

Saving *Marasmodes undulata*, one of the most threatened plants in the Cape Floristic Region

Progress report February 2020

Background and Project overview

Marasmodes undulata is a Critically Endangered species occurring in the Cape Floristic Region. This species is confined to one area in the town of Paarl, Western Cape, South Africa. Historical monitoring records showed a steep decline in population numbers over the last 30 years. This species, now known from a handful of plants was in urgent need of conservation interventions to ensure that the species does not go extinct. The 'Saving *Marasmodes undulata* project' aims to secure and bolster the current population, improve habitat condition and ensure effective management of the site.

Our overall objectives are: -

- Restoring and strengthening the population of *Marasmodes undulata* and associated threatened plants
- Improve the habitat condition of the site
- Support the municipality to effectively manage and conserve the site
- Create awareness about the conservation significance of the species and its associated habitat

Progress (August 2019 - February 2020)

Collect seeds and cuttings of *Marasmodes undulata* and associated threatened plants

- Our first attempt to propagate *Marasmodes undulata* has unfortunately failed. We used seeds that was stored in the Bloodbank and although viability testing was done we did not get any germination from these seeds. The motivation for using this seeds was that we were hoping that we could get germination from this collection and leave the full MSB collection intact. We suspect that the seeds might not have been of high quality because of the long term storage conditions. We have requested and received 200 seeds from the Millenium Seedbank in the UK and we are confident that these seeds will be in better condition and will give us a better chance of successfully propagating the plants
- We have continued visiting the site monthly to collect seeds and take cuttings of other species occurring at the site. These seeds will be using in the restoration process.
- We have compiled a lessons learnt document from our initial germination experiment and will be making slight tweaks to our process when the MSB seeds are germinated in April.

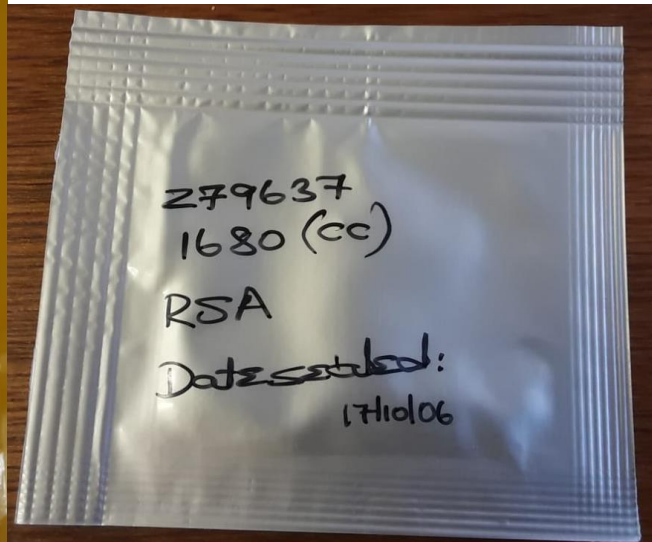


Fig 1: Document from MSB for seeds requested

Fig 2: Seed packet received from MSB

Collect seeds of dominant and ecologically important species for purpose of reseedling

- On our monthly visits we continue to collect as many seeds as possible. The seeds collected from the start of the project has been cleaned and sorted. We will germinate half the seeds in the nursery to grow stock plants for continued supply of material to the Orleans campsite. The other half of the seed will be sown directly on site in the restoration plots along with rooted plants which was taken from cuttings.

Actively restore disturbed areas of the site

- Our main aim over that last period was to get enough plant material for the restoration plots. We continue to hand pull herbaceous alien invasive plants and the woody invasive aliens has all been removed from the site. We are closely monitoring re-emergence of species and we have only noticed one area in the adjacent recreational area that has had seedling recruitment. The municipality has committed to clearing those areas
- Due to the reduced amount of plant material we will be doing five 10mx10m plots in the core area of reserve to ensure that we secure and improve the habitat of the *Marasmodes undulata*. We will continue passive restoration processes in the rest of the site. There has been good recruitment of plants since the fire in Dec18 but there are no signs of Maramodes recruitment on site. We will continue to search in March and April during the flowering time of the species to determine if there has been any natural recruitment.



Fig 3 : A selection of rooted cuttings ready for potting up



Fig 4: Municipal staff assisting with alien clearing and removal of material from the reserve.

Conduct habitat suitability analysis at sites within a 10 kilometer radius

- Due to the unique combination of vegetation types, soil and hydrological features on the site there are no other good condition sites in the immediate vicinity. However, we have supported the municipality to sample other natural areas that are under their management. We have visited sites to record species of conservation concern and provide the municipality with feedback on the species found and condition of the habitat.

Facilitate engagement with provincial and local government agencies, civil society and relevant NGO's to discuss site protection status

- The Stewardship declaration process is underway and it is a lengthy process because the documents need to be vetted by the provincial conservation authority (Cape Nature) and then taken through the Minister of Environment, Forest and Fisheries to be signed.

Revise management plan of site

- The management plan is being updated and the municipality and they will be incorporating all their satellite conservation into one consolidated management plan to effectively assign resources to the sites. In August 2019 we did a workshop at the site with the municipal staff

to increase awareness of the site and to discuss management interventions. We also did a basic course on using iNaturalist and field visit to do plant identification. We added two additional threatened plant species not previously recorded from the site. Our species list now has 127 species listed.

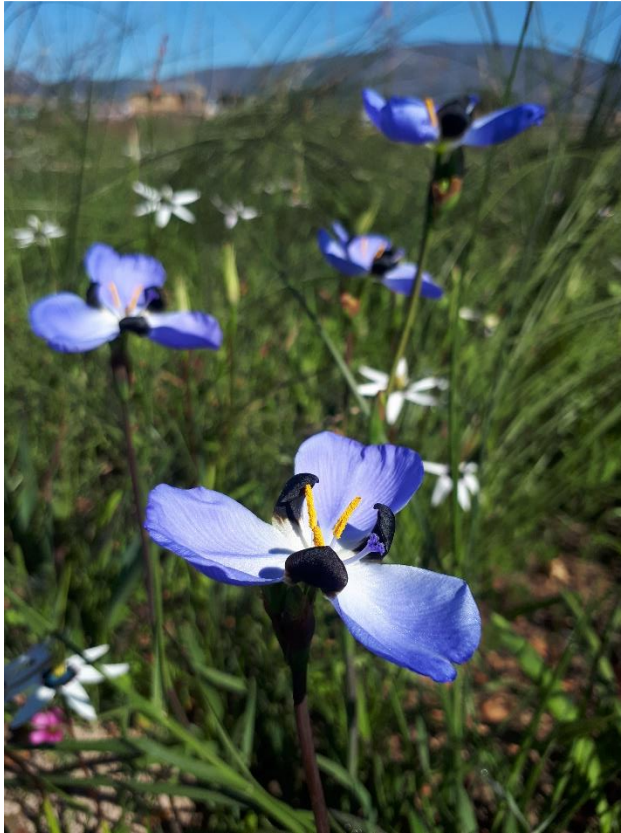


Fig 5: *Aristea lugens* (Endangered)



Fig 6: *Moraea versicolor* (Vulnerable)

Conduct open day and bioblitzes at the site

- Unfortunately, we had to postpone our open day set for September 2019. Due to a miscommunication with the municipality the venue was double booked for another event. We decided to conduct our open day on 18 April 2020 so it can coincide with planned activities like the first planting of plants and sowing seeds in the restoration plots. The bulk of the work will be done by the project team in the days leading up to the event but we will hold a few plants and seeds so members of the public can assist us with planting, alien removal and litter cleanup.

Initiate friends group to support management and activities at the site

- We continue to post observations from the site on the iNaturalist project we developed. We now have 151 observations from the site and 98 species photographed.
- We developed a pamphlet and A3 poster to create awareness about the site and to get people involved in the project. The pamphlet has information about the significance of *Marasmodes undulata*, the Orleans campsite and information on how people can get involved in the conservation interventions. The pamphlets were distributed in the immediate community and the posters has been displayed at local libraries, schools and

municipal offices. We hope that this will spark interest in the site and help us access members of the public to form a Friends group for the site.

- In February 2020 we invited learners from the New Orleans Secondary School to be part of an environmental education program at the site. We had 34 learners in attendance. The program of the day included fun biodiversity themed ice breakers, developing nature observation skills, mapping different habitat types and finally a litter clean-up at the site. The day was a great success and we plan to involve the school in more science based activities at the site.



Fig 7: A map of observations from iNaturalist for the Orleans Campsite



Fig 8: Learners from the New Orleans Secondary School participating in our environmental education day

We thank the Mohammed Bin Zaid Conservation Fund is supporting this project.