NEWS from SOIL MICROBIOME STUDY Genevieve Jurd

In September/October of 2024, the University of Southern Queensland research team in collaboration with MALDIID's Dr Sofie De Meyer and Friends of Meelup member Dr Jenny Bryce hit the ground running with an exciting round of fieldwork, recording over 150 unique genera across 80 1 m2 quadrats at four sites. Our first study area looked at the 2022 wildfire zone (site 8) along Meelup Beach Road, paired with a nearby long unburnt site (site 1) for comparison. The second set of sites, located along Sheens Road above Eagle Bay Beach, included a prescribed burn area (site 13) and another long unburnt site (site 12). By studying these contrasting environments, we aim to understand how different types of fire affect the health, diversity and richness of Meelup's native vegetation and soil ecology.

From each quadrat, we collected soil samples that will be sent for sequencing to identify fungal and bacterial species. This microbial analysis will provide deeper insights into how fire influences soil health and the broader ecosystem. We have already received soil chemistry results from the lab, which will add another layer of understanding to our findings.

Photos: Dr Jenny Bryce and Dr Sofie De Meyer in action collecting soil.

We are in the early stages of analysing our vegetation data and preliminary results have revealed some contrasting plant genera across the different burn sites. Specifically, the *Opercularia* and *Stylidium* genera were most prevalent in site 8 (wildfire burn), whereas weed species such as *Euphorbia* spp. and *Lysimachia* spp. dominated site 13 (prescribed burn). The genera *Hibbertia* appeared throughout all the sites but were considerably higher in sites 1 and 8, as were the *Acacia* and *Chamaescilla* genera.

Hibbertia hypericoides

Acacia pulchella

This work would not have been possible without our incredible volunteers. A huge thank you to Helen Duff, Richard Clarke, Andrew Weinert, Kelly Paterson, and Shan Siah, whose plant identification skills and assistance made the surveying process ten times faster!

We are also deeply grateful to the local community for their ongoing support. Special thanks to Bob Jarvis, Friends of Meelup, Busselton Shire, and the Cape branch of the Wildflower Society of Western Australia for helping bring this project to life.

We look forward to sharing more updates and results as we delve into the data and uncover new insights into Meelup's unique ecosystems!