

Appendix 1. Voucher information for taxa cultured in this study. Letters in brackets at the end of voucher information indicate the publications where the genomic data for this sample appeared (see Table 1 for more details): a. Miadlikowska et al. (in prep.), b. McDonald (2011), c. Armaleo and May (2009), and Armaleo et al. (2011).

Acarospora schleicheri: USA, Arizona, Coronado National Forest, near Tuscon, Molino Canyon Vista, along the trail, N32°19'62" W110°42'04", on large acidic boulders in semi-desert grassland, 03.09.2005, leg. Francois Lutzoni, Emily Fraker, Jolanta Miadlikowska, Frank Kauff, Cecile Gueidan, and Valerie Hoffstetter, AZ11 (DUKE). **(a) (b)**

Acarospora socialis: USA, California. San Bernadino County, San Bernardino Mts., in a curve where on the outside of the curve the road is much wider, downhill from the road, N34°09'23.22" W116°57'52.74", 1797 m elev., forest of oak and conifers, N exposure, 70-75° slope, on top of a small boulder (granite) in the shade of a larger boulder, 23.02.2010, leg. F. Lutzoni and E. Gaya 02.23.10-3 (DUKE). **(b)**

Acarospora strigata: USA, California, San Jacinto Mts. End of Morris Ranch Road above Cedar Springs trail, N33°39'22.38" W116°35'3.36", 1559 m elev., Chaparral and *Yucca*, slope on hill, completely open, dry, 50° slope, on limestone, 24.02.2010, leg. F. Lutzoni, E. Gaya 02.24.10-24, and K. Knudsen (DUKE). **(a) (b)**

Astrothelium galbineum: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7" W81°20'52.0", 12 m, on *Carya*

floridana, leg. E. Gaya 14.03.08-1 EGB7, F. Lutzoni, and J. Miadlikowska, LDB2980
(DUKE). **(a)**

Cladonia cristatella: USA, North Carolina, Iredell County, Union Grove, 5260 Somers
Rd.,

N36°5' 8.49", W 80°53'54.25", 08.07.2011, leg. L. Dow s/n (DUKE). **(a) (b)**

Cladonia grayi: USA, North Carolina, Durham County, on Mount Sinai road near
Durham, 29.07.2003, leg. D. Armaleo s/n (DUKE). **(a) (b)**

Cladonia peziziformis: USA, Virginia, Appomatax County, Appomatax-Buckingham
W78°41'11", 2005, leg. T. McDonald 1411. **(b)**

Graphis handelii: USA, South Carolina, Georgetown County, Huntington Beach State
Park, on the south side of Alligator Alley path, N33°30'1" W79°04'1", collected on a
small oak near forest swamp, 29.07.2011, leg. Mark Green GR4BH (DUKE). **(b)**

Graphis scripta: USA, North Carolina, Durham County, Duke Forest gate across Mt.
Sinai Road from Mt. Sinai Baptist Church at 5222 Mount Sinai Rd, shaded path in
hardwood forest, N 35°59'40.5774" W 79°0'31.1436", on bark of beech (*Fagus*), leg.
McDonald 1518. **(a) (b)**

Graphis sp. USA. South Carolina, Georgetown County, Huntington Beach State Park. On the west side of the walking trail wooden bridge, N33°30'16", W79°04'45", Maple tree, 29.07.2011, leg. Mark Green GR8AH (DUKE). **(b)**

Ionaspis alba. USA. North Carolina, Durham County, Duke Forest, woods behind Deerfield apartment complex, N36°0'38.8188", W78°58'7.0746", 20.11.2005, leg. T McDonald 1430. **(b)**

Leiorreuma sericeum 1: USA, South Carolina, Georgetown County, Huntington Beach State Park, on the east side of the walking trail before the wooden bridge, N 33°30'14 W 79°04'49, Holly tree, 29.07.2011, leg. M. Green GR1H. **(b)**

Leiorreuma sericeum 2 : USA, South Carolina, Georgetown County, Huntington Beach State Park, on the south side of Alligator Alley path, N33°30'17" W 79°04'17", hardwood tree near old swampy forest, 29.07.2011, leg. M. Green GR3H. **(b)**

Phaeographis elliptica: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7", W81°20'52.0", 12 m elev., on *Quercus* sp., leg. E. Gaya 16.03.08-8 EGB12, F. Lutzoni, and J. Miadlikowska, LDB1703 (DUKE). **(a)**

Platygramme sp.: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7" W81°20'52.0", 12 m elev., on

Quercus sp., leg. E. Gaya 16.03.08-2 EGB17, F. Lutzoni, and J. Miadlikowska, LDB1698 (DUKE).

Polymeridium subcinereum: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7", W81°20'52.0", 12 m elev., on

Quercus sp., leg. E. Gaya 16.03.08-4 EGB2, F. Lutzoni, and J. Miadlikowska, LDB1699 (DUKE).

Pyrenula cruenta 1: USA, Alabama, Escambia Co., Andalusia Area, Solon-Dixon Forestry Center, montane rainforest, on *Fagus americana*, 14.4.2007, leg. E. Gaya 17 (DUKE). **(a) (b)**

Pyrenula cruenta 2: USA, South Carolina, Horry County, Myrtle Beach State Park, wooded areas, N33°39'04" W78°55'50", on holly tree, 06.2009, leg. Mark Green PYCR4-MG (DUKE).

Pyrenula cruenta 3: USA, South Carolina, Georgetown County, Huntington Beach State Park, wooded area, N33°30'29" W79°04'15", on holly tree, 06.2009, leg. Mark Green PYCR12-MG (DUKE).

Pyrenula cruenta 4: USA, South Carolina, Georgetown County, Huntington Beach State Park, wooded area, N33°30'29" W79°04'15", on holly tree, 06.2009, leg. Mark Green PYCR16-MG (DUKE).

Pyrenula ochraceoflava: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7", W81°20'52.0", 12 m elev., on *Quercus* sp., leg. E. Gaya 16.03.08-12 EGB11, F. Lutzoni, and J. Miadlikowska, LDB1706 (DUKE).

Trypethelium aeneum: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7", W81°20'52.0", 12 m elev., on *Quercus* shrub with palmetto, leg. E. Gaya 16.03.08-6 EGB18, F. Lutzoni, and J. Miadlikowska, LDB1701 (DUKE). **(b)**

Trypethelium eluteriae: USA, Florida, first right after the main entrance of Archibald Biological Station, along the sandy road, N27°11'04.7", W81°20'52.0", 12 m elev., on *Carya floridana*, leg. E. Gaya 16.03.08-14 EGB8, F. Lutzoni, and J. Miadlikowska, LDB1708 (DUKE). **(a)**

Trypethelium virens 2: USA, North Carolina, Wake County, Raleigh, Blue Jay Point County Park, 3200 Pleasant Union Church Road, Lakeside forested patch with beech and holly, N 35°58'8.4", W78°38'33.68", 19.09.2005, leg. T. McDonald 1424. **(b)**

Usnea strigosa: USA, North Carolina, Durham County, Durham, 816 W Knox St, shaded urban street, N36°0'47.484", W78°54'16.1712", on branch of *Quercus phellos*, leg. T. McDonald s/n. **(b)**