

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

Progress Report Sep 2021

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 (April 2021 – September 2021)

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

- Currently we have 7 original plants that germinated still surviving. The remaining plants are in very good condition and has established well. The 7 original plants are being used to bulk up the numbers of plants available as they are the most genetically diverse due to being grown from seed.
- Of the 87 original cuttings we made 63 are currently still in the collection. We have discovered that even though there was good rooting the plant growth has been extremely slow. As a circumstance of not having any previous experience in growing this genus this project has been an incredible learning curve. We transplanted the rooted cutting to deeper seed trays to ensure that a strong root system is developed before transplanting some of the plants to the stock beds to ensure we have mother stock material to continue bulking up the numbers of plants we have available. Due to the slow growth of the cuttings we have not done our second round of bulking up yet. We estimate that it will take at least another 12 months for us to get to the suitable number of plants before reintroduction can take place.



Fig 1: Rooting of cuttings



Fig 2: Replanting in deeper seed trays



Fig 3: Cuttings on the heated bench



Fig 4: One of the original plants



Fig 5: Cuttings planted in new deep trays



Fig 6: New seed trays

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

- In May 2021 we were able to access the site and organised a basic seed collection training with the municipality staff based at the site
- We collected additional seed in August 21 and currently in local storage for purpose of restoration at the site.

Actively restore disturbed areas of the site

- In June we did our first planting of species back on site. This activity coincided with the Society for Ecosystem Restoration (SER) 'Make a Difference' week. We organized planting days with the local community and staff from the municipality. In addition to the planting of species on the reserve we also engaged local alien invasive clearing teams to support alien clearing operations at the reserve.
- Three plots were marked in disturbed sections of the conservation area and they were cleared of alien invasives.
- In our first planting we planted a total of 150 plants which included *Monopsis variifolia* (EN), *Leucadendron stellare* (CR) and *Psoralea alata* (VU)
- The second planting was done in August, where we involved the local community especially youth living in the adjacent informal settlement.
- Unfortunately our plant markers were removed and it has been challenging to accurately measure the planting success. But we counted 112 plants in the plots from the first planning ,so we had a good survival rate.
- We planted 182 plants in the second planting which included 73 *Leucadendron stellare* (CR) plants.
- We have not planted any *Marasmodes* at the site yet as we need to bulk up the number of plants to at least 300 before attempting to re introduced plants to the site.
- The fire in 2019 stimulated the growth on herbaceous weeds like *Echium plantigerum* (Pattersons curse). We have manually removed the plants from the site which has taken considerable effort. There is a large seed bank so removal of these weeds is a continuous process. We have engaged the local community and staff at all visits to do hand pulling of Patersons curse
- Due to the Covid pandemic the informal settlement adjacent to the site has become more permanent. This settlement was started to temporally accommodate people that lost their informal homes in a fire. Since the start of the lockdown they were not able to relocate this community. As a consequence we have noticed more litter present on the site and we have arranged several litter clean-ups with the start and interested local community members.



Fig 7&8: Rooted cuttings of plants for restoration site ready for planting



Fig 9-14: Restoration planting days at Orleans Conservation area. We included community members and municipal staff in planting days



Fig 15-17: Management interventions at site include alien invasive clearing and litter cleanups

Conduct habitat suitability analysis at sites within a 10 kilometer radius

- We have conducted surveys on other municipal sites to support the conservation of other sites considered important for conservation within the municipality management area. The data collected is shared with the municipality to include in species lists and motivations to council for conservation of these sites.

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

- The official proclamation process has not been completed yet. The relevant assessment forms has been submitted to the provincial conservation agency (Cape Nature) and the estimated timeframe for completing the process is Mar 2023.

Revise management plan of site

- The municipality has not made any progress with formalizing the management plan as yet. We have made an application to the conservation authority to do a managed fire in a small section of the reserve where the vegetation requires a fire.



Fig 18-20: *Monsonia speciosa* (EN), *Metalasia schlechteri* (EN) and *Lotononis prostrata* (VU) recorded from other conservation areas in the municipal area

Conduct open day and bioblitzes at the site

- We engaged with the local community adjacent to the conservation area to support the activities of the project. The open day coincided with one of the planting days. Although the adults in the community is not very interested we did manage to inspire some of the youth to participate and hopefully we can maintain their participation in activities going forward.

Initiate friends group to support management and activities at the site

- Our iNaturalist project now has 208 observations. The facilities are still closed to the public so we have to arrange special permission to access the area. Once the lockdown levels are relaxed to level 1 the area will open again and we will have more participation by citizen scientists.

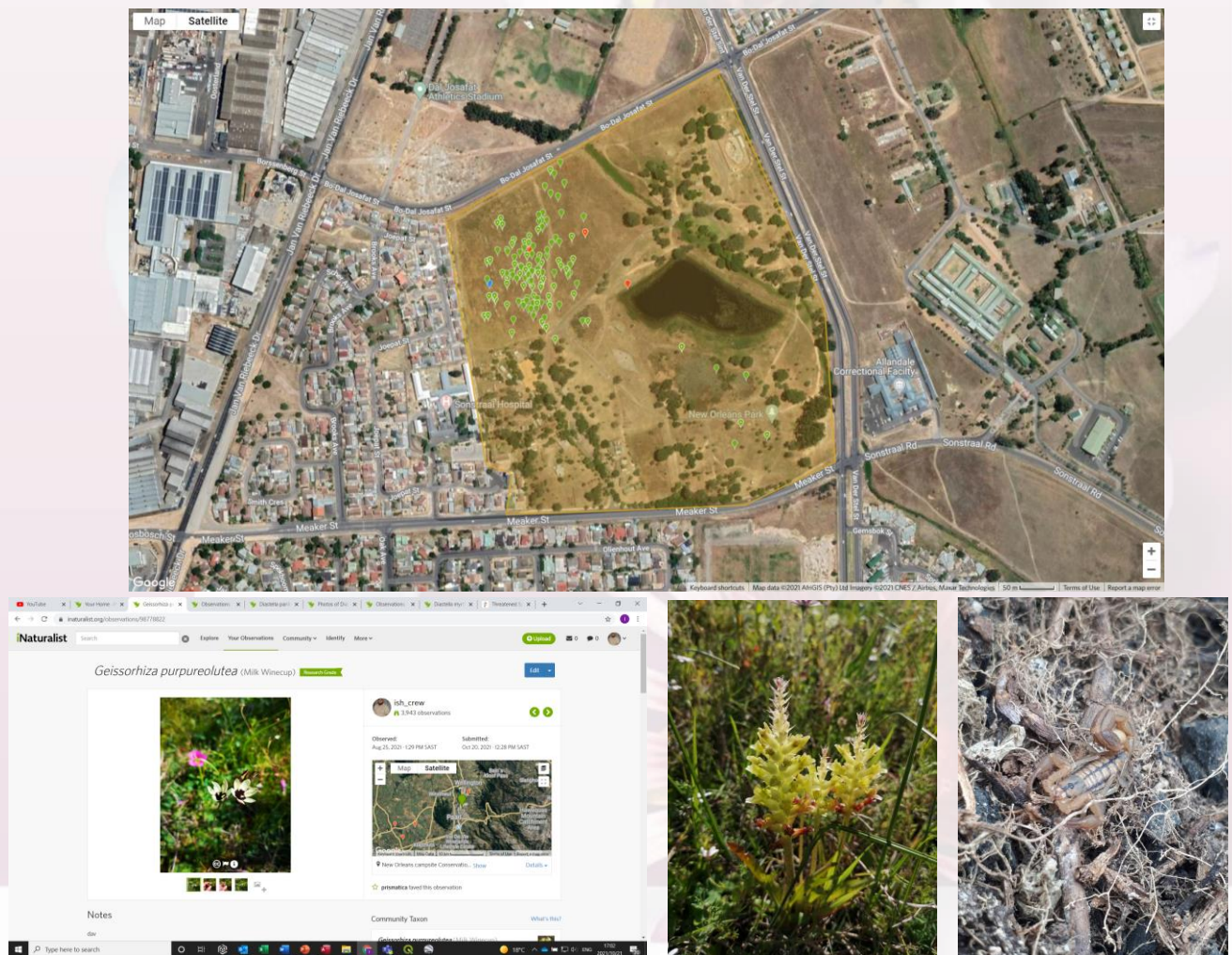


Fig 21-24: Screenshots of observations on iNaturalist including a map of all observations from the site.