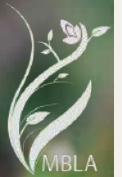




صندوق محمد بن زايد
للمحافظة على
الكائنات الحية

The Mohamed bin Zayed
SPECIES CONSERVATION FUND



Protecting *Salvia taraxacifolia* in the Atlas region.

Follow the one year long journey of MBLA's biodiversity enthusiasts to help protect the endemic species of *Salvia taraxacifolia* in the Atlas Mountains.



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Cosme and Abdellah Aghraz.

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Preface

To raise awareness of biodiversity issues in Morocco, the Moroccan Biodiversity and Livelihoods Association (MBLA) embarked on a one-year journey to protect the endemic species of *Salvia taraxacifolia*.

Climate change, ecological disturbance and modification of the Anti and High Atlas landscapes are causing a sharp decline in the population size of this species, leading The International Union for Conservation of Nature (IUCN)'s to classify it as vulnerable on the Red List of Threatened Species.

➡ **IUCN Red List:** one of the most well-known objective assessment systems for classifying the status of plants, animals, and other organisms threatened with extinction.



Vulnerable (VU), a designation applied to species that possess a very high risk of extinction as a result of rapid population declines of 30 to more than 50 percent over the previous 10 years (or three generations), and a current population size of fewer than 10 000 individuals.

This brochure highlights the efforts we conducted in 2021 to collect and disseminate updated and accurate data on *Salvia taraxacifolia* status; including current areas of occupancy, climatic and soil conditions that are conducive to its growth, and the ways local communities use and trade this species.

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GET TO KNOW SALVIA TARAXACIFOLIA

**SAUGE À FEUILLE
DE PISSENLIT**
in French

السالمية
SALMIA
in Arabic

TIFZWINE
in Tamazight

WILD SAGE
in English

A strict endemic species to Morocco, found in two major floristic divisions of Morocco; the High-Atlas and Anti-Atlas mountains. It covers an estimated area of occupancy of 500 km² and a 7500 km² estimated area of occurrence.

Salvia taraxacifolia is a perennial species that flowers in May and June, prefers open and sunny habitats, it grows in scree and rocky cracks, glades, and river banks on limestone and siliceous substrates between 600 and 2400m altitude. This species is under numerous medium to high impact threats, especially overgrazing, erosion and drought.

MBLA's conservation program :

Our journey to protect the endemic/endangered plant *Salvia taraxacifolia* began in January 2021 thanks to the support of Mohamed Bin Zayed Species Conservation Fund.

JANUARY - AUGUST 2021

Field data collection



MAY - NOVEMBER 2021

Documentation of data



MAY - AUGUST 2021

Germination test protocol
& seedlings production



DECEMBER 2021

Planting 4000 seedlings



Field Data collection :



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MBLA's director collecting *Salvia taraxacifolia* location coordinates.

Our team travelled through the Atlas Mountains to pinpoint undiscovered locations of *Salvia taraxacifolia*'s occupancy, collect plant samples and assess its habitat and climate conditions.

We also conducted interviews with local communities while in the field, during which we learned about *Salvia taraxacifolia* vernacular names and uses. These interactions also served as an important tool for raising awareness about the plant and its vulnerable status, particularly because these communities are closest to it and can contribute to its protection.



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MBLA's team carrying out interviews with local community members.

Findings:

In addition to TIFZWINE, we succeeded in identifying two new vernacular names used by the Atlas communities to describe *Salvia taraxacifolia* ; **TIFZIT** and **IFZI**.

New discovered locations :



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Our thorough field search in the High and Anti Atlas region has led us to some of Morocco's most rugged and remote mountains. Through these field trips, we discovered far more new *Salvia taraxacifolia* locations than we had anticipated, including the following sites:

In Commune of Setti-fatma and Ourika :

- A gadir N'Ait Boulman.
- Tazitounte village.
- Zawit village.
- Oukitain.
- Lkhmis N'Oudrar.
- Asgin N'Oufla commune of Ourika.

In Taghdwin commune :

- Tadart near the Tizi n'Tichka crossing.



● New discovered locations by MBLA's team in 2021.

Documentation of data

Following our fieldwork, collected plant samples of *Salvia taraxacifolia* were dried and pressed using wooden boards with two 'rucksack-style' straps, and drying papers that got changed on a daily basis.

This step is followed by mounting, labeling and storing. The carefully dried plant and its label are glued to a sheet supported by corrugated cardboard, the labels provide information retrieved from the field; which includes the name of herbarium, territory of collection, scientific name of the plant, locality, latitude and longitude, altitude, habitat, plant community, additional notes such as flower color and scent, collector's name and date collected.



Plant samples of *Salvia taraxacifolia* are now stored in MARK Regional Herbarium of the Faculty of Sciences, Cadi Ayyad University in Marrakech in addition to over 15 000 other specimens.

These plant specimens, deposited for future reference as **herbarium vouchers**, play a key role in floristic diversity knowledge, research, valorization and conservation.



MBLA's community researcher entering collected data into Cadi Ayyad University herbarium database.



HERBIER REGIONAL 'MARK'
UNIVERSITE CADI AYYAD FACULTE DES
SCIENCES SEMLALIA -MARRAKECH
Code : MARK - 13314

Famille : *Labiatae*

Genre : *Salvia*

Espèce : *S. taraxacifolia* Coss. & Bal

Lieu de récolte: Bassin Ourika, Tazitounte, près d'Aghbalou

Habitat Ecologie : Pente de versant rocheux

Altitude (m)	Latitude (N)	Longitude (W)
1249	31°39'54.8"	07°00'77.6"

Date : 05/04/2021

Récolteur(s) : R. Ait Babahmed, A. Aghraz, M. Mayamhi, Pommelin Da Silva Cosme

Germination tests:

What do we know about *Salvia taraxacifolia* ?

Family : Lamiaceae

Gender : *Salvia*

Species : *S.taraxacifolia*

Hardiness : Resistant to - 11 °C

Size (Height x Width): 30cm x 20cm

Soil pH > 6,5



Salvia taraxacifolia's environment preferences :

Our research into the habitats of *Salvia taraxacifolia* revealed that this species prefers sandy, draining soils. This species can tolerate windy weather if it gets a lot of sun, but it can't handle high humidity.



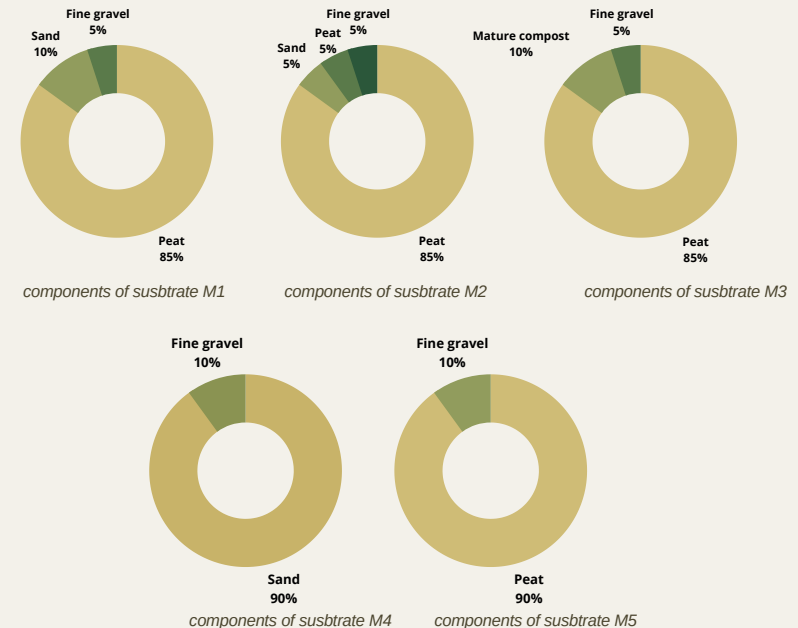
Why are germination tests a must-do ?

Using a small number of seeds, these tests allow determining the germination capacity of the seed. They consist of several experiments that are carried out to evaluate soil and seed quality, fertilizers performance and other factors contributing to the development of a plant.



Components of the five substrates :

With this much data at hand, we set our germination test protocol in motion by preparing our seeds and five different substrates :

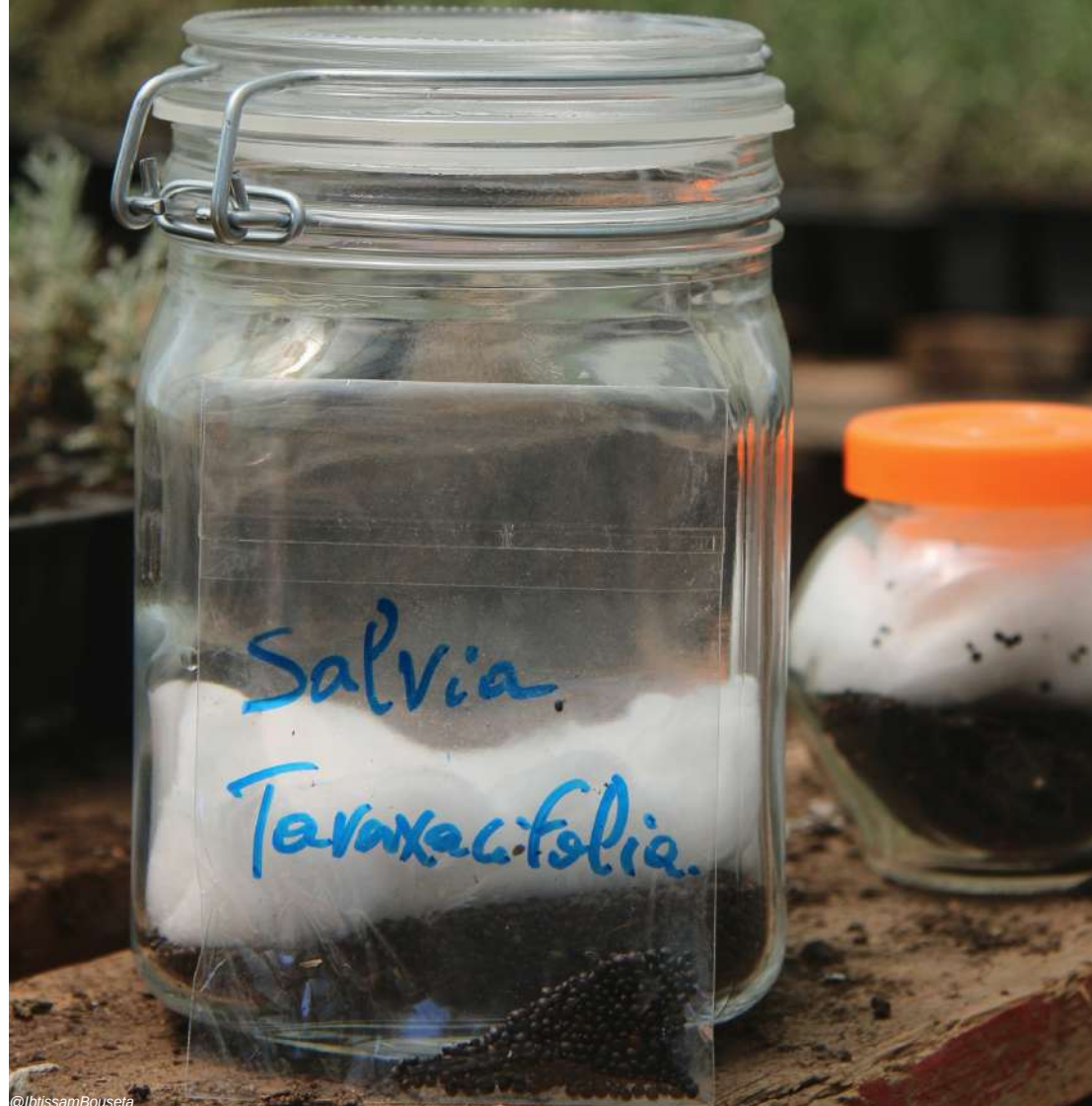


MBLA's field agronomist and community researchers conducting the germination test in Imegdal's plant nursery.

Seed planting preparation

Carefully selected seeds are left for two hours in water containing a few drops of vinegar, to disinfect the seeds and reduce the risk of phytotoxicity. They are later rinsed several times using tap water to remove traces of vinegar. Plant trays containing our five substrates were placed in a greenhouse at MBLA's plant nursery in Imegdâl, where they were watered and maintained at the same rate throughout the duration of our experiment.

The growing *Salvia taraxacifolia* seedlings were being monitored just days after their planting to calculate the following key parameters: **germination percentage throughout the test, number of leaves, and the elongation of the stems** at the end of our test.



@lbtissamBouseta

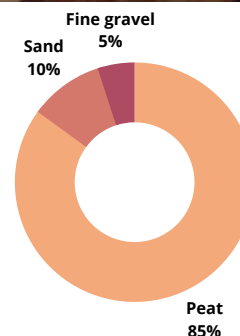
Knowing the ideal soil conditions for *Salvia taraxacifolia* is essential for its protection and conservation. Our findings will help us identify suitable lands in the Atlas mountains for *Salvia taraxacifolia* to thrive.

Findings :

The substrate referred to as M1, containing 85% of potting soil, 10% of sandy soil, and 5% fine gravel, showed the best results and provided the perfect blend for germination and growth of our plant. Luckily, these components are easily accessible to Atlas communities.



Photo of substrate M1 spread in a planting tray.



components of substrate M1.

Planting 4000 seedlings in the Atlas Mountains



@AbdellahAghraz

MBLA's team and community members planting *Salvia taraxacifolia* seedlings in Imegdal mountains.

The final and most important step of our mission was to introduce seedlings of *Salvia taraxacifolia* to the wild. In our community plant nursery in Imegdal, we produced around 4000 seedlings over the course of six months. On the 10th of December, we launched our one-week planting operation in Imegdal commune, with the help of local community members and our community researchers. Our choice of this commune as a destination for the 4000 seedlings of *Salvia taraxacifolia* is explained by the ideal climate and soil conditions, increasing the chances of these seedlings to thrive, as well as the active engagement and interest shown by the local communities in previous conservation initiatives led by MBLA in the region.



@AbdellahAghraz

Farmers and Shepherds from Annamar, Ighram and Ouarti villages were invited to join this event as their implication is essential to the conservation of this species. They are now fully aware of this species vulnerable status and pledge to keep their herds away from the designated planting areas.

We are grateful for the strong ties we fostered over many years of work with these local communities. The trust we share with them brings hope to the future of Atlas biodiversity, as conservation efforts can never be successful and sustainable without their active contributions.



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