THE DEVELOPMENT OF A RESISTANCE SCREENING PROGRAM OF OHIA TO *CERATOCYSTIS* PATHOGENS CAUSING WIDESPREAD MORTALITY ON HAWAII ISLAND

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Ohia (*Metrosideros polymorpha*) is Hawaii's most abundant and ecologically important native tree. Present on all major Hawaiian Islands, ohia trees account for roughly 50 percent of the stems and 50 percent of total basal area of all forests (native or non-native) across the Hawaii Island. In 2014, high and expanding levels of ohia mortality were observed in the Puna district on the east side of Hawaii Island, spurring investigations to its cause. Pathological investigations revealed a complex of two xylem-affecting diseases caused by two novel fungal species, *Ceratocystis lukuohia* and *C. huliohia*. The mortality caused by these diseases, called Rapid Ohia Death (ROD), has quickly spread to most districts of the island affecting over 54 600 ha of forests. ROD is a primary concern to the health of ohia populations, forests, and the vast assemblages of organisms that rely on this keystone tree. To combat the expanding mortality associated with ROD, a resistance screening program is in development to screen the various varieties and ecotypes of ohia from Hawaii. Initial screening results of *M. polymorpha* varieties (*glaberrima*, *incana*, *newellii*, and *polymorpha*) found on the Hawaii Island show promise of differential susceptibility and the potential for host resistance. Selection will involve collection of seed and vegetative material for propagation and later screened for resistance by inoculation trials. In addition to targeting surviving *M. polymorpha* individuals both within and adjacent to sites of intense ROD mortality, we will also screen a diverse collection of *M. polymorpha* genotypes from a State-wide seed drive as well as four other *Metrosideros* species from Hawaii.

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