Agriculture and Life Sciences, UA |
| 2017 | Colloquium: Teaching students to think | College of Agriculture and Life Sciences, UA |
| 2006 | Workshop: Academic integrity | College of Agriculture and Life Sciences, UA |
| 2005 | Workshop: General teaching strategies | College of Agriculture and Life Sciences, UA |

# **XIII. Mentoring**

## A. UNDERGRADUATE MENTORING

## 1. Honors theses and capstone theses (\* = authorship on completed or forthcoming publication resulting from research activities; ‡ = under-represented group)

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Name** | **Major** | **Honors thesis topic** |
| 2017- | Ellen Pat | MCB (UA) | Fungal biodiversity |
| 2017- | Sequoia Fischer | Microbiology (UA) | Fungal biodiversity |
| 2017 | Brenna Hall | EEB (UA) | Fungal biodiversity |
| 2016 | Ashton Leo\* | Plant Sciences (UA) | Fungal biodiversity |
| 2014-2015 | Felix Kraisitudomsook | Biology, Whitman College | Fungal biodiversity |
| 2014-2016 | Jose Bermudez‡\* | Microbiology (UA) | Fungal biodiversity |
| 2013-2014 | Kayla Garcia‡\* | Microbiology (UA) | Tropical seed-associated fungi |
| 2011-2013 | Lorna Battista\* | EEB (UA) | Endophytes of aquatic plants |
| 2005-2006 | Yi-Jun Jean Tsai\* | EEB (UA) | Huachuca Springsnail ecology |
| 2005-2006 | Ben Wilder\* | EEB (UA) | Flora of Isla Tiburón, Sea of Cortez |
| 2005-2006 | Lindsay Higgins\* | Biology (Duke Univ.) | Endophyte diversity |

## 2. First-year Honors projects (\* = authorship on completed or forthcoming publication resulting from research activities; ‡ = award in university colloquium)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Name** | | | **Major** | | **Honors thesis topic** |
| 2017 | | Haley Williams\*‡ | Ongoing | | Fungal biodiversity | | |
| 2016 | | Larson Matzdorff | Ongoing | | Cactus disease in urban settings | | |

## 3. Independent studies (\* = authorship on completed or forthcoming publication resulting from research activities;

## ‡ = under-represented group)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Name** | | **Status after completion** | **Independent study topic** | | |
| 2018- | | Ian Kline | Ongoing | | Fungal biodiversity | | | |
| 2018- | | Mohammed Alhaddad | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Kiana Clarke | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Zachary Hawkins | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Rayah Mdanat | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Tyler Pesqueira | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Kendra Thomas | Ongoing | | Fungal biodiversity | | | |
| 2017 | | Leon Toledo‡ | Ongoing | | Fungal biodiversity | | | |
| 2017 | | Warren Mountain‡ | Ongoing | | Fungal biodiversity | | | |
| 2017 | | Adam Fernandez‡ | Ongoing | | Fungal biodiversity | | | |
| 2017 | | Jenhiva Salazar‡ | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Jamie Carey | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Christina Brown | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Larson Matzdorff | Ongoing | | Fungal biodiversity | | | |
| 2017- | | Yuwei Ding | Ongoing | | Fungal biodiversity | | | |
| 2016-2017 | | Halina Siewiora | Ongoing | | Fungal biodiversity | | | |
| 2016- | | Jose Orozco**‡** | Ongoing | | Fungal biodiversity | | | |
| 2016- | | Sequoia Fischer | Ongoing | | Fungal biodiversity | | | |
| 2016- | | Nathaniel Yang | Ongoing | | Fungal biodiversity | | | |
| 2016-2017 | | Maithili Kandekhar | Undergraduate student | | Fungal biodiversity | | | |
| 2016-2017 | | Emma Louise Jong | Post-baccalaureate tech, STEM | | Fungal biodiversity | | | |
| 2016 | | Melissa Morris**‡** | Undergraduate student | | Fungal-bacterial interactions | | | |
| 2016 | | Daniel Hayden**‡** | Undergraduate student | | Fungal-plant interactions | | | |
| 2013-2016 | | Ashton Leo\* | Enrolling in MS, STEM | | Endophytes of wild crop plants | | | |
| 2014-2017 | | Ellen Pat | Honors thesis in this lab | | Endophytes of crop plants | | | |
| 2015-2016 | | Michael Taylor\* | Enrolled in MS, STEm | | Bird microbiomes | | | |
| 2015 | | James Cunningham | Unknown | | Tree ring analysis | | | |
| 2014-2015 | | Sean Quigley\* | Deceased | | Boreal endophyte diversity | | | | |
| 2014-2015 | | Jorge Ramos**‡** | In industry/STEM | | Tropical fungal biodiversity | | | |
| 2014-2015 | | Thinh Tran | Applying for graduate school | | Tropical fungal biodiversity | | | |
| 2014 | | Brigid Heffernan | Applying for positions | | Grassland fungi | | | |
| 2014 | Paulina Ramos**‡** | | Applying for positions | Temperate seed-associated fungi | | |
| 2014 | Gonzalo Lopez**‡** | | Applying for positions | Tropical endophyte diversity | | |
| 2014 | Joao Paulo Toledo**‡** | | Undergraduate | Effects of fire on endophytes | | |
| 2013-2014 | Kayla Garcia**‡\*** | | Applying for positions | Tropical seed-associated fungi | | |
| 2013-2015 | Thomas Gleason | | Applying for positions | Boreal endophyte diversity | | | |
| 2013-2014 | Celine Bui | | UA undergraduate | Fungal ecology | |
| 2013-2014 | Wes MacDonald | | UA undergraduate | Fungal genomics | |
| 2013-2014 | Julian Gonzales III**‡** | | Government employee | Boreal endophyte diversity | | |
| 2013-2014 | Ramiro Garza**‡** | | Applying for positions | Effects of endohyphal bacteria | | |
| 2013-2014 | Sarah Griffin | | Applying for positions | Boreal endophyte diversity | | | |
| 2013-2014 | Taylor Abbey | | Applying for positions | Boreal endophyte diversity | | | |
| 2012-2014 | James DeVore | | Research assistant, Panama | Seed-associated fungi | |
| 2012-2013 | Anyang Ndobegang**‡\*** | | Technician, Arnold lab | Functional trait analysis of fungi | |
| 2012-2013 | Alex Badilla**‡** | | UA undergraduate | Fungal diversity | |
| 2012-2013 | Peter Cerda**‡** | | MS program, Michigan | Heavy metals in lichens | |
| 2012-2013 | Ed Bazan**‡** | | MS program, Missouri | Microbiome of saguaro fruits | |
| 2011-2013 | Lorna Battista\* | | Applying for positions | Endophtyes of aquatic plants | |
| 2011-2013 | Brittany Peña**‡** | | Applying to graduate school | Effects of fungi on metal tolerance | |
| 2011-2013 | Christie Moss | | Medical school | Fungal genomics | |
| 2011-2013 | Thao Truong | | Pharmacy school | Phylogeny of Xylariaceae | |
| 2011-2012 | Brett Baxter | | Employed in private industry | Sonoran Desert endophytes | | |
| 2011-2012 | Lauren Dominick | | Employed in private industry | Endophyte diversity | | |
| 2011-2012 | Adrian Ramirez**‡** | | Employed in private industry | Endophyte diversity | | |
| 2011-2012 | Chan Jung | | Medical school | Effects of endohyphal bacteria | | |
| 2011-2012 | Nick Massimo | | Ph.D. program, ASU | Sonoran Desert endophytes | | |
| 2011-2012 | Thaddeus Metz | | Applying for positions | Endophytes of aquatic plants | | |
| 2011-2012 | Ethan Posey | | UA undergraduate | Fungal biodiversity | |
| 2010-2012 | MM Nandi Devan\* | | Science teacher | Responses of endophytes to fire | | |
| 2010-2012 | Jamie Moy\* | | Ph.D. program, pharmacy | Microbial degradation of plants | | |
| 2010-2012 | Jakob Riddle\* | | Ph.D. program, U Minn | Endohyphal bacteria | | |
| 2010-2012 | Ali Raza | | Medical school | Fungal biodiversity | | |
| 2010-2012 | Janka Vanova | | Employed in private industry | Endophtyes of *Ephedra* | | |
| 2010-2012 | Susan Furr | | Science teacher | Endophtyes of *Ephedra* | | |
| 2009-2011 | Dustin Sandberg | | MS program, UA | Antimicrobial effects of endophytes | | |
| 2009-2010 | Darren Stenrud | | Employed in private industry | Antimicrobial effects of endophytes | | |
| 2009-2010 | Andrea Woodard | | Employed in private industry | Antimicrobial effects of endophytes | | |
| 2009-2010 | Patricia Espiritu**‡** | | Graduate school | Fungal biodiversity | | |
| 2009-2010 | Patrick Campbell | | Graduate school | Chemical ecology | | |
| 2009-2010 | Barney Gilley | | Applying to medical school | Chemical ecology of endophytes | | |
| 2009-2010 | Barbara Beauchamp | | Science teacher | Chemical ecology of endophytes | | |
| 2009-2010 | Phornp. Imtaramkarang | | Science teacher | Chemical ecology of endophytes | | |
| 2008-2009 | Jamal Alafifi | | Applying to graduate school | Phylogenetic relationships of fungi | | |
| 2008-2009 | Alex Lovinger | | Senior at UA | Sporocarp-associated insects | | |
| 2008-2009 | Duan Copeland | | Appling to programs | Sporocarp-associated insects | | |
| 2008-2009 | Doug Mahana | | Ph.D. program, NYU | Tropical forest endophytes | | |
| 2007-2008 | Alex (JJ) Delgado**‡** | | Unknown | Tropical endophytes | | |
| 2007-2008 | Chan Maketon | | MS program, Washington | Phylogenetic relationships of fungi | | |
| 2007 | Dylan Grippi | | Ph.D. program, Emory | Fungi associated with protists | | |
| 2007 | Youchin Huh | | Pharmacy school | Fungal diversity | | |
| 2007 | Judy Kwan | | Applying to graduate school | Fungal endophytes | | |
| 2006-2008 | Courtney Kluger | | Medical practice | Tropical seed-associated fungi | | |
| 2006-2008 | Cheyenne Weeks-Galindo**‡** | | MS program, George Mason | Tropical seed-associated fungi | | |
| 2006-2007 | Jason Ong | | Applying to graduate school | Fungal endophytes of oaks | | |
| 2006 | Anita Bhakta | | Employed | Diversity of twig endophytes | | |
| 2006 | Lindsay Cook | | Employed in pharmacy | Antimicrobial activity of fungi | | |
| 2006 | Linh Huynh | | Pharmacy school | Fungal diversity within AZ lichens | | |
| 2006 | Felicia Quintana**‡** | | Applying to graduate school | Endolichenic fungi | | |

**4. Additional mentoring of undergraduates and junior curators in research and curatorial activities**

|  |  |  |  |
| --- | --- | --- | --- |
| **Term** | **Name** | **Institution** | **Mentored activities with student** |
| 2017- | Christina Brown | UA | Curatorial training, Mycological Herbarium |
| 2017- | José Orozco | UA | Curatorial training, Mycological Herbarium |
| 2016-2017 | Brianna Talbot | UA | Curatorial training, Mycological Herbarium |
| 2015-2016 | Chetan Bafna | UA | Curatorial training, Mycological Herbarium |
| 2013-2016 | Carl Patterson-Markowitz | UA | Curatorial training, Mycological Herbarium |
| 2012- | Joe Myers | UA | Curatorial training, Mycological Herbarium |
| 2012-2014 | Trevor Mock | UA | Curatorial training, Mycological Herbarium |
| 2011-2012 | Phornpoj Imtaramkarang | UA | Curatorial training, Mycological Herbarium |
| 2011-2012 | Emily Hendershot | UA | Curatorial training, Mycological Herbarium |
| 2011-2012 | Courtney Klopper | UA | Curatorial training, Mycological Herbarium |
| 2011-2012 | Nandi Devan | UA | Curatorial training, Mycological Herbarium |
| 2011-2012 | Erika Untch | UA | Curatorial training, Mycological Herbarium |
| 2009- | Sheri Steidl | Yavapai College | Curatorial training, Mycological Herbarium |
| 2009-2010 | Max Xiong | U Chicago | Curatorial training, Mycological Herbarium |
| 2009-2012 | Brittany Wohl | UA | Curatorial training, Mycological Herbarium |
| 2005-2006 | Hilary Brown | UA | Curatorial training, Mycological Herbarium |
| 2005-2007 | Vanessa Chicharello**‡** | UA | Curatorial training, Mycological Herbarium |
| 2005-2009 | Melissa Kohmetscher | UA | Curatorial training, Mycological Herbarium |

## 5. Other undergraduate mentorship. I mentored an additional 17 Native American undergraduates at Diné College for 10-week internships in field ecology, microbiology, and molecular biology, and 10 peer mentors from off-reservation universities (graduate and undergraduate students) (2006-2008).

**B. GRADUATE MENTORING**

**1. Doctoral students (major advisor)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Completion** | **Name** | **UA Program** | | **Dissertation topic** | **Current position** |
| 2020 (est) | Alison Harrington | EEB | Fungal ecology | | In progress |
| 2020 (est) | Shuzo Oita | Plant Path. | Fungal ecology | | In progress |
| 2020 (est) | Aasiya Hamzazai | Plant Sci. | Fungal ecology | | In progress |
| 2020 (est) | Emma Holland | Genetics GIDP | Fungal ecology | | In progress |
| 2019 (est) | Liz Bowman | Plant Path. | Fungal ecology | | In progress |
| 2017 | Justin Shaffer | Plant Path. | Endohyphal bacteria | | Postdoc, UC San Diego |
| 2017 | Yu-Ling Huang | Plant Sci. | Endophyte diversity | | Fungi curator, Nat. Mus. Taiwan |
| 2012 | Mary Jane Epps | EEB | | Fungus-insect interactions | Faculty, Mary Baldwin College |
| 2012 | Mariana del Olmo Ruiz | Plant Path. | | Tropical endophytes | Postdoc, UNAM - Mexico |
| 2012 | Ellen Martinson | EEB | | Fig-fig wasp mutualism | Postdoc, University of Georgia |
| 2011 | Jana U’Ren | Plant Path. | | Endophyte diversity | Faculty, University of Arizona |
| 2010 | Michele Hoffman | Plant Path. | | Endohyphal bacteria | US Government, permanent |

## 2. MS students (major advisor)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Completion** | **Name** | **UA Program** | **Thesis topic** | **Current position** |
| 2019 (est) | Ashton Leo | Plant Pathology | Seed microbiomes | In progress |
| 2018 | Gavin Lehr | General Biology | Endophyte ecology | In progress/High school teacher |
| 2016 | Sarah Araldi-Brondolo | Plant Pathology | Endohyphal bacteria | Scientist, Indigo Agriculture |
| 2016 | Liz Bowman | Plant Pathology | Endophyte ecology | PhD student, UA |
| 2015 | Kayla Arendt | Plant Pathology | Endohyphal bacteria | Environmental consulting |
| 2015 | Chantelle Khambholja | Plant Pathology | Non-thesis MS | Veterinary school |
| 2013 | Dustin Sandberg | Plant Pathology | Aquatic endophytes | USDA Plant Pathologist |

**3. Service on doctoral dissertation committees other than as advisor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Completion** | **Name** | **Program** | **Dissertation topic** |
| In progress | Lourena Arone | Plant Pathology, UA | *Aspergillus* and aflatoxins in crops |
| In progress | Julia Hull | Bio., Northern AZ Univ. | Plant-herbivore-endophyte interactions |
| In progress | Peter Tellez | Ecol/Evol Biology, Tulane | Plant-endophyte interactions |
| 2017 | Ko-Hsuan Chen | Biology, Duke Univ. | Fungal endophyte biology; Eurotiomycetes |
| 2017 | Josh Harrison | Ecol. / Evol. Bio., UN - Reno | Plant-herbivore-endophyte interactions |
| 2016 | Tim O’Connor | Ecol. and Evol. Bio., UA | Insect-plant-fungal genomics |
| 2016 | Tim Vandervoet | GIDP Insect Science, UA | Cotton-insect-fungus interactions |
| 2016 | Eric Griffin | Biology, Univ. Pittsburgh | Tropical leaf-associated bacteria |
| 2015 | Simon Stump | Ecol. and Evol. Bio., UA | Theoretical ecology |
| 2012 | Jen Hughes | Ecol. and Evol. Bio., UA | Plastid evolution in dinoflagellates |
| 2012 | Daniel Lawrence | Plant Pathology, UA | Evolution of PKS and NRPS in fungi |
| 2012 | Julia Nielson | Soil, Water, Environ. Sci, UA | Extremophile microbes |
| 2012 | M. Joe Vaughan | Plant Pathology, UA | Fungal diversity and function in caves |
| 2011 | Demetra Kandalepas | Bio., Louisiana State Univ. | Coastal wetland dynamics and endophytes |
| 2011 | Claudia Probst | Plant Pathology, UA | *Aspergillus* and aflatoxin contamination |
| 2011 | Kali Lader | Plant Bio., UC Berkeley | Endophytic fungi of redwoods |
| 2011 | L. Jamie Lamit | Bio., Northern AZ Univ. | Fungal-plant symbioses |
| 2010 | Brendan Hodkinson | Bio., Duke Univ. | Microbial communities in lichens |
| 2010 | Eric Janson | Bio., Vanderbilt Univ. | Adaptive radiations in plants/insects/fungi |
| 2009 | Bridget Barker | Genetics, UA | *Coccidioides* sp. |
| 2009 | Anne Estes | Ecol. and Evol. Bio., UA | Endosymbionts of olive flies |
| 2009 | Fushi Wen | Plant Pathology, UA | Root border cells and extracellular DNA |
| 2008 | Cara Gibson | Entomology, UA | Fungal endosymbionts of parasitoid wasps |
| 2007 | Rachel Gallery | Plant Bio., Univ. Illinois | Tropical seed-associated fungi |

## 4. Service on MS thesis committees other than as advisor

|  |  |  |  |
| --- | --- | --- | --- |
| **Completion** | **Name** | **Program** | **Thesis topic** |
| 2017 | Jimmy Conway | Insect Science, UA | Beetle systematics |
| 2016 | Angela Hoover | Insect Science, UA | Beetle systematics |
| 2011 | Latifa Jackson | Ecol. and Evol. Bio., UA | Disease ecology/human genomics |
| 2010 | Fabiola Santos | Plant Pathology, UA | Fungal ecology in agriculture |
| 2010 | Nick Milani | Plant Pathology, UA | Horizontal gene transfer in *Fusarium* |
| 2010 | Libby Landeen | Ecol. and Evol. Bio., UA | Ecology and evolution of finches |
| 2009 | Carol Rowand | Plant Pathology, UA | Rhizosphere communities |
| 2008 | Lindsay Higgins | Biology, Univ. Utah | Tropical grass endophytes |
| 2007 | Joanna Gress | Plant Sciences, UA | Nematode/citrus interactions |
| 2005 | Kim Ryall | Biology, Duke University | Fungal endophytes of mosses |

**5. Supervision of first-year graduate-rotation projects** (\* = authorship on completed or forthcoming publication resulting from research activities; ‡ = under-represented group)

|  |  |  |  |
| --- | --- | --- | --- |
| **Completion** | **Name** | **Program** | **Rotation topic** |
| 2017 | Nicole Colon-Carrion‡ | ABBS, UA | Fungal taxonomy/systematics |
| 2017 | Alison Harrington\* | Ecol. and Evol. Bio., UA | Fungal taxonomy/systematics |
| 2016 | Hongseok Ko | Ecol. and Evol. Bio., UA | Seed-associated fungi |
| 2016 | Emma Holland | Genetics, UA | Endohyphal bacteria |
| 2015 | Neill Prohaska | Ecol. and Evol. Bio., UA | NGS methods |
| 2015 | Ryan Wallace | ABBS, UA | Endohyphal bacteria |
| 2014\* | Breonna Smith‡ | ABBS, UA | NGS methods |
| 2013\* | Yu-Ling Huang | Plant Sciences, UA | Fungal endophytes after wildfire |
| 2011 | Simon Stump | Ecol. and Evol. Bio., UA | Fungal endophytes of invasive plants |
| 2008 | Steve Uyeda | Plant Pathology, UA | Fungal endophytes of chiles |
| 2007 | Amritha Wickramage | Plant Pathology, UA | Endophytes from the Navajo Nation |
| 2006 | Mariana del Olmo | Plant Pathology, UA | Endophytic fungi of tropical trees |
| 2006 | Mary Jane Epps | Ecol. and Evol. Bio., UA | Nectar-inhabiting microbes |
| 2006 | David Jarvis | Plant Sciences, UA | Phylogenetic inference |
| 2006 | Libby Landeen | Ecol. and Evol. Bio., UA | Endolichenic fungal diversity |
| 2006\* | Jana U’Ren | Plant Pathology, UA | Evolutionary origins of seed fungi |
| 2005\* | Michele Hoffman | Plant Pathology, UA | Fungal endophytes of non-native plants |

**6. Other graduate student supervision**

Since 2005 I have mentored 1-4 visiting graduate students per year who joined my lab for 1-12 weeks to gain experience in fungal molecular biology.

## C. POSTDOCTORAL MENTORING

|  |  |  |  |
| --- | --- | --- | --- |
| **Term** | **Name** | **Institution** | **Research topic** |
| 2017- | Camilo Zalamea | Smithsonian Tropical Research Institute | Plant-microbial ecology |
| 2016- | Joseph Spraker | University of Arizona | Endohyphal bacteria |
| 2015-2016 | Nicholas Garber | University of Arizona | Endophyte-plant interactions |
| 2013-2016 | Naupaka Zimmerman | University of Arizona | Endophyte-plant interactions |
| 2012-2016 | Camilo Zalamea | University of Illinois/STRI | Seed-associated fungi |
| 2011-2015 | Jana U’Ren | University of Arizona | Endophyte diversity |
| 2009-2013 | Sarah Higginbotham | Smithsonian Tropical Research Institute | Forest microbiology |
| 2006 | Cara Gibson | University of Arizona | Endophyte diversity |
| 2005-2006 | Christine Davis | Duke University | Seed-associated fungi |

## D. MENTORSHIP OF HIGH SCHOOL STUDENTS IN RESEARCH \* = award, ‡ = under-represented group

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Name** | **School** | **Research topic** |
| 2017- | Owyn Stokes | Vail High School | Plant microbiomes |
| 2017- | Julia Kassa | Sonoran Science Academy | Plant microbiomes |
| 2017- | Kyle Kline | Paradise Valley High School | Plant microbiomes |
| 2016-2017 | Guillermo Martinez‡ | Tucson High Magnet School | Endophyte functional traits |
| 2016-2017 | Emily Burke\* | Vail High School | Mycorrhizal fungi |
| 2014-2016 | Tahlia Segura‡ | Tucson High Magnet School | Seed-associated fungi |
| 2016-2018 | Joseph Galasso‡\* | Home School | Styrofoam-degrading bacteria |
| 2015 | Leah Simpson | Academy of Tucson High School | Endophyte biodiversity |
| 2015-2016 | Adalee Martinez‡ | Tucson High Magnet School | Seed-associated fungi |
| 2014-2015 | Leila Murrieta‡ | Tucson High Magnet School | Seed-associated fungi |
| 2014 | Cassidy Vernon\* | Tucson High Magnet School | Fungal diversity |
| 2014 | Ariella Peskin-Owens\* | Tucson High Magnet School | Fungal diversity |
| 2014 | Rowen Stokes\* | Tucson High Magnet School | Fungal diversity |
| 2014 | Lily Ptacek\* | Tucson High Magnet School | Fungal diversity |
| 2014 | Wyatt Mendez‡ | Tucson High Magnet School | Fungal diversity |
| 2012-2013 | Alexia Avey\* | Home School | Fungi associated with cacti |
| 2011-2013 | Wes MacDonald\* | Home School | Fungi associated with cacti |
| 2013 | Eli Rosenblum\* | Tucson High Magnet School | Bacterial symbionts of fungi |
| 2013 | Amelia Talkington\* | Renaissance Academy | Soybean microbes |
| 2010-2012 | Ochana Otto\*‡ | Tucson High Magnet School | Bacterial symbionts of fungi |
| 2010-2012 | Amber Ross\*‡ | Tucson High Magnet School | Enzymatic diversity of fungi |
| 2009 | Abby Cochrane | Catalina Foothills Magnet School | Thermotolerance of fungi |
| 2008-2010 | Frankie Orozco\*‡ | Tucson High Magnet School | Enzymatic diversity of fungi |
| 2008 | Maxwell Xiong | University High School | Forest mycology |
| 2007 | Elan Snitkin\* | Tucson High Magnet School | Endophyte diversity |
| 2007 | Rebecca Porter | St. Gregory High School | Endophyte diversity |
| 2006 | Kiona Brown\*‡ | Tucson High Magnet School | Endolichenic fungi |

**E. MENTORSHIP OF K-12 TEACHERS AND COMMUNITY COLLEGE FACULTY IN RESEARCH**

## ‡ = under-represented group; \*\* = minority-serving institution

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Name** | **School** | **Research topic** |
| 2017- | Michelle Tozer | Vail High School | Insect/plant/fungi interactions |
| 2013-2017 | Gavin Lehr | Sahuarita High School\*\* | Endophyte diversity |
| 2012-2015 | Margaret Wilch | Tucson High Magnet School\*\* | Endophyte diversity |
| 2009-2011 | Susan Furr | Flowing Wells/Amphi MS\*\* | Fungal biodiversity |
| 2010 | Jim Uomoto | Pueblo High School\*\* | Endophyte ecology |
| 2006-2009 | Barbara Klein | Diné College (Navajo Nation)\*\* | Endophyte ecology |
| 2008-2009 | Rowena Dolino‡ | Tseehootsooi MS (Navajo Nation)\*\* | Thermotolerance of fungi |
| 2008 | Steve Uyeda | Sunnyside High School\*\* | Endophyte ecology |
| 2005-2007 | Mary Shimabukuro | Diné College (Navajo Nation)\*\* | Endophyte ecology |

# **XIV. Outreach**

**1. High school workshops in microbiology/fungal ecology/biodiversity (developed and led by Arnold)**

2017 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 17 students from Tucson High

2017 Endophyte Discovery semester-long workshop for 168 students at Tucson High Magnet School

2017 Seed-fungal interactions, 3-day field/lab workshop on fungal symbioses, 12 students from Sahuarita HS

2016 Endophyte Discovery semester-long workshop for 105 students at Tucson High Magnet School

2015 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 15 students from THMS

2015 Fungal Discovery semester-long workshop, 70 students at SHS

2014 Fungal Discovery semester-long workshop, 70 students at SHS

2014 Mycorrhizal Discovery, 2-day field workshop on fungal symbioses, 15 students from THMS

2014 Endophyte Discovery semester-long workshop for 70 students at THMS

2013 Fungal Discovery semester-long workshop, 70 students at SHS

2013 Endophyte Discovery semester-long workshop for 70 students at THMS

2012 Endophyte Discovery semester-long workshop for 70 students at THMS

2011 Endophyte Discovery program at the National Geographic Bioblitz in Saguaro National Park; > 400 citizen-scientists involved in all aspects of endophyte biology.

**2. High school summer research experience (developed and led by Arnold)**

2017 BLAST summer research experience for high school students and teachers, 3-week laboratory and field experience in microbial and molecular ecology for 16 participants from area high schools

2016 BLAST summer research experience for high school students and teachers, 3-week laboratory and field experience in microbial and molecular ecology for 16 participants from area high schools

2015 BLAST summer research experience for high school students, 2-week laboratory and field experience in microbial and molecular ecology for 9 students from area high schools

**3. Tribal College outreach (developed and led by Arnold)**

2006-2009: Research mentor and summer research coordinator, Navajo Nation: I developed and led an award-winning, 10-week/summer, on-reservation, mentored research experience in endo-phyte biodiversity for Diné (Navajo) undergraduates based at Diné College, the tribal college of the Navajo Nation. Seventeen Diné undergraduates and 10 undergraduate and graduate peer mentors from off-reservation universities participated over the course of the program.

**4. Other outreach/service**

2017 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab

2017 Tucson Festival of Books, City of Knowledge: open house, Mycological Herbarium

2016 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab tours

2016 Tucson Festival of Books, City of Knowledge: open house, Mycological Herbarium

2015 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab tours

2015 Tucson Festival of Books, City of Knowledge: two-day open house, Mycological Herbarium

2014 USDA AgDiscovery: hosted 15 visiting high school- and middle students in lab tours

2014 Tucson Festival of Books, City of Knowledge: two-day open house, Mycological Herbarium

2013 Tucson Festival of Books, City of Knowledge: two-day open house, Mycological Herbarium

2006-2008 Member, Board of Directors, Arizona Biology Network

2006, 2013 Judge, Intel International Science and Engineering Fair, Botany and Plant Sciences

2005-present Tours, Gilbertson Mycological Herbarium

2005 North Carolina State University “Science House” workshop, coordinator; one-day research training, 17 high school teachers.

# **XV. Online communication**

Arnold lab website [www.arnoldlab.net](http://www.arnoldlab.net)

NSF Dimensions of Biodiversity project [www.endobiodiversity.org](http://www.endobiodiversity.org)

NSF Endohyphal Bacteria project [www.endohyphalbacteria.com](http://www.endohyphalbacteria.com)

NSF Seed-associated Fungi project <https://publish.illinois.edu/tropicalseeds/>

NSF FuturePhy project <https://futurephy.org/>

Twitter / Facebook @betsyarizona / ArnoldLab