





Bee diversity

Study of the neglected wild bee species on the island

Soqotra honey

An under-investigated natural remedy

20 years of Tayf

The 20th Anniversary of the Friends of Soqotra Newsletter



EDITORIAL

Dear Reader,

with this issue, we celebrate the 20th anniversary of our charity's modest newsletter, the only long-standing publication in the world dedicated to news about the natural and cultural heritage of the Soqotra Archipelago (Yemen). Like before, the 2023 issue is also packed with interesting updates about ongoing research in Soqotra, general information, as well as some core activities of FoS. The cover shows the beautiful Socotran Violet, *Exacum affine*, about which a background story is also included. For the youngest readers among us, there are some images generated from photos taken in Soqotra in 2023, for colouring.

We share news about the Sogotra conference and our annual general meeting which took place in September 2022 at the beautiful Orto Botanico di Roma, the green oasis at the heart of Rome. The 21st annual conference was organised by long-standing FoS member Prof. Fabio Attorre and the excellent team of the Botanical Garden of Rome and La Sapienza University. The event was packed with interesting presentations and activities (including a photography exhibition), attended by people online and in person, including several Sogotri scientists as well as a representative of the Embassy. The wide interest in natural sciences of Sogotra remains and several inspiring projects are active now for several years. FoS is determined to keep generating these events, promoting a constructive interaction between scientists and the Sogotri, in function of sustainable development and conservation.

Several articles in this issue are examples of cooperation between local communities and scientists, in function of nature conservation and sustainable development. Sometimes, these include new avenues in environmental sciences and development in Soqotra, such as research into local pollinator (bee) diversity and understanding the uniqueness of the local honey through chemical analysis by Belgian researchers. Another example is the amazing hydroponics garden pilot project of La Sapienza, together with a local Soqotri woman, Mona, who is an expert gardener. In addition, this issue reports on updates on the knowledge of the endemic myrrh trees and their current and future distribution, and a recent wetlands conservation and awareness project engaging people from different districts in the island. As in previous years, there is a separate article highlighting the main scientific publications that have recently appeared about Soqotra, including the new species that were described.

On the cultural side, we present an article about the background and history of the Sogotra Folklore Museum in Rigeleh, which is truly worth a visit. FoS has been somehow engaged since the start with this amazing museum and other local initiatives in Sogotra, but it is surely one of the most exemplary, as the entirely self-sufficient museum is still running today. FoS also contributed this year in the cultural field by donating books to the Hadramauth College Library in Hadiboh, which were well received. For all of these efforts, I want to thank our amazing team of volunteers (committee members and general members) in FoS and their trust in the charity, as well as the people in Sogotra and beyond who continue to support our activities. And of course, the Tayf editorial team who made this year's issue happen again.

We hope you enjoy this issue of our charity's newsletter about the islands of Soqotra, where we aim to connect people across all cultures and disciplines who share a passion about nature, culture, science and people. Enjoy reading!

Your FoS Chairperson,

Dr Kay Van Damme

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EDITORIAL

CONFERENCES

THE **MEETING IN ROME** (THE 21ST SOCOTRA CONFERENCE AND AGM OF FOS AT THE BOTANICAL GARDEN OF ROME, ITALY)

By Kay Van Damme

Under a blue Italian sky, late summer 2022, the 21st conference and AGM of FoS took place at the inspiring Orto Botanico di Roma, an amazing botanical garden with a heart for Socotra, in the middle of Rome. This was the second time that a FoS conference was organised here (the last one was in 2014). There was a great turn-out with attendees joining in person and online. The conference was enriched by a beautiful photography exhibition.

THE 2022 CONFERENCE

he 21st Socotra Conference and Annual General Meeting of FoS took place at the Botanical Garden of Rome (Italy) from Friday the 16th to Sunday the 18th of September, 2022. It had been eight years since the last FoS meeting in Rome. The 2022 meeting was organised by scientists of La Sapienza University who do active research and have a true conservation interest in Socotra, Prof. Fabio Attorre, Dario La Montagna. Michele De Sanctis, Luca Malatesta and Tullia Riccardi. The meeting was streamed, allowing, as in previous vears, a combination of attendance in person as well as virtually. Two Socotri PhD students joined in person, Mr Salem Hamdiah and Abduljameel Abdullah Ali Mohammed, as well as a formal representative of the Embassy

of Yemen to Italy. In total, 30 people attended in person (8 nationalities) throughout the meeting, and an additional 25 people joined online. Among the attendants were also Dr Alfredo Guillet, Marco Liviadotti and Dr Abdulrahman Fahdl Al-Eryani, who are supportive of FoS for two decades.

he theme for the 21st conference of FoS was "Restoration ecology applied to fragile ecosystems in the Socotra Archipelago". This is a truly important aspect of nature conservation in Socotra, of which the ecosystems are under continuous pressure. On Friday (16th of September), the meeting opened informally, outside in the Botanical Garden. The following day (17th of September) started from the morning with an opening speech by the Director of the Botanical Garden, Prof. Fabio Attorre who presented the long history of collaborations and activities between Italy and Yemen since the early days of Socotra conservation projects about twenty years ago. The representative of the Embassy of Yemen in Italy, on behalf of the Ambassador, talked about the importance of these meetings for Socotra culture, nature and conservation studies, and the collaboration between different nationalities. And so the meeting was officially opened.

SCIENTIFIC PRESENTATIONS AND EXHIBITION

n the beautiful bright-lit greenhouse, the Botanical Garden's Sala Aranciera (Orangery Room), 14 scientific talks were presented, including two presentations by



21st FoS AGM and Socotra Conference at the Orto Botanico di Roma, in 2022 (photo by Kay Van Damme). In total, 30 people joined the meeting (not all are in the photo) and another 25 attendees joined the meeting online.

Socotri scientists. The Chairman of FoS (Dr Kay Van Damme) showed an overview of projects of FoS since 2000 and future steps, followed by an account by him and the FoS Secretary, researcher Dr Francesca Pella, on key FoS environmental awareness campaigns during a field visit to Socotra in March-April 2022 (see previous issue of Tayf for this story). everal presentations focused on the biology and conservation of the unique frankincense and myrrh trees, as a direct result of the activities of the Boswellia project (Phase 1) in Socotra, supported by the Swiss Franklinia Foundation. The project aims to protect the endemic endangered trees of the islands, now entering Phase 2 in 2023. It is led by a consortium of Mendel University, La Sapienza and Ghent University, in collaboration with EPA, the Socotra Archipelago Governor's Office and a wide range of local communities and NGOs on the islands.

n Boswellia, Prof. Petr Maděra presented the fascinating diversity of hybrids on the island and other new discoveries during the Franklinia project. PhD students from MENDELU and Ljubljana University, presented various aspects of these amazing frankincense trees, such as the

chemical analysis of the resin of different endemic species by Jana Tulková, the morphology of the seeds by Lukáš Karas, and the germination of *Boswellia* seeds of all species, by Salem Hamdiah. There were three presentations about Socotran Dragon's Blood Trees, one about the recent drone inventory of the forest at



The previous FoS AGM at the Botanical Garden in Rome was held in 2014 (photo by Dirk Van Dorpe)



Presentations of the 21st FoS AGM and conference took place in the Sala Aranciera, the Orangery Room of the Botanical Garden (Photo Kay Van Damme)



Hydroponics installation presented during the weekend of the AGM at Rome Botanical Garden in September 2022



Dario La Montagna (left) and Fabio Attorre (right) preparing the meeting

Roqeb di Firmihin by Petr Vahalík, one about the growth and age estimations of these trees, by Lucie Bauerová, and one about horizontal precipitation capture, by Petr Madera.

Several of these studies resulted in publications, which are now available online. Dario La Montagna, who is conducting his PhD about the Socotran myrrh trees at La Sapienza University, presented his work on distribution and ecology of the endemic Commiphora on the island. This work also has led to a publication presented in another article in this Tayf issue, about potential impacts of climate change on the future distribution of these culturally relevant species.

'he other talks included the diversity of internal parasites of Socotran goats by Lucie Maděrová, who presented online, and an overview of communitybased ecotourism on Socotra by Abduljameel Abdullah Ali Mohammed. In addition, there were two presentations about wetlands, one by Dr Francesca Pella about birds in Socotran wetlands, and one on the general need for wetland conservation in Socotra by Dr Kay Van Damme. The presentations were followed by an open discussion on the topics of the day.

Uring the meeting, printed photographs were on display by the Danish photographer Søren Solkær, who was in Socotra recently. His beautiful dreamlike landscape images of the island will be published in a photography book in the coming years. Søren is famous for his photos of flocks of starlings in Europe, which are amazing. n the Sunday (18th of September), the FoS AGM was held at a smaller room in the botanical garden and attended by the FoS Committee (the majority online) and several FoS members. The Committee and Honorary members were voted, and Dario La Montagna joined the team. The meeting minutes and financial report are, as every year, available at www.friendsofsoqotra.org.

HYDROPONICS

he same weekend of the conference, there was a fair at the Botanical Garden in Rome, with a diversity of stands of handicrafts, pomegranates and various plants. During these days there was a lot of time in the breaks to visit the beautiful garden and the greenhouses. One of the remarkable highlights was an outside hydroponics installation, rich in vegetables. This system was also tested by the researchers at La Sapienza and the garden on Socotra, with success. Hydroponics could be an important way forward in Socotra for the sustainable growth of vegetables in areas limited in water.

ACKNOWLEDGEMENTS

oS is grateful to the entire team who organised the Rome meeting of 2022, in particular to Dario La Montagna, Dr Tullia Riccardi, Dr Luca Malatesta, Dr Michele De Sanctis and of course the director of the garden with a golden heart for Socotra, Prof. Fabio Attorre. Many thanks also to the team of Mendel University for various support in the meeting, and all who attended and/ or presented their work from Yemen, Socotra and other places in the world. The meeting was a great success!



Hydroponics with vegetables, installed in Socotra (Mona Garden) by the staff of La Sapienza/ Rome Botanical Garden in 2022 (Franklinia Project)



Attendees of the 21st FoS meeting



Photos by Søren Solkær were on display at the AGM



SOQOTRA'S UNIQUE AND BEAUTIFUL BEEDIVERSITY

By Leon Marshall, Pierre Noiset & Nicolas Vereecken, Belgium Agroecology Lab, Université Libre de Bruxelles, Belgium



An overview of the bee diversity sampled during the ULB expedition 2023 (with the Franklinia team) on the island of Soqotra. All photos were made by the ULB team in Socotra

n April and May 2023, we (researchers from the Belgium Agroecology Lab at the Universite libre de Bruxelles) teamed up with the Soqotra Boswellia project for an adventure on the island of Soqotra. Our aim? To study the, currently neglected, wild bee species on the island.

rmed with nets, traps, and cameras, we set out to improve our understanding of the bee diversity, distribution, and interactions on the island. Building upon the checklist of Soqotran bees published by Straka *et* al. (2017) we revisited well-studied hotspots and ventured into hitherto unsampled areas, capturing over 200 bee specimens, many photos, and never before observed interactions.

These bees have a special relationship with Soqotra's unique flowering plants, like the iconic dragon's blood trees and endangered frankincense species. We observed bees seeking nectar and pollen from a range of flowering plants, creating nests within trees, and even collecting frankincense resin.



Xylocopa pubescens captured mid flight.



Megachile paucipunctulata nesting inside Boswelia socotrana socotrana.

Leon Marshall from the ULB photographing bee visitors on Boswelia ameero.

s we continue our identifications and analysis we can see how much there is still to study. However, we managed to sample more than 60% of the known bee species, discovering ones new to the island and those not seen for over a century, as well as collecting some of the first male or female specimens of species only previously known from one of the sexes. We now have preliminary results suggesting that the dragon's blood and frankincense trees play host to a wide array of visitors, showcasing the reciprocative nature of the relationship between the islands' unique flora and fauna.

his trip offered us just a glimpse into the distinctive variety of bee species and their interactions. Future trips are already planned to collect more data. We aim to build a network level understanding of bees and flowers to reveal in detail the connection between bees and trees, across Soqotra's vibrant ecosystems.



ACKNOWLEDGEMENT

We would like to thank the Franklinia (Boswellia project) team on the ground, who realised our field surveys in Soqotra, and the support by EPA. Many thanks to Ahmed Adeeb for excellent guiding, and Mohamed Amer for logistic support.

Pierre Noiset from the ULB collecting wild bee species visiting dragon blood tree flowers.



HYDROPONIC GARDENS ON SOCOTRA

By Alessandro Donati, Gianmarco Grippo, Marco Stefanelli, Fabio Attorre, Botanical Garden of Rome, Sapienza University of Rome, Italy; contact: Alessandro.donati@uniromal.it

The island of Socotra is an extremely rich biodiversity hotspot, with a high proportion of endemic species evolved to withstand its arid environment. This has led to a huge ethnobotanical knowledge of the local plants, which remains very important and strongly connected to the local land- and sea management traditions. These traditions originally ensure the sustainable use of the main common resources: freshwater, fish, rangeland, wood, and non-timber plant products. Unfortunately, in recent times this ancient equilibrium is losing its effectiveness, for example for the vegetation: in the last decades, trees, shrubs, and herbs are losing vitality, with little or no signs of natural regeneration. The decline is mainly due to a sharp increase in the population of goats, as herding is an important local source of livelihood. The massive presence of goats left grazing freely, together with the effects of climate change, which is increasing extreme events on the island (e.g., cyclones, droughts), is leading to a decline in the vegetation cover.

HOME GARDENS

'he scarce availability of water on the island has led to the important family-based agricultural activity which we know as home gardens. These home gardens are mainly managed by local women who grow vegetables and fruits by relying on basic techniques. This is done by ensuring the persistence of water in the hardened soil, such as digging small holes at the base of the plants, to increase the accumulation of nocturnal dew. The main crops cultivated in these small patches are tomatoes, beans, onions, corn, cucumber, okra, finger millet, and others. Often, small home gardens will be combined with date palms, depending on the vicinity of water. These gardens are crucial in providing basic diversity of food for the Socotri living in remote areas, as import products are increasingly expensive.

owever, although widespread on Socotra, home gardens are limited in providing the wide dietary needs for most of the human population: the scarce availability of water, pressure by goat grazing and the effects of climate change, are often hindering production. Also, the techniques and tools used are often rudimentary, and a lot of water is needed, which is the most precious resource on the island. In addition, home gardens need additional investments (fence, materials, water pipe, etc), which is a huge challenge in the current economic situation in Yemen. As a result, in most villages, home gardens production is often just enough to provide food (for some period) for local families, but it does not provide much extra income (by producing enough vegetables to sell at the local market).

THE HYDROPONIC GARDEN PILOT PROJECT AT MONA GARDEN

o deal with these issues we decided to create a small pilot hydroponic garden project in 2022 on Socotra to apply this innovative method to increase the production of local vegetables, and therefore helping to diversify the diet (and income) of the Socotri people.

ydroponic systems included different soilless methods of cultivating vegetables which significantly reduce the consumption of water and fertilizer (Fig. 1).



Figure 1. Different types of hydroportic systems. (a) Deep Water Culture. (b) Drip System. (c) Anternative (D) Network Elin Technicase (NET). (c) Distance (D) Accurrenties.

Figure 1 - Hydroponic systems (From Velazquez-Gonzalez et al. 2022, Agriculture)

ydroponic gardens are a useful solution on Socotra: water consumption is normally about 80-90% less than traditional agriculture for the same yield, and the electricity required to maintain the flow of water and nutrients in the system is just 13W/h, which can be provided by a solar panel. Additionally, this system can function in conditions of high climatic stress (e.g. extreme temperatures) where traditional home gardens tend to underperform. Even more, traditional hydroponic approaches require specific synthetic fertilizers to sustain their production, while this innovative system has no specific requirements for fertilizer. Without the need for synthetic products, the farmers can use any naturally available organic fertilizer (livestock or food wastes for instance), increasing the sustainability of the Hydroponic Gardens and reducing the cost for the community.

his approach would help to extend the home gardens activity, while at the same time being sustainable with regards to the natural environment of the island (in particular water).

he pilot project was set up by a team of the Botanical Garden of Rome, with continuous local support by the leading local team of the Franklinia Foundation Project for Endangered Trees. With the help of the Socotri Franklinia Project Team (Mohamed Amer. Salem Hamdiah) and the coordinators of the Franklinia project, scientists of Mendel University (Dr Petr Madera) and Ghent University (Dr Kay Van Damme), we were able to connect with a local community near Hadiboh (Manufo Area) at a place called "Mona's Garden" and have full local logistic support and positive local interaction. Mona is a Socotri expert in gardening who has been running a local Boswellia nursery for the Franklinia project, and who has a large and very well-tended garden with a diversity of fruits and vegetables, and local access to electricity and a water well (Fig. 2).

fter bringing the hydroponics materials (pump, nutrient analyzer, some tubes, etc) from Rome, we set up a locally adapted prototype installation at Mona's garden, with great support and help from Mona herself, the local community and the local Franklinia team members. Several materials were bought on the local market to construct the set-up. There were some challenges to create the closed water system, to ensure the right angles of installation and to find the right balance for the nutrients additions. We decided to give the installation vibrant colors, to be also visually attractive to local children and the local community. Once this was set up, small vegetable seeds (such as salad, etc.) were planted right into the system. In the first stage of setting up the system in 2022, we used an external electricity source, but at the next visit in 2023, we connected the system to locally acquired solar panels.

The hydroponics installation at Mona's garden on Socotra resulted in a high yield after only a few weeks. The results were appreciated by the local family (Mona Garden) and the local authorities. The Minister of Agriculture of Yemen and other officials inaugurated the first harvest of vegetables produced using the test prototype, supporting the development of further implementations (Fig. 3).

f course, there were also several challenges, which is why the pilot project was truly crucial, because the lessons learned are extremely valuable, as many challenges are unique to the local environment. For



Figure 2 - Pilot Hydroponic Installation set up by the team at Mona Garden near Manufo, 2022

long-term maintenance, local problem-solving and also acquiring a new culture of using this system for specific crops besides the normal home garden (not to replace it), there are still some steps to be taken. However, these challenges can be solved, for example by providing local training, using materials and increasing the number of hydroponics installations on the island. The system is not expensive and quite costeffective, but the set up will require problem-solving and knowledge to adapt to each situation/garden/ home.

NEXT STEPS: POTENTIAL FUTURE SOCOTRA HYDROPONIC GARDENS PROJECTS

pplying the hydroponics methodology could actively help to reduce malnutrition in the Island, offering a richer and more nutritious diet to the Socotri people and helping to reach the Sustainable Development Goals (SDGs) (in particular SDG2 "Zero Hunger" and SDG3 "Good Health and Well Being"). In addition, it may help to reduce the use of water in gardens because the hydroponics watersystem is a closed loop. Furthermore, since home gardens in Socotra are usually managed by women, the Hydroponic Garden project could offer a great opportunity to contribute to SDG5 ("Gender Equality"). sing the lessons learned from our Pilot Project (2022-2023) at Mona's Garden, we have an extensive concept note available to scale up this activity in the future by (1) installing hydroponic gardens in at least 50 villages, in combination with (2) local tree nurseries and reforestation areas. The first activity would provide a substantial increase in diet quality for the target villages through the creation of 50 Hydroponic Garden systems with a high agricultural yield: 120 plants in 2 square meters with a continuous cycle of production, producing circa 50 times higher yield than under normal conditions for the same surface area. These new installations require minimum water and electricity to operate. provided locally by water pipes, water wells and solar panels, and are based on technologies easily available on the island or at least easy to import (e.g. solar pumps, pipes, solar panels, etc.). We would combine these Hydroponics Garden systems with the second goal, improving protection of endangered

trees, for example by establishing a nursery in each village where a hydroponic system is installed. Each nursery, managed by the local population, and including only local seeds (from the direct vicinity of the village) could then produce several



Figure. 3 - The first yield of vegetables of the pilot hydroponic system at Mona's garden was celebrated by the Minister of Agriculture Yemen and local authorities.

hundred saplings to be planted around the village (but kept safe from goats by individual fences, as in the partnering Franklinia Project).

We welcome any support and partners for such a potential project, which would be carried out under the scientific supervision of a team of experts from Sapienza University Botanical Garden, which has developed the Hydroponic Garden methodology for Socotra and conducted the first Pilot Project discussed here. The Sapienza team can also provide the training of the local technical staff and sensibilization activities with the local population.

ACKNOWLEDGEMENTS

We wish to thank the local communities and local authorities in Socotra for their continuous support to La Sapienza and Botanical Garden of Rome staff, during all stages of testing the hydroponic garden installation. We wish to thank in particular the Franklinia Project team and our partnering institutions (Mendel and Ghent Universities) for facilitating the entire pilot project on the ground, in particular Mohamed Amer and Salem Hamdiah; we send all our love to Mona for her amazing great enthusiasm in gardening and support. Finally, we thank FoS for helping to circulate awareness and increasing connections to help realize such projects.

Further Reading

Velazquez-Gonzales et al., 2022. A Review on Hydroponics and the Technologies Associated for Medium- and Small-Scale Operations. MDPI Agriculture 12(5), 646. https://doi.org/10.3390/agriculture12050646



EXACUM AFFINE PERSIAN VIOLET: THE PLANT FROM THE COVER PAGE

By Lukáš Karas

Persian violet (*Exacum affine*) is a small herb, growing up to about 30 cm. It is native and endemic to Socotra, where it thrives around water sources, rock crevices, and hollows. This plant can be found from the coastline up to 1000 meters above sea level, usually on limestone. Another species of the genus *Exacum*, *Exacum caeruleum*, is also endemic to Socotra but grows only at higher elevations in the Haghier mountains on granite substrates.



Exacum affine - typical picture from sellers web pages (picture from internet).

Ithough *Exacum affine* is naturally limited to Socotra, it is cultivated worldwide as an **ornamental plant**. In warmer regions, it can be grown outdoors, while in temperate areas like central Europe, it is popular as an annual garden plant or houseplant. It is frequently sold in flower stores and garden centers under names such as Arabian, Socotran, or **Persian Violet**.

n Socotra, *Exacum affine* is a biennial plant, meaning it grows only two years and after that it dies. It has beautiful, mildly fragrant violet-blue flowers, though occasionally, white flowers can be found. his species belongs to the Gentianaceae family, known for many medicinal plants used in traditional medicine and pharmacology to treat fevers, stomach problems, and snake bites. Unfortunately, *Exacum affine* does not possess medicinal properties, but during droughts, it may be grazed by goats.



Exacum affine under dragon trees - picture by KVD, Socotra, 2023.

Further Reading Thulin, M. *Exacum* (Gentianaceae) on the Arabian peninsula and Socotra. NORDIC JOURNAL OF BOTANY 2001, 21 (3), pp. 243-247. https://doi.org/10.1111/j.1756-1051.2001.tb00762.x



THE FASCINATING SOCOTRAN MYRRH TREES

By Dario La Montagna (La Sapienza University, Rome), dario.lamontagna@uniromal.it

The archipelago of Socotra hosts the highest rate of endemism in the Burseraceae family, comprising species of the genera *Boswellia* and *Commiphora*. Although there have been several studies on the taxonomy, distribution, conservation and biology of the former comparably little is known about the latter species. As researchers involved in the study of climate change impacts on the conservation of endangered tree species, we recently focused on the unique myrrh trees (*Commiphora* species) endemic to Socotra. These trees are critical for both the island's ecosystem and the culture of Socotri people due to the ethnobotanical uses of the plants. In fact, they produce myrrh, a resin with medicinal and aromatic properties, making them economically important for the sustenance of local communities.

INVESTIGATING CLIMATE CHANGE IMPACTS

ur team (supported partly by the Franklinia Foundation within the project on Boswellia and other Socotran endangered trees) recently conducted a study to investigate how climate change might impact these species. We focused on four species, all endemic: Commiphora ornifolia (sogotri name: 'ikshih), Commiphora parvifolia, Commiphora planifrons, and Commiphora socotrana (all of these share the same sogotriname: legehem). The locations where these species are found have been mapped, also thanks to local people. In this way it was possible to have an idea of the geographical distribution and to compare it with meteorological data of the Island, in order to understand the climatic condition in which these species thrive.

PROJECTING FUTURE DISTRIBUTION

Sing ecological niche modelling, a technique used to gather the optimal conditions in which a species could survive, we projected future distribution patterns for these species based on current climate data and future climate scenarios. Using models, we tried to predict how the distribution will look in the future, over a hundred years from now. The results are both enlightening and concerning. While *Commiphora ornifolia* might maintain or even expand its current distribution, the other three species face more significant challenges. *Commiphora parvifolia* might



Fieldwork in the Socotran mountains



Commiphora parvifolia (Balf.f.) Engl.



Commiphora planifrons (Balf.f.) Engl.



find new suitable habitats. but Commiphora planifrons and Commiphora socotrana could see their habitable areas drastically reduced, potentially forcing them to higher elevations. The primary drivers behind these shifts are changes in precipitation and temperature patterns. Commiphora species have specific ecological requirements, such as particular

Commiphora socotrana (Balf.f.) Engl.

soil types and adequate winter precipitation. As climate change disrupts these conditions, the areas where these trees can survive and thrive are likely to shrink.

IMPACT ON NATURE AND LIVELIHOODS

he potential loss of these species would have profound implications. Ecologically, they play a critical role in maintaining soil stability, supporting other plant and animal life these trees, in fact, share a canopy shape similar to that of the dragon blood tree, which creates a favourable environment underneath for other organisms - and contribute to the nutrient cycle. Economically, the resin harvested from these trees is a valuable resource for local communities, used in traditional medicine and the production of perfumes and incense. Moreover they are important fodder trees during the dry season. Local shepherds cut branches from the trees to provide food for goats and sheep. Therefore, the decline of these trees would not only disrupt the ecosystem but also affect the cultural and economic practices of Socotra's inhabitants.

MOVING FORWARD: ACTIONS AND SOLUTIONS

ddressing these risks requires both global and local action. On a global scale, efforts to reduce greenhouse gas emissions are crucial to mitigating climate change and its impacts. Locally, conservation efforts on Socotra should focus on protecting existing habitats, promoting sustainable land use practices, and possibly creating new protected areas where these trees can thrive. Involving local communities in these conservation strategies is essential, as their knowledge and dependence on these trees make them key partners in preservation efforts. Our study highlights the urgent need for action to protect Socotra's unique *Commiphora* species from the threats posed by climate change. Preserving these trees is vital for maintaining the island's biodiversity and sustaining the cultural and economic well-being of Socotra's people. By working together on both global and local levels, we can help ensure that these remarkable trees continue to thrive for generations to come.

ACKNOWLEDGEMENTS

would like to thank the Franklinia Foundation for their support and funding in protecting endangered endemic trees on the island of Socotra. I am also profoundly grateful to the local communities of Socotra for their help and cooperation during the fieldwork. Their knowledge, hospitality, and active participation were essential in carrying out our research and conservation activities. Thank you all for your indispensable contributions.



Commiphora socotrana (Balf.f.) Engl.



Commiphora ornifolia (Balf.f.) J.B.Gillett.

Further Reading

La Montagna et al. (2023) Climate change effects on the potential distribution of the endemic *Commiphora* species (Burseraceae) on the island of Socotra. Frontiers in Forests and Global Change 6: 1183858. https://doi. com/10.3389/ffgc.2023.1183858

THE 20TH ANNIVERSARY OF THE FRIENDS OF SOQOTRA **NEWSLETTER**

By Kay Van Damme

Tayf is the only newsletter in the world that focuses specifically on sharing annual updates about the unique natural and cultural heritage in the Socotra Archipelago. Prepared in English and Arabic, the newsletter has a wide readership in Socotra and beyond, freely accessible to passionate readers who wish to learn more about various aspects of the island, activities of FoS and other projects, general conservation issues, and stories. In this world where digital media dominates most of the daily information, it could be refreshing to take the time to read some carefully prepared, short articles about Socotra.

HISTORY OF THE NEWSLETTER

In March 2003, the first issue of the FoS Newsletter appeared. Compiled by Dr Sue Christie and several FoS volunteers at the time, the first newsletter was then called "Dioscorida" after the old Greek name for the island. The issue consisted of eight pages with notes on poetry, natural history, research and general news from Socotra. Translated into English and Arabic, the first issue captured the spirit of the newsletter, to be a vehicle of information emphasizing the unique cultural and natural heritage of the island. The same year, Socotra became a UNESCO Man and Biosphere Reserve (for more info, see the online UNESCO-book in Arabic and English, "Nature and People in the Socotra Archipelago"). Two issues appeared of Dioscorida in 2003 (March and July), and in February 2004 a two-page newsletter called "Dioscorida Notes - an occasional publication for Members of Friends of Soqotra" was prepared, which would be an additional smaller publication in support of Tayf, for a brief transitional period. The first newsletters (until February 2004) appeared with the

old logo, picturing the endemic cucumber tree on top of Socotra. Later, the looks of the logo and the newsletter itself, would change.

THE BIRTH OF TAYF

Reborn with a new name ("Tayf" is the Soqotri word for "Aloe"), the first Tayf Newsletter appeared in May 2004 as a joint publication of FoS and SCF (the Socotra Conservation Fund which no longer exists today). An elegant and sparkling new FoSlogo appeared on the first page of the newsletter. The beautifully designed logo combined a few major aspects of Socotra: the sea, the land with the important vegetation symbolized by the Dragon's Blood Tree, and the mountains. Later, this design would change a little again and it would also include the Egyptian Vulture as a representative of the fauna, to become the current logo (after the AGM in 2012).

The first issue of Tayf counted exactly 20 pages filled with exciting news, such as announcement of key conservation projects at the time. It included a foreword of the highly respected late Dr Abdulkareem Al-Eryani, whose legacy to this day remains as a tangible undying passion for Socotra and general culture and nature in Yemen. The first issue also announced the publication of some monumental books by leading FoSmembers at the time, such as the "Ethnoflora of the Sogotra Archipelago" by A.G. Miller & M. Morris (2004), the "Fauna of the Socotra Archipelago - A Field Guide" by W. Wranik (2003) and the "Birds and Plants Book of Socotra", with beautiful plant illustrations by Diccon Alexander who also designed the 2004 FoS logo and later versions. The issue included a section on the birth of the Socotra Women's Development Society (now the Socotra Women Association), a vital initiative by the UN-led projects at the time.

Also some worrying developments were shown, such as the impacts of the road construction on the important archaeological site Eriosh on the north coast and the arrival of some exotic bird species (Indian House Crows) on Socotra. On the final page of the first Tayf, a new FoS-SCF map was included which shows some major toponyms of places in Sogotra transcribed in English, prepared by M. Morris, R. Dutton, and others. The newsletter was printed in English and in Arabic on light paper, sent to FoS-members by post (by H. Morris), and prints were also sent to Socotra whenever possible. For the duration of the Socotra Conservation Fund (part of a UN-led conservation project that ended long ago), the newsletter was a joint (FoS-SCF) publication,

or as a printed copy. Socotri are encouraged to publish their stories and accomplishments, and others from outside the island have highlighted the remarkable work and studies by Socotri champions in culture and nature conservation. The same year (in 2004) also the first FoS website was announced, which was maintained by John Farrar.

NEW JACKET

Whereas the (prequel) newsletter Dioscorida appeared twice a year, it was not feasible for FoS volunteers to continue this pace (to fill two volumes at short notice). So, the appearance of Tayf was originally supported by what became the brief Dioscorida Notes, and the latter then quietly disappeared. From 2006 onwards, Tayf remained as the only annual FoS newsletter. The layout remained largely similar until a thorough make-over for two issues (in 2018 and 2019) by Dr A. Forrest who briefly took over the role of editor together with the current editors Hana Habrova (after Dr Sue Christie, who had taken on this voluntary task for 14 years). In addition, thanks to the efforts of former FoScommittee member Dr Sabina Knees and other volunteers. Tavf has an ISBN and ISSN number.

TAYF TODAY

In 2019, the look of the FoS newsletter changed again under the lead of the current editors. The



The FoS logo evolved over the years (older version on the left, version since 2012 on the right). It was designed by Diccon Alexander and includes important elements of Socotra: the wavy sea, the land with its coasts and plateaus, the special flora symbolised by the Socotran Dragon's Blood Tree, the Haggeher Mountains in the back, and the fauna symbolised by the Egyptian Vulture which is ubiquitous on the island.

later a FoS-publication. However, it is important to understand that the newsletter very much had its roots in the joint vision and collaboration between nature conservation projects on Socotra as well as the local authorities, at the time.

The goal, which we think is being realised with each Tayf, has always been for the information in it, to be freely available to anyone who wishes to read our charity's humble newsletter, either online new (current) layout was designed by a Czech professional graphic designer (Iveta Lekesova, on a voluntary basis) together with the current editors, and the visuals are aimed to make the articles more attractive to readers. The translation, which was originally quite costly, is done voluntarily since the 2020 issue by Haifaa Abdulhalim, FoS' current Vice-Chairperson and editor of the Arabic version of Tayf.

Currently, Tayf is available in digital form online (at the FoS website; back issues are available). Printing of the issues since 2020 has been financially supported by Mendel University and colour copies are brought to Socotra twice a year by several members of FoS who hand them out to local communities, libraries, schools, ecotourism guides, local authorities and NGOs. The Socotri people absolutely cherish these publications. In addition, at each AGM, prints are distributed among attendants. In Socotra, internet is currently still very weak and only some areas have signal, therefore the FoS website is not really accessible to most people there. To remediate this, a light (compressed) digital version of Tayf is therefore distributed annually through Whatsapp groups in the island, which is the main way of rapid communication now, in particular in Socotran cities. In more remote areas, hard copies are delivered regularly. In 2021, extra copies of the old issues of Tayf (Arabic and English) that had remained at the Royal Botanic Gardens of Edinburgh, were kindly handed over to the current FoS Secretary, and these were brought to Socotra in 2022, with support of the first phase of the Franklinia-funded Boswellia conservation project (see article in Tayf 19).

While the newsletter has continued to evolve visually and content-wise, including a wide range of topics (now also a special section for children), the core idea behind this key FoS activity has remained the same for at least two decades: to reflect FoS' values, the passion and care for the island shared by so many, and to increase awareness about Socotra's unique heritage. While Tayf contents are hopefully informative to visitors, it is definitely not meant as a touristic brochure. For visitors, it is something for those who wish to know something more about Socotra, those who actually are interested in its unique culture and nature, and who wish to be responsible and conscious about the potential



The first newsletter appeared twenty years ago in March 2003, under the name Dioscorida and with the first FoS logo showing a cucumber tree (left). In May 2004 the first actual Tayf appeared as a joint FoS-SCF publication, with an older version of the current logo of the charity (right).

impacts visits can have on local environment and people in highly vulnerable insular areas. We hope that our newsletter continues to touch people's interest and spark some responsible care and understanding for the vulnerability of these remarkable islands and their people. And we particularly hope that the people in Socotra enjoy reading it.

NOSTALGIA

Looking back at the first newsletter of 20 years ago and all issues since, the core values of the charity have been consistent in the newsletter: communicating about important (scientific and other) news and publications relating to Socotra, illustrating the networking between various initiatives and those of FoS on the ground, and raising awareness about potential challenges to biodiversity and culture. It is also a document to find literature about various aspect and some information of what kind of projects have been done in the past, which hopefully can help some sustainable future developments. In retrospect, the past FoS issues also create a sense of nostalgia: some photos that seem to be taken only yesterday, show us how fast Socotra is changing. The first newsletter still talks about the first time the airport was modernized (in 2003); an older runway with a small building had been present before that.

MANY THANKS

The newsletter and its message about how fascinating and equally fragile Socotra is, would not have been possible without the voluntary efforts of so many people who contributed over the years. With the present article, we wish to express our gratitude. To everyone who ever contributed, and those who wish to contribute in the future, as well as the editors, writers, translators, reviewers, and to you in particular, the reader, we say: thank you.

CONTRIBUTIONS WELCOME

Current and previous issues of Tayf can be downloaded in pdf from the FoS website. Hard copies can be made available to members upon request, and sets of issues are available for reading in Socotra at the public libraries of Hadramaut College and the English School (of Mahmoun) in Hadiboh. If you are from Socotra and you wish to have copies for yourself, your community or your organisation, let us know, we will do our best to bring some. If you have any suggestions for articles, a story to tell, or feedback to give, feel free to contact the editorial team.

KIDS

CHILDREN'S SECTION

Can you guess where these images were taken in Socotra? What do you see? Fill in the colours in any way you like!













SOGOTRA HONEY: AN UNDER-INVESTIGATED NATURAL REMEDY

By Pierre Noiset, Leon Marshall & Nicolas J. Vereecken, Agroecology Lab at the Universite libre de Bruxelles

he recent works of Agroecology Lab at the Universite libre de Bruxelles on bee-plants interactions on the island of Soqotra in collaboration with the Soqotra Boswellia project was also an opportunity to explore the properties of one of the products of this interaction: honey.

Soqotra honey is one of the rarest and most praised honey in the world but to this date, there is virtually no data and research on Soqotra honeys. To contribute to filling these gaps, our objective was to characterize the chemical composition of this singular natural product.

Through meetings with beekeepers and honey sellers across the island, we have collected 20 samples of honey harvested from the coastal mangroves to the highlands. On the island, traditional honey production involves wild nest harvesting, illustrating the strong connection between the Socotran people and their environment. Therefore, local people could provide us valuable insights on the different types of honey associated with Soqotra's unique flora and their various medicinal uses against stomach disorder, cough, sugar issues, burned skin,...

ur preliminary results show that Soqotra honey is unique because its chemical profile is completely different from that of honeys produced in Africa and Asia partly due to the high levels of health-promoting compounds. The therapeutic potential of these honeys remains to be explored to better understand the relationships between these plant-derived products and their non-food uses by local populations. The exceptional diversity of ecosystems and endemic flowering plants on Soqotra make honey a dynamic food, with beneficial properties beyond our comprehension yet. Our team will keep working at the interface of social and natural science to characterize drivers of honey chemistry and establish standards for Soqotra honey while documenting and preserving traditional knowledge and practises to improve honey quality and value and ultimately, enhance income earned from the islands' endangered trees.



Honey comb from a wild nest full of honey.



Wild swarm of honeybees



DONATION OF BOOKS TO **HADRAMAUTH COLLEGE LIBRARY** IN HADIBOH

By Tayf Team

uring the AGM at the Botanical Garden of Rome on the 18th of September, 2022, FoS committee member Dr Miranda Morris proposed to donate the three large volumes of the book "The Oral Art of Soqotra: A Collection of Island Voices". This book, published in 2021 contains indigenous poetry, songs, stories and lullabies, compiled by Dr Morris and Tānuf Sālim Di-Kišin from Socotra. Until that moment, not a single copy of this useful work for the Socotri was present on the island, so this knowledge was not accessible. So, the suggestion was made that Miranda would donate these works and send them (5 kilograms) to the FoS Chairman, Dr Kay Van Damme, to take them to the island during the next field visit and to give them a good home on the island where people can read them for many years.

his small activity is completely within the philosophy of FoS: one of the main goals of the charity is to help to make scientific studies accessible to the local communities and students of Socotri, so that they are not separated from important knowledge which is entirely about the Socotri culture. After all, knowledge and progress go hand in hand.

nce the heavy books (knowledge is not light!) were brought to Socotra, we discussed with local people where the best place would be to give them a home. The condition was that this would be public place, not a private home, because it should be accessible to everyone. However, the books should also be safe, so a good public library would be the best option. Therefore, we decided on the library of Hadramauth College in Hadiboh. n November 15th, 2023, the three volumes of "The Oral Art of Soqotra: A Collection of Island Voices", donated by Dr Morris, were handed over by the FoS Chairman to the Dean of Hadramauth College, Mr Saad Amer Ahmed. During the meeting with the Dean, facilitated by Mohamed Amer, he fondly spoke of Miranda and remembered her huge translation work when she was on the island a long time ago.



Ismael Salem (left), FoS Chairman (middle) and Nathalie Peutz (right) with the books (Hadiboh, Nov. 2023).



Library at Hadramauth College with old Tayf issues on the table (Nov. 2023)



Dean and Vice-Dean of Hadramauth College in Hadiboh (Nov. 2023)



Hadramauth College (/University) in Hadiboh (Nov. 2023)

FURTHER READING

Miranda Morris & Tānuf Sālim Di-Kišin (2021). The Oral Art of Soqotra: A Collection of Island Voices. Handbook of Oriental Studies. Section 1, The Near and Middle East, Volume 151: 2434 pages, Brill Publishers, Leiden, The Netherlands

The dean went with us to the library, where there were several students present, who were reading Arabic versions of old Tayf issues. It is great to see how the FoS newsletter is still being read in Socotra, even years later. We are certain that the books (and old issues of Tayf) found a good and safe home in this college, and we are very grateful for the offer of the Dean to have them in the library.

uring the same visit, we also met with another member of FoS, Dr Nathalie Peutz, who is a professor at New York University in Abu Dhabi and author of "Islands of Heritage: Conservation and Transformation in Yemen", who was visiting Ismael Mohammed of the Cultural Heritage Association. She had also brought one copy (three volumes) of the same book, which she donated to Ismael.

o, at this moment, since November 2023, there are two copies of this work on the island (each copy consists of 3 separate volumes, shown in the photos), one at the public library in Hadramauth College, and one with Ismael. For those living in Socotra who are interested in Socotri language, traditional poetry, songs and stories, they can now read these works for the first time, and for many years to come.



SCIENTIFIC PAPERS ABOUT SOCOTRA IN 2022

By Kay Van Damme

n each Tayf we present a brief overview of the main scientific papers about Socotra. These are articles that have been published during the previous year (in this case, 2022). In total, 9 scientific articles in reputable peer-reviewed journals have appeared on the Web of Science platform in 2022 about Socotra. These include the description of two new species of terrestrial invertebrates and one new species of deep-sea fish. In addition, one article on the biology of frankincense trees has been published with a **Socotri scientist** as first author, the result of very hard work. More articles have appeared in journals that are not on Web of Science, with the description of several new species of insects, and a bird checklist which includes the lead Socotri ornithologist as a co-author. Despite its rich culture, there were unfortunately no publications about history or archaeology in Socotra in 2022, most publications are in the natural sciences. Below is a selection of the science of 2022, organised in topical sections.

FRANKINCENSE TREES

A new study was realised by the Frankliniafunded Boswellia project team in 2022 assessing the seed viability of the endemic Boswellia or **Frankincense tree** species of Socotra (Hamdiah et al., 2022; Plants). The first author of the work is the **Socotri scientist** Salem Hamdiah from Qalansiyah who realised this work as part of his PhD-study in Slovenia. The research was realised in a collaboration with local communities in Socotra, local authorities and scientists from Mendel University (Czech Republic), Ghent University (Belgium), La Sapienza (Italy), and Ljubljana University (Slovenia).

The study assessed how seeds of Boswellia germinate on Socotra by doing local experiments on Socotra. Seeds of each species were placed in petri dishes, in several replicates, and the percentage of individuals that germinated within the first days, was counted. Using this method, the study showed that most Boswellia species have a **high germination potential**. Therefore, there seems to be no direst biological reason (at least not from seed viability) for a population decline. It also means that there is a high potential for the successful regrowth of these trees through conservation efforts, at least if seeds and seedlings are protected against external threats, such as grazing by goats. The first author of the study, Salem, spent many hours in Socotra counting the germinating seeds and preparing the paper, and we congratulate him with this excellent and important work. Salem also presented this study at the previous FoS AGM, in 2021.

DRAGON'S BLOOD TREES

he Socotran Dragon's Blood Tree (Dracaena cinnabari) is well-studied. Every year researchers improve our scientific knowledge about these important trees. wo papers appeared in 2022 about part of the genome of Dracaena cinnabari. One study was carried out by Polish and Czech scientists (Celinski et al., 2022; Forests), another by a team including researchers from Oman, USA, Norway and Yemen (Ahmad et al., 2022; Scientific Reports). Both studies were aimed at characterizing the chloroplast genome and the scientists decoded the circular DNA-molecule present in the chloroplasts of plant cells, situated outside of the cell nucleus. The genes in the chloroplast are important because they code for many proteins that participate in **photosynthesis**, so they are often studied by scientists to understand plant biology. The chloroplast genome of D. cinnabari contains 132 genes of which about 65% are protein-coding. A comparison with other Dragon's Blood Trees

shows a close relationship to *Dracaena draco* of the Canary islands. In addition, scientists from KSA (Mothana et al., 2022) have isolated and identified several chemical compounds from the red resin of the Socotran Dragon's Blood Tree, which seem to have an antiviral effect (against hepatitis B). n addition, one paper appeared on future conservation planning of *Dracaena cinnabari*, where Rezende et al. (2022; Forests) use ecological data and density of villages and roads in Socotra to check where the **best places** are to protect and grow dragon's blood trees in the future. However, the difficult thing here is to look more than 100 years in the future, because it takes about this long for a dragon's blood tree to mature.

TERRESTRIAL ANIMALS

wo species of **pseudoscorpions** of the family Neobisiidae were described as new from Socotran caves by scientists from Iran, Egypt and KSA (Nassirkhani et al., 2022; Journal of Arachnology). Pseudoscorpions are very small arachnids, which look like miniature scorpions without a tail. These animals are only a few millimetres in length and they are harmless because they do not have a tail. The two new species, *Neobisium wettereri* and *N. karmanae* are likely endemic to Socotra, but the group is not well studied in Africa and Arabia. The caves of Socotra harbour quite some species, such as these small hidden pseudoscorpions.

n interesting paper appeared by Kment & Carapezza (2022; Acta Entomologica Musei Nationalis Pragae) on the Heteroptera or true bugs of Socotra, the first of a series. The authors discuss the aquatic and semi-aquatic bugs and discuss at least 19 species in 9 families. These aquatic bugs are very common in **wadis and pools**, and they are important predators of mosquito larvae and the emerging adult mosquitoes. The authors include the description of a new species as well (*Hebrus kanyukovae*). Also two other new species of terrestrial insects of the same group (Heteroptera) were described (Moulet, 2022).

MARINE FISH

Scientists from Russia and the United States (Prokofiev & Iwamoto, 2022; Zootaxa) have described a new species of grenadier fish (family Macrouridae) from the western Indian Ocean. These grenadier fish (also called "rat-tail fish") are typically found in **deep-sea environments** all over the world. These fish are found for example in the wreck of the famous ship *Titanic*. Some species of this peculiar fish family are able to produce sounds, and some even can produce light which can be useful in the dark deep sea. The new species was found in the deepest waters off the coasts of Socotra and Somalia and it is named Coelorinchus tricristiger. distinguished because it has three ridges on the head. In addition, a study by Zajonz et al. (2022; PLOS One) discusses the biogeography of the Socotran fish fauna. Based on previous work, the authors suggest that the Socotra Archipelago has the highest fish species diversity among all Arabian marine ecoregions. They suggest that because of its diversity and special species composition, the archipelago merits its own marine ecoregion, with its own character (which has also been suggested based on studies of the reef-building corals, years ago).

SOCOTRAN BIRDS

new annotated **checklist** of the birds of Socotra was compiled by Porter & Suleiman (2022; Sandgrouse). Most of the fieldwork of the article was carried out by Ahmed Saeed Suleiman, member of EPA and Socotra's most active ornithologist. In comparison to the checklist of 1993 which counted 110 species, in 2022 this number had doubled to 229 bird species, indicating there have been much more observations. Of these, 40 species breed in the Archipelago (regularly) and another six breed there probably or occasionally. The paper mentions 12 endemic species of birds on Socotra. However the endemic status of Jouanin's Petrel (which has a wide range in the Indian Ocean) is still debated by ornithologists who call this sometimes a near-endemic; until now this bird is only found to breed on Socotra, but who knows, it could also be breeding somewhere else on cliffs in islands of the Indian Ocean. If you have more bird observations for Socotra, or you are interested in watching birds on the island, feel free to contact FoS to connect with Ahmed Saeed Suleiman.

SUSTAINABLE ENERGY

W v ind energy potential of Socotra (offshore) was assessed by researchers of KSA, Egypt and Yemen (Almekhlafi et al., 2022; Computers, Materials & Continua). However, we hope that future engineers looking to expand sustainable energy systems on Socotra, take into account that the coral reefs around Socotra are precious and highly important for marine biodiversity.

UNESCO

he small illustrated **UNESCO-book** "Nature and People in the Socotra Archipelago" appeared in 2022, which we discussed in the previous Tayf (Van Damme, 2022). The book is about Socotra's importance as UNESCO World Heritage Site and a Man and Biosphere reserve, the threats and challenges, and it is available in **English and Arabic** online for **free** (see below). In addition, an interview appeared in Nature by Yemeni journalist Shihab Jamal (2022; Nature) about the FoS Chairperson's (KVD) activities of conserving freshwater and endangered trees on Socotra together with the colleagues from scientific institutes as well as local experts and the local communities.

SOCOTRA AS A GLOBAL BIOREGION

Scientists from France and Switzerland analysed global datasets of tree species occurring in **warm drylands** (Cartereau et al., 2022; Frontiers of Biogeography). Based on the analysis of all tree species and the endemic ones for each region, they distinguished eight major bioregions on Earth, including Australia and South Africa. Most of these warm dryland **bioregions** (together covering 19% of the land on our planet) are enormous areas, but one of the (only) eight major bioregions identified in their study is... the Socotra Archipelago! It means that in comparison to the entire world, the number of unique trees in warm drylands on Socotra is truly exceptional.

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As part of his PhD-thesis, Salem Hamdiah conducted Boswellia seed germination experiments on Socotra. He counted how many seeds successfully germinated over the course of a few days (out of 100 seeds and repeated three times for each species), for example in Boswellia socotrana ssp. socotrana. This is important to understand the biology of the frankincense trees.



The DNA of the chloroplast genome was decoded for the Socotran Dragon's Blood Tree, consisting of 132 genes. Image from Celinski et al. (2022; Forests).



A new checklist of the birds of Socotra was published, counting 229 species (in 2022). Lichtenstein's Sandgrouse (Pterocles lichtensteinii), Momi Plateau near Kilisan, Socotra Island; photo by Kay Van Damme.



According to one new study based on trees, Socotra is one of only eight warm dryland bioregions on Earth. One of the species that was suggested in the study as most typical for this bioregion is Boswellia socotrana ssp. socotrana.

Two new pseudoscorpions (tiny scorpionlike animals of only a few millimeters) were described from Socotran caves in 2022. Photo of Neobisium sp. (not from Socotra) by Gilles San Martin.





A new species of marine fish was described from the deep sea around Socotra. Photo of type specimen, after Prokofiev & Iwamoto (2022)



THE SOQOTRA FOLKLORE MUSEUM IN RIQELEH

By Kay Van Damme & Miranda Morris

When driving eastwards on the northern coastal road of Soqotra Island towards the large dunes of 'Arher, about 40km from Hadiboh, one enters an area called Hallah. In this area, at the southern side of the road, just before Hoq cave at a small village named Riqeleh, you will find the Soqotra Folklore Museum.

or 33 years the Soqotra Folklore Museum has been the only museum in the archipelago devoted to the cultural heritage of the island, and is in fact the only museum devoted to Sogotri culture in the world. The museum consists of a single room with a small garden in the front, enclosed by a stone wall. It is frequently visited by tourists on their way to (or returning from) 'Arher, Rosh or Riv d-Iriseyl, who pay about 2000 Yemeni Rial entrance fee per person (which equals about 2 USD in 2023). The current curator is the proud Khatem Hassan Sa'ad Khamis Tahki Al-Sagatri. The initiative survives by the entrance fees and small donations. n 2009, FoS modestly contributed with a small donation to the museum (Tayf 6: 14) and laminated photos with old images from Sogotra. The story about the donation and these images (they are still at the museum), can be read in one of our former newsletters (Morris, 2009, Tayf 6: 12): "The pictures brought back many memories to the older Sogotrans they were shown to in Hadiboh before their delivery to the Sogotra Folk Museum in Rigeleh. Many of the people represented in them were recognised and named, but principally, those who looked at the pictures commented on how forcibly they recalled the past. One elderly man was reduced to tears as he remembered how hard those earlier days had been for so many people – in particular, he said, the women."

he museum is respected and loved by the Soqotri, and it is positively reviewed by visitors from outside. The place even has five stars on Google Reviews (and some photos) awarded by tourists, one of whom writes that this is a "Cute little museum set up by the local community with lots of items, ceramics and tools used by the Soqotri people in the past or today still". n her book "Islands of Heritage", Dr Nathalie Peutz devotes a section especially to the museum and its fascinating background story (Peutz: 127-133). It is described in the book as the **embodiment** of the type of cultural heritage the Soqotri wish to celebrate, as it "*tells the story not of an island*



The late Ahmed Sa'ad at the opening of the museum, now 16 years ago (picture by MM, 2008).

that is 'untouched' or 'lost'... but of a regionally interconnected society that has experienced profound transformations, much like those on the Arabian Peninsula have." In other words, the museum offers a look into elements of the story of a constantly changing island and a complex culture, within a dynamic cultural and natural setting.

THE STORY OF AHMED SA'AD efore we say more about the museum, it is important to acknowledge the Soqotri man behind it, the late Ahmed Sa'ad Khamis Tahki Al-Sagatri. Ahmed was a remarkable human being. Born in Homhil in the early 1950s, he was encouraged by his father to leave the island when life became uncertain. His journey was fraught with problems as he slowly made his way on a trade boat via Yemen, Oman, Fujairah and Dubai to Sa'udi Arabia, where he worked mainly as a labourer for four years. In search of greater opportunities, he left Sa'udi via Najran and the Empty Quarter, finally reaching Muscat in 1971. He was given Omani citizenship and succeeded in being enrolled in the local militia, the Firgat Forces, whose job was to protect and defend the Omani borders. Later he found civilian work in the Ministry of Information in Salalah. He married and he and his wife



The opening of the museum attracted many local visitors (picture by MM, 2008).

started their own family. Throughout this period he was unable to make contact with Soqotra to find out how his family there was faring, and this was a source of great unhappiness for him.

n 1989 Ahmed met Miranda Morris. She had been looking for someone in Salalah who could speak Sogotri and who might be prepared to help her prepare for her first visit to the island for WWF the following year. Ahmed was a marvellously patient and imaginative teacher. He told her about his family on the island and gave her messages to give them when she went, teaching her certain specific phrases to say to them to convince them that he was indeed still alive. His family were overjoyed, and even more so when, in 1991, Ahmed travelled with Miranda to Sogotra - it was an emotional reunion. From that time onwards Ahmed returned to the island every year, often with Miranda and with others carrying out research on the island. He said that it was as a result of this work that he came to appreciate the global importance of his homeland, its biodiversity, its unique language and its culture. In 1999, he took part in a large interdisciplinary expedition in Sogotra, guiding international participants safely around Soqotra and to the outer islands, including Tony Miller, Miranda Morris, Kay Van Damme, Wolfgang Wranik, and many others. He was friendly and outgoing, and was admired and respected by anyone who met him, however briefly, on the islands and beyond.

e made visits to Scotland to work with Miranda to document the way of life of the islanders, their expertise and their language. One of his last visits was with his wife. This visit was purely for pleasure, and they both made the most of it. His final visit was in 2008 with his eldest daughter, who had agreed to help proofread the Arabic of the three volumes of Soqotran poetry and song Miranda was working on at the time. Unfortunately he was very unwell during the visit and spent much of the time having tests for diabetes and heart problems in the hospital. His condition improved, but he never really returned to full health, and he died in 2011, mourned by many, forgotten by none.

HISTORY OF THE MUSEUM

n 1991 (1412), the idea of the museum was conceived by the late **Ahmed Sa'ad Khamis Tahki Al-Saqatri** and his family, with the aim of gathering and preserving some key authentic and tangible objects representing the cultural heritage of the island, to introduce visitors to some of the characteristic customs and **culture of the Soqotri**.

hmed's dream became more tangible in 2006, when he was heavily involved in collecting material for the Soqotra exhibition "Soqotra – Land of the Dragon's Blood Tree" held at the Royal Botanic Garden Edinburgh (see Tayf issues 4 and 5). Staying with Miranda Morris in Scotland, he worked hard, helping with the installation of many of the items and with writing the



Khatem Hassan Sa'ad Khamis Tahki Al-Saqatri is currently the proud curator of the Museum (picture by KVD, 2023).

explanatory panels. He was truly **central** to this international exhibition. He attended the opening in Edinburgh, at which he gave a remarkable speech in Soqotri, and thereafter was involved in many of the events that were held in Edinburgh to celebrate the island, notably telling and acting out Soqotri folk tales to entranced children at the Scottish Storytelling Centre in the heart of Edinburgh. He also held demonstration sessions: fire-making techniques, how to spin wool, work clay and play a variety of Soqotri games. At another session, people were shown how to wear Soqotri dress and how to greet one another in the Soqotri way. The Edinburgh exhibition ran from July to October 2006 and received about 56,400 visitors in total (Tayf 5:17), including the then Prince Charles and Duchess of Cornwall. Inspired by this experience in Edinburgh, Ahmed became even more determined to open a museum on the island. Upon his return in Soqotra, the construction of the museum started.

he building of the museum in Hallah was **entirely a Soqotri initiative**, not driven or heavily modified by external international projects. The Soqotra Folklore Museum in Rigeleh had an official opening on the **10th of January, 2008** (Tayf 5:3) an event attended by over a thousand people – a huge number for Soqotra, and demonstrating the interest aroused on the island by this unusual Soqotri creation. Even the police were involved, helping to arrange parking and preventing too many people trying



The wooden huri at the Museum is a true eye catcher (picture by KVD, 2023).

to get over the wall. In 2009, the museum was visited by the former President of the Republic of Yemen, Mr. Ali Abdullah Saleh. He spent some time there examining the exhibits, and he wrote in the visitors' book, thanking those who had collected the artefacts and established such a museum for all their hard work. t is hard to imagine these days how much **effort and passion** it took Ahmed Sa'ad and his brothers to inspire so many people from all over the island to collect these artefacts and to realise this ambition, but it is an outstanding accomplishment. Even children took part in collecting material: the many children of Homhil and Hallah rushing around collecting samples of lichens and barks, *Aerva* flowering heads as stuffing, pebbles of exactly the same size to illustrate games, and small shells to pierce to make necklaces and rattles. The curator of the museum today is the nephew (the son of the brother) of the late Ahmed (often called Hamad) Sa'ad.

AN AUTHENTIC DIVE INTO SOQOTRA'S RICH PAST

he Riqeleh Folklore Museum is stacked with interesting items (replicas as well as

original artefacts), books and photographs, all of which aim to allow the visitor to experience a brief but comprehensive immersion into a sample of the rich Soqotri material culture. There is a lot to see. It is worth taking the time to explore it, and to do some reading in advance, if one wishes to begin to understand the wealth of the island's rich heritage.

he fact that the museum's items are somewhat haphazardly arranged, one on top of

the other, the photos often weathered, is part of its charm as one voyages into the past like an explorer. No one ever said exploring was easy or straightforward. In fact, by its very arrangement the museum invites curiosity. In its one room, you can be exposed to all the complexity of the Soqotri heritage at one go, seeing important aspects of the lives of the islanders as fishermen, livestock herders, cultivators, healers, poets and musicians, but also as parents. Photos of the old Sultan's Palace in its former glory remind us of the historical importance of the island.

he museum has no flyers, but printed explanations are present throughout. These

explanations are the result of intensive work by Ahmed and Miranda who wrote them jointly. In addition to the printed text, the curator and the Soqotri guides will proudly share a story about every single item. These stories are carved into the shared cultural memory of each Soqotri brain. In that sense, the museum helps to perpetuate the knowledge about the local heritage among the Soqotris as well, and has a preservation function far beyond that for visitors alone.

he most important factor however is that this museum is **entirely Soqotri**, it is not politically influenced or shaped by huge donations that come with conditions attached to make it appear a certain way according to the views of outside architects or designers. It is in fact, a true reflection of the Soqotri cultural core. And that, in itself, is why the museum has an irresistible charm. As Peutz (2018) mentions in her book, some people might criticize the disorder in the museum and want it to have more "western" style, but remember: you are in Soqotra and this museum is Soqotri. If you wish to understand something about the people and the place, respect for their culture and character starts here, by appreciating this wonderful museum full of hidden gems and stories.



The wooden huri at the Museum is a true eye catcher (picture by KVD, 2023).

THINGS TO SEE

here are over 300 items at the museum, and each of them has a story. In total, the artefacts can be divided into 27 categories, ranging from fishing materials to utensils for herding and (date palm) cultivation, musical instruments, household items, grinding stones for finger millet, and many other items. A detailed list of all the items in the museum, with English and Soqotri terms, will be made available through FoS and at the museum.

'he centrepiece in the museum is a large wooden canoe, locally called a huri (plural: hawari). The boat is a real eyecatcher. Until just two decades ago, several of these wooden canoes were still actively used by fishermen on Soqotra. Nowadays these elegant vessels have been replaced by the universal fiberglass boats, equipped with an engine. Only one restored wooden huri is still actively in use on Sogotra at Rosh, where local people use it for fishing and visitors can even make a small trip on it, for a small price. In front of the huri is a small replica of an old raft or a remush and its paddle. The use of such small rafts in Sogotra can be seen on a photo in a National Geographic article about Soqotra by Charles Moser (1918). The most colourful item in the museum is a dazzling blue dress, and a collection of the silver jewellery that used to be worn. There is also a replica of the ancient wooden tablet found in Hog

Cave, books with old photographs of Soqotra, some showing former Soqotri attire, and copies of key books about Soqotra.

he best advice we can give is that you should explore the rest of the museum yourself, because there is truly so much to see. And ask the local guides about items in the collection: there are so many stories to tell...

PLANTS IN THE GARDEN

he cultural heritage of Sogotra is strongly linked to its **natural heritage** and those planning the museum took this into account by planting some locally important trees in the garden. Just before the main room of the museum is a small garden with examples of trees that are endemic to the island and which have strong connections to Sogotri culture. The trees were grown from seedlings (collected from seeds of trees nearby, mainly from the slopes of Hamaderoh) and they are worth having a closer look at. Sheltered in the garden, ungrazed and undamaged by cyclones, they are very healthy, in contrast to so many of the trees higher up the slopes and on the plateaus. There is a nice cucumber tree, a desert rose (endemic subspecies), two species of frankincense trees (Boswellia socotrana subsp. socotrana and Boswellia elongata) and a myrrh tree. The trees are frequently visited by wildlife, such as the endemic Socotra sparrow and doves that nest in one of the frankincense trees.

PRACTICAL VISIT AND DONATIONS

he museum can be visited daily outside Friday and Saturday. The entrance fee is about 2 USD or ca. 2000 YR (this may change, depending on the value of the YR). The curator may not be present at the building itself, so please ask your Soqotri guide to find him in the village, or arrange a date and time to visit. If you wish to make a modest donation towards the maintenance and staff of the museum, we propose that you offer this directly to the curator when visiting the island, as he knows best what is needed. Remember that items in the museum are

Further Reading

not for sale.

Morris, H. & Morris, O., 2005. Soqotra Folk Museum. *Tayf* 5: 3. Morris, M., 2009. Collections of old photographs of Soqotra. *Tayf* 6: 12. Peutz, N., 2018. *Islands of Heritage: Conservation and Transformation in Yemen.* Stanford University Press, 368 pages.



PROTECTING THE VALUABLE WETLANDS OF SOCOTRA

By Kay Van Damme (MENDELU Brno & IUCN FCC/SSC), Ahmed Saeed Suleiman (Environmental Protection Authority (Socotra Branch) & National Focal Point for Ramsar Yemen

Socotra harbours a wide range of aquatic habitats, including coastal lagoons, coastal and inland wadis and marshes. Brackish and freshwater wetlands have many key functions for all life on the island, including water and food provision (brackish lagoons are rich in fish). Wetlands in Socotra also have an important function for recreation and they are attractive for ecotourists, in particular birdwatchers. In these waters, several animals can be found that are endemic to Socotra, such as the Socotra Freshwater Crab (*Socotrapotamon socotrensis*) and a small blue damselfly, the Socotra Bluet (*Azuragrion granti*), both of which are common in the eastern mountains. In addition, many birds can be found in the lagoons, from flamingos and cormorants to small sandpipers.

The importance of these habitats has been recognised internationally, because since 2007 the only Ramsar wetland for Yemen is Detwah Lagoon (Qalansiyah District) in Socotra. However, much work remains to be done to keep these waters safe and clean on the island. The first steps are taken with this project which started in 2022, the first ever to focus on Socotra wetlands in particular.

IUCN Socotra Wetlands Conservation and Awareness Project

In October 2022, a grant was awarded by the Species Survival Commission (SSC) of the International Union for the Conservation of Nature (IUCN) for a small project coordinated by Dr Kay Van Damme, as a member of the IUCN SSC Freshwater Conservation Committee



The Detwah Workshop was held at Detwah lagoon itself (Detwah, November 2022)

(FCC). The grant was the first in the history of Socotra conservation efforts to focus only on the conservation of wetlands in the Socotra Archipelago UNESCO Natural World Heritage Site. In particular, the project focused on involvement of local stakeholders, especially the local communities, local authorities, schools and colleges. The goal of the project was to increase awareness about the importance of conserving the Socotran wetlands for nature and humans. In the first year of the project (Oct 2022-Oct 2023), a wide range of activities was organised around the wetlands of Socotra, in total involving over 270 people. On Socotra, several local individuals (Mr Ahmed Saeed Suleiman as Ramsar representative for Yemen, and Mr Salem Hamdiah) and NGOs took the lead in organising the activities, with the support of the Governor Rafaat Ali Ibrahim Al-Tagali and of EPA.

Detwah Lagoon Workshop and Cleaning Events

In November 2022, we started the first activities by organising cleaning campaigns in Detwah Lagoon Nature Sanctuary. This is a protected area in Socotra, frequently visited by tourists who contribute often to an increase of rubbish and disturbance of the site. The first cleaning campaign involved about 25 people collecting one pick-up worth of rubbish (in plastic bin bags), but it became quickly clear that this was not enough. The second cleaning was combined with a workshop including about 50 attendants from the town of Qalaansiyah and from Detwah area. The Detwah Wetland Community, on November 19th, 2023, required a lot of organisation, which was only possible thanks to a large voluntary effort by a local environmental NGO (SSCEF), whose chairperson Mr Salem Hamdiah took the lead together with Mr Mohamed Amer and KVD. Materials were acquired for rubbish collection (plastic bag, gloves) from Hadiboh before the activity. Several pick-ups and a lorry were hired for transport of materials and rubbish, as well as two buses to transport people to the site itself. Two buses picked up people from the Qalansiyah mosque directly after prayer, and the available chairs were quickly filled by local people from the western coastal areas of the island (Detwah, Qalaansiyah, Qeisoh and Shuab) as well as several members of local authorities, local fishermen associations, teachers, and ecotourism guides. Spontaneously, local women (Sadieh, who lives in Detwah protected area), and children living around the area, also joined the workshop on the



The IUCN SSC FCC project was supported by the Governor and by EPA (meeting Governor's Office, November 2022)



Detwah cleaning event. Over 500kg of solid waste was collected (November 2022)



The Detwah Workshop included representatives of local communities of Qalansiyah and Detwah. The workshop was in Socotri with English translation (Detwah, November 2022)



All activities were supported by the IUCN SSC/FCC project (Detwah, November 2022)



Socotri pottery was made especially in traditional way for World Wetlands Day in February 2023 by the women association at Dilfedehon, with images of the endemic freshwater crab and dragonfly.



Several presentations were held on the importance of Socotra wetlands at the Hadiboh Workshop on World Wetlands Day (Ahmed Saeed Suleiman, February 2023).

Detwah sand. Members of FoS and of the Franklinia project team participated as well (scientists from Mendel University and La Sapienza). Of each group of representatives, one person was

sitting at the front of the event to express opinions about the importance of Detwah Lagoon and

potential challenges for conservation (55yr old Sadieh representing women, 12yr old Osama representing youth, 50vr old Mr Mohamed Salem representing Local Council, Salem Hamdiah representing nature NGOs, Kay Van Damme representing IUCN FCC, etc.). The workshop proceeded fluently in Socotri-Arabic-English thanks to the simultaneous translations by Salem.

Among the local official attendants at the Detwah workshop, there were, besides local civic organisations, representatives of the local authorities of Qalansiyah including (1) Local Council (Mohamed Salem Qassem, the representative of the General Manager of Qalansiyah), (2) Health Representative Mr Adnan Mohamed Ali, manager of Qalansiyah Hospital (3) Education Representative (Mr Saad Mohamed Al Gidmi responsible for the schools in Qalansiyah) and (4) Waste Management/Cleaning Office (Mr Ali Suleiman). The local council stated that this is an important event, the "first workshop ever held in Detwah Lagoon, bringing together local people to talk about its importance and protection".

Local communities highlighted the importance of keeping Detwah clean, and that it is important to show the world how we take care of our wetlands. They suggested a strong coordination between all groups visiting and living in Detwah Area (including tourism agencies, local inhabitants) to ensure that disturbance is not affecting the site and the people negatively. People also indicated that more awareness and education about the importance of Detwah is necessary. All the local people's recommendations were collected and included in the IUCN report about the project, to be shared with local authorities and Ramsar to hopefully improve conservation of Detwah. As a joint activity, connected with the workshop, the attendants helped in the cleaning that followed directly after. In total, this resulted in about 500 kg of rubbish collected over a few hours, which was directly transported by lorry and jeeps to the rubbish site in Qalansiyah. The energy at this communal event was very



positive and amazing, with great contributions by the young people. But even so, not all solid waste of the site was collected, and more than a few awareness and cleaning events are needed to keep Detwah clean and safe.

World Wetlands Day Socotra 2023

In the first days of February of each year, the world celebrates international World Wetlands Day to recognize the importance of aquatic ecosystems everywhere. This event had never been celebrated on Socotra before, so it was time to organise it for the first time here. A wide number of activities took place in preparation of the event, involving schools, local communities, NGOs and authorities.

As part of these events in February 2023, there were drawing competitions for school children, as well as a workshop in Hadiboh with presentations attended by 80 people. Several teachers and students were present, as well as local governmental representatives such as the manager of the Governor's Office (Fahmi Ali Ibrahim Al-Taqali), the Deputy Governor (Salah Ali), Chairman of EPA (Salem Hamdiah), General Director of the Socotra Police (Ali Diksimi) and the General Director of Education (Ahmed Ali Ibrahim). It showed the huge support by the authorities for such an awareness event. School teachers and children received a certificate for their contribution to the activities.

In addition, a cleaning event was organised at Sirihin Lagoon, just east of Hadiboh. This lagoon is really under threat of development, so it needs a lot of attention. Already part of Sirihin has been built over, and the connection to the sea is blocked by the coastal road.

Two awareness signs were designed and installed at wetlands in Socotra, one at Detwah Lagoon and one at Sirihin Lagoon. The information sign at Detwah was inaugurated by Mr Mazen Bahqiba, the deputy Chairman of EPA Socotra, who is responsible for environmental issues on behalf of the government for the west of Socotra (Qalansiyah District and the outer islands in the archipelago). Especially for World Wetlands Day, the women of the handicraft association of Dilfedehon made special pottery in traditional style, with freshwater animals painted in Dragon's Blood resin. These were sold in the market in Hadiboh to increase awareness about the importance of these species and about freshwater.



Certificates for local school teachers were given at the Hadiboh Workshop (World Wetlands Day Socotra, Feb 2023).



A new sign was made at Detwah Lagoon through the project (World Wetlands Day, Feb 2023).



Sign at Sirihin Lagoon, a wetland strongly pressured by development (World Wetlands Day, Feb 2023).



Mr Salem Hamdiah presented at World Wetlands Day in Socotra (February 2023).



Field Surveys and IUCN Red Listing

As a final part of the project, several endemic freshwater species of Socotra were surveyed in detail, as their distribution and IUCN Red List assessment are strongly outdated (or not done yet). This is particularly done for the endemic freshwater crabs and the endemic dragonfly of Socotra, but in fact surveys were done for a wide range of species. These will be used to update the IUCN Red List assessments, which are important to understand the conservation status of species throughout the world.

Further Steps

The project showed how important it is to focus on wetlands conservation in Socotra, and how well such activities are received by the local communities and the local authorities. However, threats to the Socotran lagoons and wadis are increasing, through pollution as well as increased sedimentation (sediments in the water because of soil erosion) and fragmentation (cutting off waters from their natural connectivity). Therefore, it remains important to focus on these special ecosystems to protect their many benefits for animal, plant and human life in Socotra. We have planned more awareness and survey activities for 2024.



Hadiboh Workshop on World Wetlands Day (February, 2023)

Acknowledgements

We are grateful to everyone who contributed to the success of these activities, in particular to the representatives of communities and local authorities, schools and colleges (Qalansiyah, Detwah, Sirihin, Hadiboh). We are also grateful to the Governor's Office, EPA and local NGOs for their support in the activities.

Further Reading

FoS Freshwater Leaflets (English/Arabic) https://www.friendsofsoqotra.org/Soqotra_archipelago.html

Global Center for Species Survival / IUCN SSC FCC articles about the Socotra wetlands project:

- Treasure Trove of Life - Socotra Archipelago

- https://www.indianapoliszoo.com/gcss/blog/socotra-archipelago/
- Restoring Earth's Wetlands World Wetlands Day 2023

https://www.indianapoliszoo.com/gcss/blog/world-wetlands-day-2023/

Van Damme et al., 2020. Dragonflies of Dragon's Blood Island: Atlas of the Odonata of the Socotra Archipelago (Yemen). Rend. Fis. Acc. Lincei 31, 571–605. https://link.springer.com/article/10.1007/s12210-020-00942-6

YouTube video of World Wetlands Day Socotra 2023: https://youtu.be/pxf2r8Qvy2A



FoS AGM in Rome (2022) - Representative of the Embassy (left) and Salem Hamdiah (right)



FoS AGM in Rome (2022). - Dr Alfredo Guillet (left) and Dr Abdulrahman Fahdl Al Eryani (right)



FoS AGM in Rome (2022).

CONTACT INFORMATION

Friends of Soqotra (FoS)

Friends of Soqotra (UK Charity Number 1097546) was formed in 2001. Its distinctive rationale is to bring together people with backgrounds in scientific research and those with a more general interest and develops the synergies between them in order to:



- Promote the sustainable use and conservation of the natural environment of the Sogotra island group.
- Raise awareness of the archipelago's biodiversity and the unique culture and language of the islanders
- Help improve the quality of the islanders' communities and support their traditional land management practices

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FoS Website

The Friends of Soqotra website is maintained by the website subcommittee including Dana Pietsch and Luca Malatesta. It provides information on completed and ongoing scientific research on the Soqotra Archipelago including data, bibiolgraphy and contacts of institutions and research teams. The structure and layout also includes a page in Arabic, which gives some general information about FoS. Also the constitution is included in Arabic as well. All financial reports and account information are public on the website.

If you would like to submit content for the website or you have suggestions, please contact the website subcommittee at dana.pietsch@uni-tuebingen.de with cc to fos.secretary@gmail.com

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