

## ABSTRACT

**THESIS:** Abundance of Mycorrhizal Fungi in Disturbed soils

**STUDENT:** Catherine Holland

**DEGREE:** Master of Science

**COLLEGE:** Sciences and Humanities

**DATE:** July, 2020

**PAGES:** 51

Mycorrhizal fungi are known to form symbiotic relationships with approximately 80 percent of plants, appearing on every continent except Antarctica. These fungi are important to ecosystems as they increase nutrient uptake of plants, enhance soil health through the addition of glomalin, and assist with the germination of Orchidaceae seeds. In this study, soil samples were collected from 5cm, 10cm, 20cm, 50cm, 1m, and 5m in each of the cardinal and sub-cardinal directions to assess abundance of mycorrhizal spores. Samples were sieved, and spores were extracted with a sucrose gradient. Spores were placed on microscope slides and stained with melzers reagent. It was hypothesized that mycorrhizal fungi spore abundance would decrease with increasing distance from the orchid symbiont *Aplectrum hymale*. Direction was found to have no significant effect on mycorrhizal fungi dispersal. The hypothesis that mycorrhizal spore abundance would increase with proximity to the plant was not supported; however, there was a significant increase of spores with increasing distance from the *Aplectrum hymale* plants up to one meter. Spore abundance was found to decrease sharply between 1 and 5 meters.

**Keywords:** Mycorrhizal fungi, *Aplectrum hymale*, *Glomus*, Spore abundance