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From Air to Leaf: Unraveling Aerobiota, Endophytes, and Leaf Litter Communities

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Abstract: Fungi are essential and abundant in the environment. Understanding community assembly processes of fungi will allow us to better understand community composition, which potentially influences environmental processes. In this study, we aim to investigate the fungal aerobiota community at the Big Chico Creek Ecological Reserve and compare it to fungal endophyte and leaf litter communities to offer insight into the processes that drive fungal community assembly and ultimately environmental processes. By utilizing two types of spore traps, we will collect and sequence fungal spores from both the air and rainwater from three sites at the Big Chico Creek Ecological Reserve. After obtaining all our samples, we will extract DNA and amplify the fungal ITS region to characterize fungal communities associated with the atmosphere, rainwater, foliar fungal endophytes, and leaf litter. Alpha and beta diversity will be assessed to determine what roles airborne fungi play in the community assembly of foliar endophytes and leaf litter communities. Understanding the roles that aeromycota play in the community assembly processes of foliar fungal endophytes and leaf litter communities can help us understand how varying communities will influence environmental processes.