

Project Update: September 2017

The fieldwork started on the 1st August, 2017 and we mapped out the sampled plots at different elevations on the mountain. Two replicates of the 50 m² plots were established at 545 m asl (Karro), 725m asl (ecotone), 990m asl (mid-elevation sand stone fynbos) and >1550 m asl (high elevation sandstone dwarf fynbos). The replicates of the sites at each elevation were at least 100 m apart. Observation of plant-pollinator interactions was conducted twice on each elevation with a visit to each elevation fortnightly. Observations were conducted in a smaller plots of 2 m² within at each study sites and this was done for a period of 10 minutes at every observation. We established five replicates of 2 m² plot in each study sites with a total of 10 replicates per elevation. Observations was done on days with no rain, no cloud cover and low wind speed. Species richness of plants in each plots on the study sites was also conducted by counting the number of different species of plants. Also, flower abundance was estimated by counting the number of flower units of each plant species.

About 1-10 flowers were measured on each plant species and this will be used to estimate the area of floral display in each plot in relation to abundance of flowers.

Each study sites was located about 60 m from the edge where there is highest intensity of flowering plants in the elevation. However, due to the drought in the region, just a few flowering species could be observed for interactions especially at the lowest elevation (545 m asl) and the highest elevation (1550 m asl). The composition of pollinators was also assessed with the use of elevated yellow pan traps at each study sites. This was conducted after the observation of interactions and the assessment of area of floral display.

We found honey bees (*Apis mellifera*) and some dipterans interacting with the very few flowering plants at the lowest elevations. The interactions increase at 725 m asl with more of these bees species interacting with a few *Proteas*, *Leucadendron* and *Ericas*. Some Asteraceae were also observed on this elevation. 990 m asl is characterised by an extensive distribution of *Protea repense* with few patches of restios and ericas. *Apis mellifera*, unidentified wasp species, 3 species of monkey beetles and solitary bees were observed in the interaction at this elevation. However, the yellow pan traps caught a large population of the solitary bees which are still in the process of sorting and identification.

No interaction was observed in one of the sites at the peak elevation, however, few solitary bees were observed visiting *P repense* and *P laurifolia* in the second replicate of the study site at this elevation.

The fieldwork is still ongoing with more eight more visits to each elevation on the mountain this season.



Left: Distribution of *Protea repense* at altitude of 990 m asl. Right: Elevated Pan trap for collection of visiting insects.



Left: Dried restios at peak altitude. Right: Patches of *P. repense* and *P. laurifolia* at the peak altitude.



Left: Solitary bees collected in the elevated traps at 990asl. Right: *Apis mellifera* visiting *P. repense* at 745 m asl.

