Comparison of the impacts of plant canker disease and climate on Proteaceae and evaluation of selected fungicides as a management tool for canker control in the threatened flora *Banksia verticillata* and *Lambertia orbifolia*.

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The contribution of canker causing fungi to stem and branch death in South Western Australia is not well documented or understood. Two declared rare flora *Banksia verticillata and Lambertia orbifolia* are currently being severely impacted by canker disease. To quantify and monitor canker severity and impact, permanent transects have been established in *Banksia baxteri*, *B. coccinea, B. verticillata* and *Lambertia orbifolia* with 1620 individuals assessed across 32 sites. Individual cankers have been cultured and preliminary analysis indicates the most frequently isolated pathogenic fungi are those in the *Botryosphaeria* complex, a putative *Microthia*, *Cryptodiaporthe* and *Cytospora* spp. respectively. All except *Cytospora* spp. have been isolated at a low level from healthy asymptomatic tissue suggesting that they have some degree of benign endophytic role and that the environment may moderate the host-pathogen relationship. Co-occurrence of several of the pathogens in single canker lesions also demonstrates a synergism in canker disease expression. Data loggers recording temperature and humidity have been installed at 20 of these sites covering the northern and southern rainfall extremities. Interpolated rainfall, temperature and humidity data for each site are being collected for comparison against canker impact scores in an attempt to develop predictive ability in climate change scenarios. The systemic fungicides fenarimol, prochloraz and tebuconazole are being investigated as control options in *B. verticillata* and *L. orbifolia* – initially *in vitro,* then *in vivo,* for the four main canker causing pathogens.

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