

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

Final Progress Report April 2023 – October 2023



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للمحافظة على الكائنات الحية

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Biodiversity for Life

South African National Biodiversity Institute



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 2023 – October 2023)

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

- We have managed to build up our available stock of plants. Plants ready for transplantation to the field site was hardened off and separated from the mother stock material. We have maintained a few healthy strong individual plants from each clone to continue bulking up the numbers of plants available
- Most of the plants in the nursery flowered between April and May 2023 and plants were hand pollinated and bagged. We had a much better success rate than our pollination attempts in 2022 because plants are in the hardening off area and natural pollinators were able to access the area and we presume that has been the main reason for the increased seed set.
- Seeds collected from the plants at both Stellenbosch Botanical Gardens and Kirstenbosch Botanical Gardens were cleaned and submitted to the MSB to bolster the ex-situ seed collection. In 2024 we will sow a proportion of the seeds from the 2024 flowering season at the site.
- We have approximately 67 potted plants in the two botanical gardens and these will form the mother stock material
- Additional cutting was made in October 2023. 366 cuttings were made from the various clones. 257 cuttings rooted successfully, and half of these plants will be introduced to the site in 2024



Fig 1: Motherstock plants kept for the purpose of bulking up the population



Fig 2-5: Flowerheads pollinated and seed harvested for bolstering the MSB ex-situ seed collection of the species.

Progress (April 2023 – October 2023)

Replanting *Marasmodes undulata* at Orleans Conservation Area

- We have reached an important milestone in the project. We decided to split the collection and make plants available for replanting at the site.
- We conducted three planting days. In May 2023 we planted 10 plants and we wanted to check the response of the plants in the wild before planting more. We visited the site in early June to check on the progress and only two plants died so we were confident that we would get a good survival rate.
- In June 2023 we planted another 25 plants. These were mainly older plants grown from cuttings
- In July 2023 we did our final planting of 51 plants. These were mostly seedlings that were germinated at the Stellenbosch Botanical Gardens
- We did monthly visits to the site in August, September and October to check on the survival rate of the plants. Of the 86 plants we noted 24 plants had died.
- We will continue to monitor the success of the plants and in the 2024 planting season we aim to plant at least 150 more plants.
- We have noted that plants in the nursery shed some leaves during summer but then green and actively grow in the winter months. We are hopeful that the majority of the remaining 62 plants will survive the summer period.
- We also created a short video to highlight the project. <https://youtu.be/uWuwzYf-VyI>



Fig 6: Intern Hafeez Soudy planting a *Marasmodes undulata*



Fig 7-9: Project staff preparing site and planting *Marasmodes undulata*.

Progress (April 2023 – October 2023)

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

- We not conduct any additional seed collecting trip between April and October.

Actively restore disturbed areas of the site

- Despite the informal settlement being reduced in size we have noticed an ongoing problem with litter on the site. We have reached out to the community again to create awareness about the site and encourage them to use the allocated bins and not litter on the site.
- During the period we continue to do maintenance at the site by conducting litter cleanups on each visit and removing aliens as they appear. In June and July we did extensive clearing of *Acacia saligna* seedlings that has germinated during the good rain season. We used tree poppers, which is a tool that removes the seedlings including the roots to minimise regrowth of alien invasives.
- In addition to the areas where active restoration was done there are very promising signs of passive restoration. Previously disturbed areas are restoring well and the species composition is steadily increasing.



Fig 10: Previously disturbed area that is recovering well



Fig 11: Tree poppers used for removing alien invasive seedlings and young plants.

Conduct habitat suitability analysis at sites within a 10 kilometer radius

- Once a population of *Marasmodes undulata* has been established at the Orleans Conservation Area we will attempt introduce plants to the most similar site in the vicinity. Although plants has not been recorded from the site historically, we feel it is a viable area to establish a second population.
- In 2022 We received bulbs of some geophytes that was rescued from a development site. These were planted at Orleans and flowered in 2023.

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

- The site has not been officially proclaimed yet, but we are aware that the proclamation is a lengthy process and will continue to engage the managing authority to be informed of the progress. The site status for contract nature reserve has been accepted by the Provincial conservation management authority and will be declared as a protected area.

Revise management plan of site

- Plans are underway to get approval for a management burn on the site in April 2024. There are areas on the edge of the site that are overgrown and being infested with dodder and the only way to control this is through fire. We have provided the municipality with a motivation to burn parts of the site and will further engage when requested.



Fig 12: *Sparaxis grandiflora* subsp *fimbriata* that was rescued from a development site flowering happily at Orleans Conservation Area



Fig 13: Bad infestation of dodder on older veld and requires a fire to control.

Progress (April 2023 – October 2023)

Conduct open day and bioblitzes at the site

- We did a team Bioblitz in August and manage to add a significant number of new observations to the iNaturalist project.

Initiate friends group to support management and activities at the site

- Our iNaturalist project now has 609 observations with 175 species recorded. We have seen an increase in other wildlife sightings like reptiles and insects. This is a very good indication that the habitat condition is improving on the site.

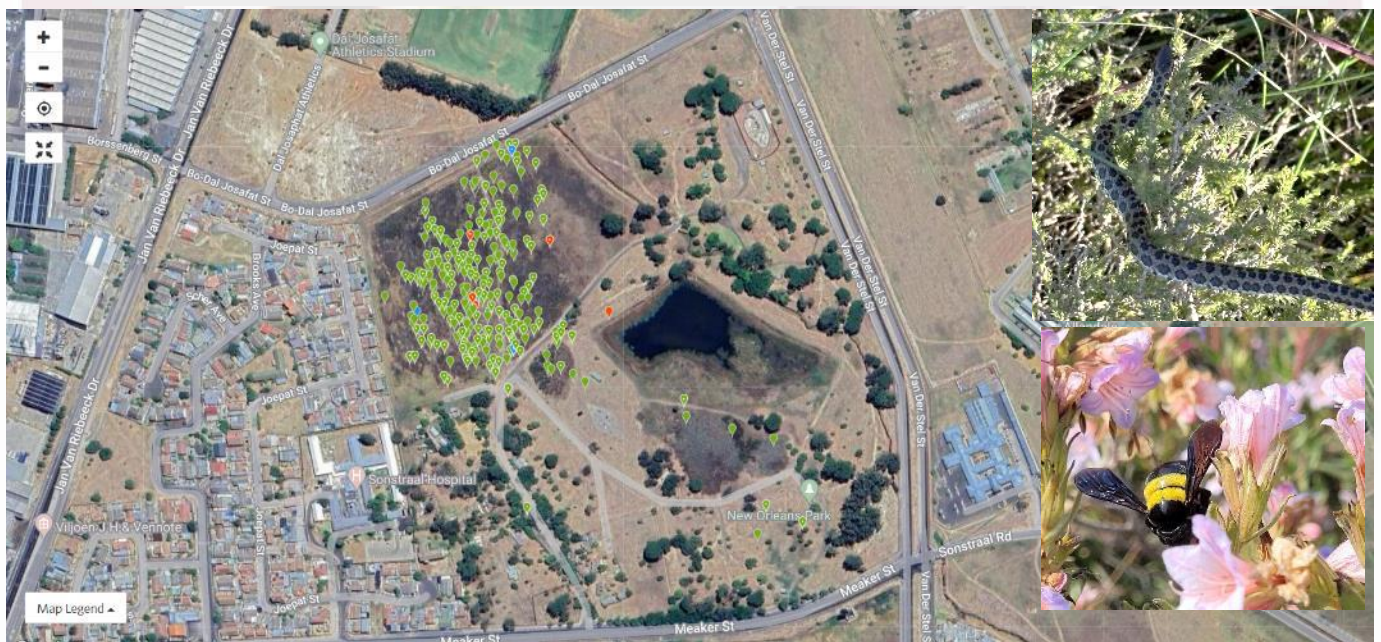
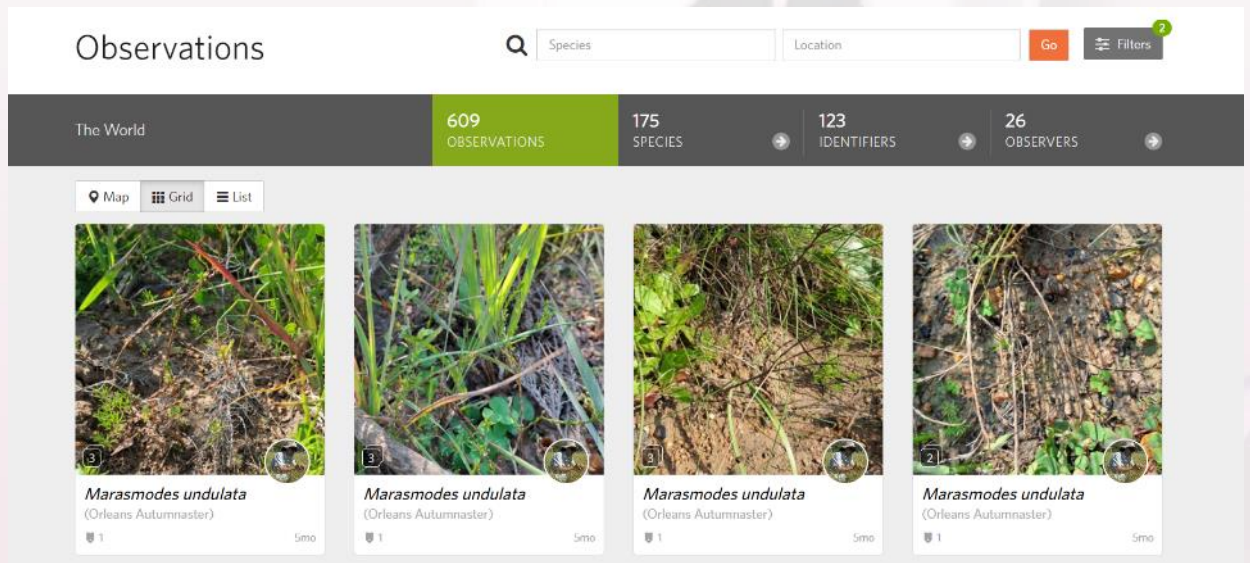


Fig 14&15 Screenshot of iNaturalist project observation stats and map.