

TAYF

the Soqatra Newsletter

Issued by **FRIENDS OF SOQOTRA**



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

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Some special reptiles of Socotra

In total, 31 species of reptiles have been recorded on Socotra Archipelago, including 29 that are found nowhere else in the world. Of those, 25% are Threatened, Near Threatened or Data Deficient, including the dragon's blood tree gecko. This leaflet shows some that are endemic and easy to spot, all non-venomous. Enjoy your visit!

		
Gunther's racer <i>Dryophis vivax</i> A relict nocturnal species. Harmless though viper-like in appearance. Eats mice.	Socotran chameleon <i>Chamaeleo monstrosus</i> A relict nocturnal species. Near Threatened (NTES). Aggressive if disturbed.	Socotra skink <i>Trachylepis socotrina</i> Diurnal skink. Common and widespread, even on urban areas (sidewalks).
		

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NEWS

YEMEN'S CRISES AND THEIR IMPACTS ON ECO-TOURISM IN SOCOTRA

Abdalgamil Mohammed (MSc) Deputy Chairman, EPA Socotra dordm@yahoo.com

The Socotra Archipelago is unique. It is one of the strangest places on Earth and recommended as among the "33 places to visit before you die". Nicknamed the Galapagos of the Indian Ocean due to its richness in biodiversity and high number of endemic species, the Socotra Archipelago became UNESCO Man and Biosphere Reserve in 2003 and UNESCO World Natural Heritage Site in 2008.

Eco-Tourism, building on Socotra's natural and cultural heritage, has since 2000 been viewed as a way to help alleviate poverty and to achieve sustainable development. A number of new businesses directly linked to tourism have developed, creating new jobs.

Although Socotra has always been safe, recent crises in mainland Yemen have negatively impacted on eco-tourism activities on Socotra. Political turmoil in mainland Yemen since February 2011 has significantly reduced the number of tourists visiting Socotra. The number of tourists dropped from 4000 in 2010 to only 800 in 2011. By opening the international flight to Socotra from Sharjah (UAE), Felix Airways has positively contributed to the recovery of eco-tourism activities on Socotra. The number of tourists started to rise again, reaching almost 2000 in 2014. However, cancellation of flights by Felix and the Houthis coup of September 21st, 2014 have sharply reduced the number of visitors.

Direct international flights from Dubai (UAE) to Socotra scheduled by Yemenia –between 15th of February and 25 March 2015 started to revitalize tourism on Socotra. Nevertheless, the "Storm Packets" on the 26th of March, 2015, has ended tourism on Socotra by imposing "no-fly zone" in the whole of Yemen including Socotra. Dozens of tourists got stuck in Socotra and had to be evacuated by boat to Oman.

The Socotra Archipelago and its inhabitants are becoming more and more isolated. The current crisis and battles in Aden and Mukalla are a serious threat to food security and the health of Socotris as importation of food, medicine, fuel and cooking gas to Socotra is not possible. If the situation stretches over several weeks it may lead to a catastrophic humanitarian crisis. Lack of cooking gas may increase pressure on local tree cover and threaten local biodiversity.

Socotra is one of the safest tourism spots on earth. However, the instability in mainland Yemen has been hampering tourism activities on Socotra. Hence, having reliable and long-term schedules for direct flights from any international airport outside Yemen is one of other factors that could sustain and revitalize the ecotourism sector on Socotra.

CURRENT CRISIS IN YEMEN AND ITS IMPACT ON SOCOTRA'S BIODIVERSITY

Abdulwahab Saeed (MSc)

Head of Terrestrial Research and Studies Unit, EPA Socotra socotrison@yahoo.com

The Socotra governorate as part of Yemen Republic has been effected by the current conflict in the country. Socotra is highly dependent upon its supply of many materials from the mainland by sea or air. This is made even more difficult as Socotra cannot be accessed by sea during the strong monsoon wind from June till September.

One of the important materials which is in short supply is gas cylinders. The lack of these will have negative impacts on fuel wood collection. The impacts include:

- Cutting trees which impacts on many aspects of biodiversity in the archipelago,
- Many trees and shrubs in Socotra are slow growing so it will need many years to recover,
- High consumption of wood, especially for restaurants,
- Few trees and shrubs provide good fuel wood which bring more pressure in cutting of few species only which can cause their extinction from the archipelago,
- Many of the trees and shrubs are endemic and that means many plants will move to endangered categories in IUCN redlist,
- Many plants are difficult to re-grow,
- No budget for reforestation from the government or international organizations,
- Many impacts on soil erosion, habitat destruction and loss of fauna.

This will impact on other issues such as Socotra's status as a World Natural Heritage Site, its effects on the tourism sector which is becoming an important source of income for the archipelago, its impact on the Socotri traditions of living in harmony with nature, and the breaking of environmental laws and plans, especially the Socotra conservation and development zoning plan.

NEWS

IMPORTANT NEW BOOK FOR SOQOTRA

Miranda Morris
University of St. Andrews
Miranda@mirandamorris.com

Corpus of Soqotri Oral Literature, Volume 1.

Published by Brill as Volume 76 in its series *Studies in Semitic Languages and Linguistics*, this work was written by a person team of Russians and Soqotrans: Vitaly Naumkin (Corpus Editor); Leonid Kogan (Volume Editor); 'Isa Gum'an al-Da'rhi, Ahmed 'Isa al-Da'rhi; Maria Bulakh, Dmitry Cherkashin and Ekaterina Vizirova, with Kevin McNeer as editor of the English translations and Dr. Adham al-Labban as editor of the Arabic translations.

The book is dedicated: 'To the memory of 'Amer Ahmed al-Da'rhi; To the Da'rho tribe; To the people of Soqotra'. The late 'Amer Ahmed al-Da'rhi was the father of the present shaikh of the Da'rho tribe, Shaikh 'Isa 'Amer, and was the main informant and friend of Vitaly Naumkin during his work on the island in the 1970s.

The book consists of 30 recorded texts, mostly related by members of the Da'rho tribe: some well-known traditional stories from Soqotra, some from the wider Arabic tradition, some stories around poems, an example of a prayer for rain, and a few modern stories – two about the follies of tourists.

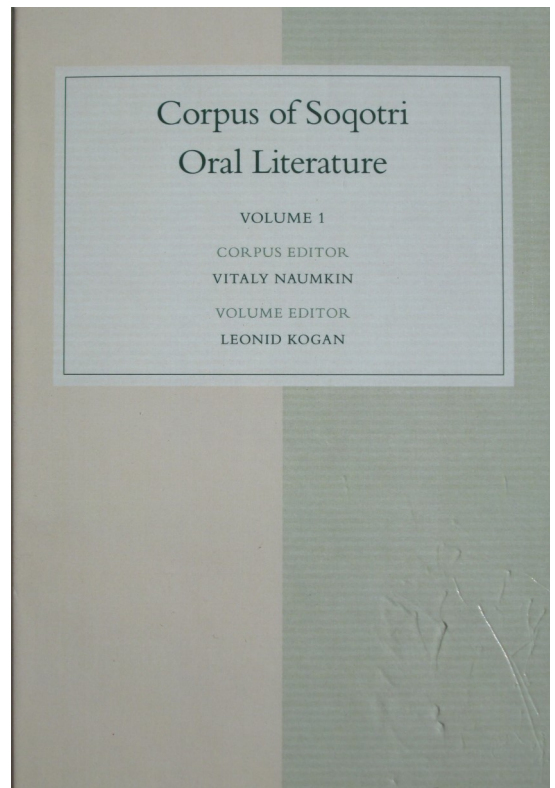
The texts are set out in numbered sentences on facing pages: the left hand page in Soqotri transcribed phonetically, and beside it the English translation; and on the right had page, in Soqotri transcribed using a slightly modified Arabic alphabet, and beside it the Arabic translation. Each text is followed by detailed philological notes written by Leonid Kogan. There is a 243 page Glossary of all the Soqotri terms that appear in the recorded texts, a detailed introduction and an appendix of photographic plates illustrating various cultural items and topographic features. On p. 42 it states that most of the sound files and many more photographic plates are available on-line at <http://dx.doi.org/10.1163/9789004278400> but I have as yet been unable to access this.

dx.doi.org/10.1163/9789004278400 but I have as yet been unable to access this.

Why this book is so important for Soqotra

This publication is a real breakthrough for Soqotra. For the first time there is a published work which includes a written form of Soqotri (the Soqotri spoken by this group of Soqotrans of the central valleys of the island), one which is consistent and comprehensible. Leonid Kogan, 'Isa Gum'an al-Da'rhi and Ahmed 'Isa al-Da'rhi especially are enormously to be congratulated for this achievement, the result of four sessions of fieldwork on Soqotra, three working sessions in Sana'a and, in particular, three lengthy and fruitful stays in Moscow. This allowed the team to study the recordings made by Vitaly Naumkin during his periods of work on the island (about a third of the published texts) and to make and work on many new recordings.

It is to be hoped that all Soqotrans will be encouraged by this book to start writing *in their own language* about their history and culture, and to make a lasting record of their vivid oral literature. Maybe they will now understand that it is possible to compose new poems and new stories and to give them permanence for future generations by writing them down and publishing them.



C or Q?

Spelling of the main island name in English is still controversial.
Contributors to **Tayf** are welcome to use whichever spelling they prefer.

Cover Photo: Vladimir Melnik: Sunrise in Haggier Mountains

NEWS

FRIENDS OF SOQOTRA SYMPOSIUM AND 14TH ANNUAL GENERAL MEETING

CONSERVATION OF THE NATURAL AND CULTURAL HERITAGE OF SOCOTRA 11-13 SEPTEMBER 2015 CIBIO-INBIO, CAMPUS AGRÁRIO DE VAIRÃO, PORTUGAL

The **Annual General Meeting of the Friends of Soqotra (FoS)** is a great opportunity to meet other FoS members and fellow-travellers, to discuss the latest results of scientific research on the Soqotra Archipelago, to learn about ongoing projects, and to share information about FoS activities over the last year. Both members and non-members are very welcome to participate in the meetings.

Between 2001 and 2014 the AGM has been held in different European countries. The 13th Annual General Meeting of FoS and Symposium entitled "Biodiversity and Culture of Socotra" was held on 19 - 21 September 2014 in Rome, Italy.

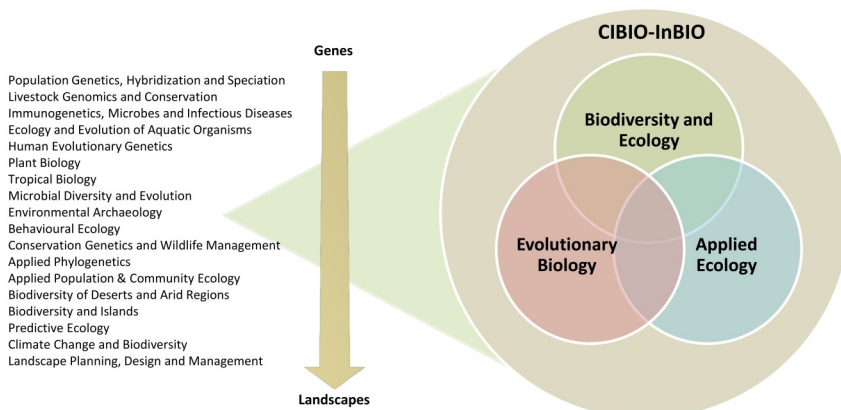
In 2015 the **14th Annual General Meeting of the FoS and Symposium** entitled "**Conservation of the Natural and Cultural Heritage of Socotra**" will take place on **September 11-13 in Portugal** hosted by **CIBIO—InBIO's CONGEN group**. A discussion workshop relating current pressures to the heritage of Socotra and elaboration of a response plan will also take place during this meeting. The venue is north of Porto and is accessible by plane, train, car and metro; for full information visit <http://cibio.up.pt/about> and related pages.

REGISTRATION FEES (lunches included)

- Early registration (before July 30, 2015): 35€
- Early registration with accepted abstract: 30€
- Late registration (until August 30, 2015): 50€

The main focus of the CONGEN Group is the conservation and management of species, populations and ecosystems. To achieve this main goal, the group has developed activities in four main themes: multi-scale ecology; production of tools for conservation; applied ecology and conservation; and outreach activities aimed at the promotion of sustainable human activities.

- **MULTI-SCALE ECOLOGY:** integrative studies on the dynamics of species, populations and communities. This theme includes research on ecology, behavior, emerging diseases, biogeography, genetic diversity and evolutionary population history in mammals, birds, reptiles and terrestrial invertebrates from Europe, Africa, South America and Asia.
- **PRODUCTION OF TOOLS FOR CONSERVATION:** development of methodologies for populations' management.
- **APPLIED ECOLOGY AND CONSERVATION:** applying multidisciplinary approaches for the management and conservation of wildlife, including small populations, threatened species, endemisms and game species.



PUBLICATIONS

FRIENDS OF SOQOTRA LEAFLET SERIES




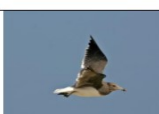

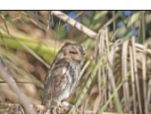
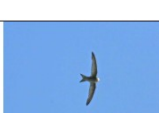


FOS members are preparing a series of leaflets about life on the island for use by local people and tourists. The first series of leaflets completed include: Birds, Reptiles, The Soqotri Language, The Traditional Way of Life on Soqatra, and General Information and Advice for Visitors and Tourists. These leaflets were then translated by FoS members into Russian, English, Arabic, and German. Laminated copies of these leaflets were then taken to Socotra in March by Julian Jansen van Rensburg and given to Matthew Byrne, Director of the Socotra Training Centre to distribute amongst local guides. The guides were very enthusiastic about the leaflets and were especially grateful for having them in several languages, particularly Arabic. The guides also expressed their desire to have more leaflets which should encompass all aspects of Soqotra's fauna, flora and cultural heritage.

While more leaflets are being prepared, and further translations into Italian and French are being undertaken, there is a definite need for additional leaflets. If you would like to prepare a leaflet on a specific topic, a template is available from Julian (fos.secretary@gmail.com).



Some special birds of Socotra

Over 220 species of birds have been recorded on Socotra, including 11 that are found nowhere else in the world. 5 are Globally Threatened, including the widespread Egyptian Vulture. This leaflet shows some that are special and familiar. Enjoy your visit.

		
Egyptian Vulture <i>Neophron percnopterus</i> (wing-span 150cm) Tame. Globally endangered but common on Socotra.	Socotra Buzzard <i>Buteo socotranensis</i> (wing-span 110cm) Found in the mountains and nests on cliffs. Soars effortlessly.	Common Kestrel <i>Falco tinnunculus</i> (wing-span 75cm) The smallest bird of prey on Socotra. Feeds on insects and lizards.
		
Sooty Gull <i>Larus hemprichii</i> (45cm) Common with other gulls along the coast, often follows fishing boats.	Laughing Dove <i>Spilopelia senegalensis</i> (25cm). Widespread and very common where there are trees.	Socotra Scops Owl <i>Otus socotranus</i> (21cm) Listen for its call at night: <i>woup-woup da-pwoorp</i> . Socotra is the only place it is found in the world.
		
Forbes-Watson's Swift <i>Apus berliozii</i> (17cm). The only swift likely to be seen – often in large flocks, though it is not common; nests in caves	Black-crowned Sparrow-Lark <i>Eremopterix nigriceps</i> (12cm). Can be seen in large flocks in sandy areas, often close to roads.	Socotra Cisticola <i>Cisticola haesitata</i> (12cm). Small, dipping song-flight over bushes in coastal dunes. Only found in the world on Socotra.

بعض من طيور سقطري الخاصة
أحد أسهل أكثر من 220 نوعا من الطيور في جزيرة سقطري، بما في ذلك 11 نوعا من الطيور التي لا توجد في أي مكان آخر في العالم. 5 منها مهددة عالميا بالانقراض، بما في ذلك الصقر المصري المنتشر، بما في ذلك الصقر المصري المنتشر، بما في ذلك الصقر المصري المنتشر.

	
العصك <i>Falco tinnunculus</i> (المنفعة بين الجائحات 75 سم) أصغر الصقور الجارية في جزيرة سقطري يقطن على الصخور عالية فوق غابات.	الصقور سقطري <i>Buteo socotranensis</i> (المنفعة بين الجائحات 110 سم) يوجد في الجبال والسهول على الصخور المنخفضة.
	
صبيحة النحل (المنفعة) <i>Spilopelia senegalensis</i> (المنفعة بين الجائحات 25 سم) واسعة الانتشار في جميع أنحاء الجزيرة.	الجمجمة القرمزية أو القرمزية <i>Otus socotranus</i> (21 سم) أصغر الصقور التي تطير ليلًا، وتوجد في الجزيرة فقط في سقطري.

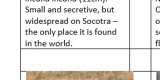


For more information contact Ahmed Saeed Suleiman on Socotra: gambem@yahoo.com
For full bird identification on Socotra we recommend: *Birds of the Middle East* by Porter & Aspinall.
FOS thanks BirdLife International for help with this leaflet.

		
Socotra Warbler <i>Incaco incoco</i> (11cm). Small and secretive, but widespread on Socotra – the only place it is found in the world.	Socotra Sunbird <i>Nectarinia fulfordi</i> (14cm). Only found in the world on Socotra. Commonly seen taking nectar from flowers.	Socotra Grey Sparrow <i>Lanius meridionalis</i> . Eats large insects, lizards, which it on thorns for a

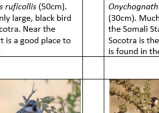


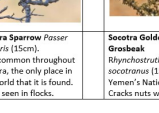


	
الجمجمة القرمزية أو القرمزية <i>Otus socotranus</i> (21 سم) أصغر الصقور التي تطير ليلًا، وتوجد في الجزيرة فقط في سقطري.	الصقور سقطري <i>Buteo socotranensis</i> (المنفعة بين الجائحات 110 سم) يوجد في الجبال والسهول على الصخور المنخفضة.

		
سلافا سقطريية <i>Incaco incoco</i> (11cm). صغيرة خفية، موجودة في جميع أنحاء سقطري – هذا هو المكان الوحيد الذي يوجد فيه في العالم.	نيترينيثا سقطريية <i>Nectarinia fulfordi</i> (المنفعة بين الجائحات 14 سم). توجد في سقطري فقط. شائعة في الحدائق.	سيري سقطريية <i>Lanius meridionalis</i> (المنفعة بين الجائحات 25 سم). تلتصق بالنباتات وتتغذى من الحشرات، والتي تأكلها في العشب.
		
طستني بروجويي <i>Incaco incoco</i> (11cm). الوحيد من طيور البوم السوداء في سقطري، وهو من بين أصغرها.	سيفريي سقطريي <i>Oncophanes fater</i> (30cm). يوجد في سقطري فقط. شائع في الحدائق.	سيفريي صوماليي <i>Oncophanes fater</i> (30cm). يوجد في سقطري فقط. شائع في الحدائق.
		
فروبوي سقطريي <i>Incaco incoco</i> (11cm). يوجد في سقطري فقط. شائع في الحدائق.	سيفريي صوماليي <i>Oncophanes fater</i> (30cm). يوجد في سقطري فقط. شائع في الحدائق.	سيفريي صوماليي <i>Oncophanes fater</i> (30cm). يوجد في سقطري فقط. شائع في الحدائق.



Some special reptiles of Socotra

In total, 31 species of reptiles have been recorded on Socotra Archipelago, including 29 that are found nowhere else in the world. Of those, 35% are Threatened, Near Threatened or Data Deficient, including the dragon's blood tree gecko. This leaflet shows some that are endemic and easy to spot, all non-poisonous. Enjoy your visit.

		
Brown-necked Raven <i>Corvus nigrifrons</i> (50cm). The only large, black bird on Socotra. Near the airport is a good place to see it.	Socotra Starling <i>Oryzopsis fater</i> (30cm). Much rarer than the Small Starling; Socotra is the only place it is found in the world.	Small Starling <i>Oryzopsis fater</i> (30cm). Often in flocks flying over and villages. The (here) has a grey
		
Socotra Sparrow <i>Passer insularis</i> (15cm). Very common throughout Socotra, the only place in the world that it is found. Often seen in flocks.	Socotra Golden-winged Greenlet <i>Rhyncostethus socotranus</i> (15cm) Yemen's National bird. Cracks nuts with its bill.	Socotra Bunting <i>Emberiza socotranus</i> (13cm) the rarest birds Socotra, the only found in the world.

		
Günther's racer <i>Ditypophis vivax</i> A relict nocturnal species. Harmless though viper-like in appearance. Eats mice.	Socotran chameleon <i>Chamaeleo monachus</i> A relict nocturnal species. Near Threatened (CITES). Aggressive if disturbed.	Socotra skink <i>Trachylepis socotrana</i> Diurnal skink. Common and widespread, even in urban areas (rockwalls).

LIFE ON THE ISLAND

POPULATION STRUCTURE AND REGENERATION OF *BOSWELLIA ELONGATA* IN THE HOMHIL AREA

Salem Ahmed Saeed Hamdiah
balagahar@yahoo.com

Socotra Island has the highest diversity of *Burseraceae* family members in the world. It is home to seven or eight species of *Boswellia*, all of them endemic, and five species of *Commiphora*, four of them endemic. All species live in the zone of dryland deciduous tree or shrub vegetation. Some species colonize lowlands (*Boswellia popoviana*, *Commiphora ornifolia*, *C. socotrana*), while others grow only in the highlands (*B. ameero*, *C. planiformis*).

Frankincense trees are divided into two groups. Species from first group belong to ground rooted trees (*B. ameero*, incl. *B. sp. A*, *B. elongata* and *B. socotrana*). The second group is composed of cliff rooted species (*B. popoviana*, *B. dioscorides*, *B. bullata* and *B. nana*). Generally, ground rooted species are more endangered because of the strong impact of grazing on their regeneration. Frankincense trees have had a high socioeconomic and cultural value since ancient times. The olibanum was a product of high importance and has been harvested for thousands of years, including on Socotra. However, local people use these trees in a special sylvo-pastoral system cutting branches as a fodder for cattle, in traditional medicine and as a source of nectar for honey bees.

In past decades a decline of frankincense and myrrh tree populations is evident, due to lack of the regeneration of ground rooted species caused by livestock grazing. There is also a lack of systematic studies that could examine the population status of the species and which could lead to improved management and conservation.

Since 1999 a group of Czech researchers from Mendel University in Brno have been working on reforestation activities through forest nurseries support followed by planting the trees in the countryside. One example of such reforestation effort is located in the Homhil protected area, in the north-east of Socotra, Leeyah locality, where a fenced garden of approximately 0.3 ha has been established in 2012 within the Czech Development Assistance project.

Homhil is famous for having one of the biggest population of *Boswellia elongata* on Socotra, and for two years a population structure of old trees and survey of potential of regeneration was carried out. The objective was to quantify density and population structure of *B. elongata* and to analyse the natural regeneration status of the species. The seedlings were investigated in regular nets of square plots 1 x 1 m with spacing 5 m; in total, 36 squares (36 m²) were investigated. The seedlings inside research squares were counted and their height was measured. The size of research area for assessing the population structure of old trees was 75 ha of the Homhil plateau. The position of each tree was measured by GPS and height of tree, height of stem, diameters of crown in two perpendicular directions and GBH were recorded.



LIFE ON THE ISLAND

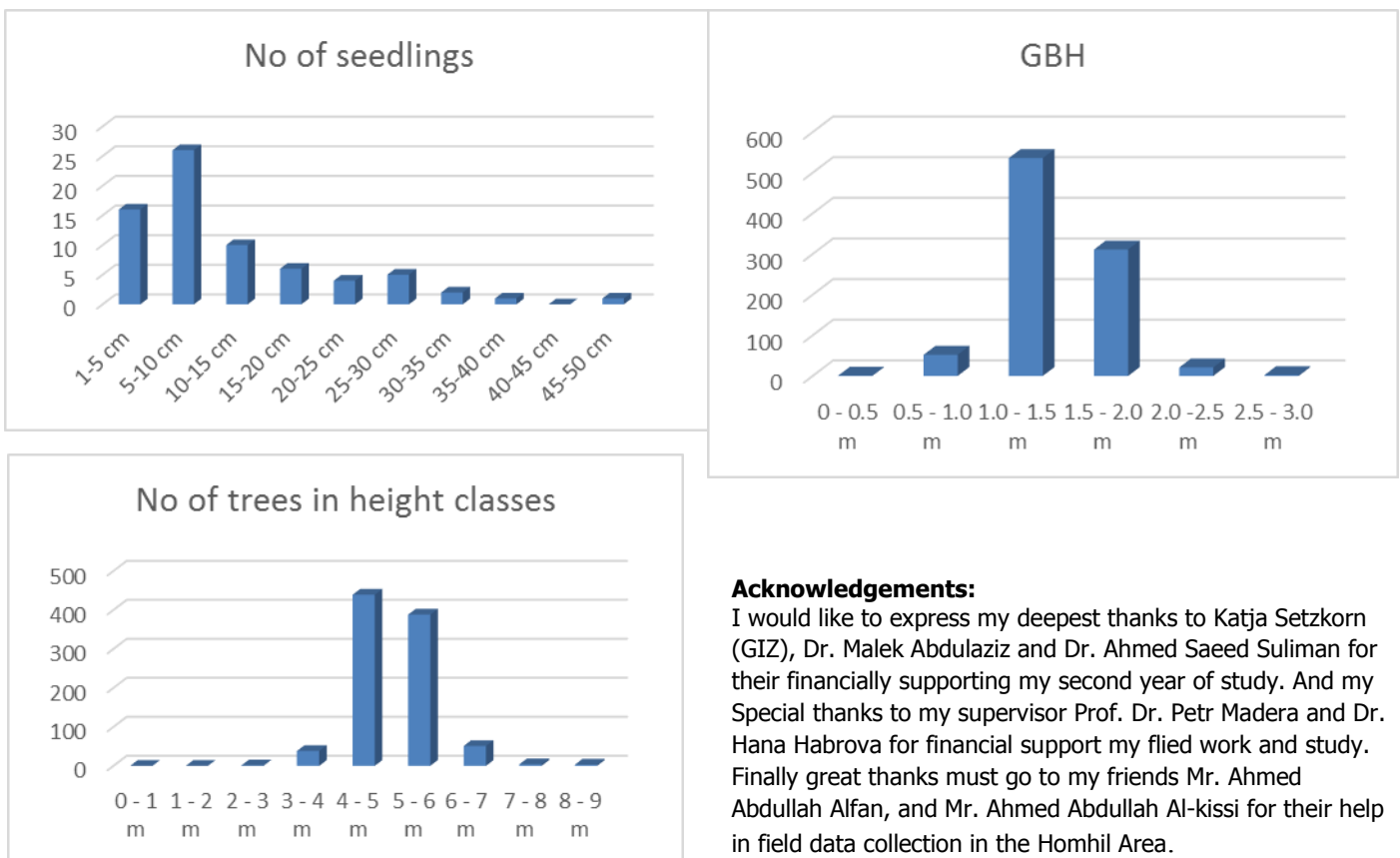
Results:

71 seedlings were found inside 36 research plots. The seedlings density reached 1.97 specimens per square meter, this equates to 19,722 seedlings per hectare during two years of fenced garden lifetime. The average height was 13 cm, with a range of 2 to 50 cm. The distribution of seedlings in height classes is shown in Figure 1. The highest abundance of seedlings is in height classes 5-10 cm and 1-5 cm; that is mostly 1 and 2 years old seedlings. No seedlings were found outside of the fenced garden.

A total of 940 individuals were measured in an area of 75 ha, 21 of which were dead. The population density was 12.53 trees per ha. The basic biometric characteristics of the population are given in the Table 1. The population has an abnormal structure; the highest abundance is in GBH classes 1-2 m and height classes 4-6 m (Fig. 2-3). Young trees in lower classes show lower abundance, indicating long-term lack of both natural and artificial regeneration. The potential for natural regeneration is relatively high as demonstrated by the results of seedling investigations in fenced areas.

Conclusions:

The current grazing and sylvo-pastoral system results in a gradual degradation of the population and inhibits its natural regeneration. The situation of *B. elongata* in the Homhil area calls for urgent action for conservation of the species. A proper management plan and its implementation are required.



Acknowledgements:

I would like to express my deepest thanks to Katja Setzkorn (GIZ), Dr. Malek Abdulaziz and Dr. Ahmed Saeed Suliman for their financially supporting my second year of study. And my Special thanks to my supervisor Prof. Dr. Petr Madera and Dr. Hana Habrova for financial support my field work and study. Finally great thanks must go to my friends Mr. Ahmed Abdullah Alfani, and Mr. Ahmed Abdullah Al-kissi for their help in field data collection in the Homhil Area.

Tab. 1: Basic biometric characteristics of population

	The height of tree [m]	The height of stem [m]	GBH [m]	Crown area [m ²]
Mean	4.94	2.02	1.01	41.17
Min	2.10	1.00	0.40	1.57
Max	8.82	5.00	2.62	129.53
Number of the living trees	919.00	97.76%		
Number of the dead trees	21.00	2.24%		

LIFE ON THE ISLAND

Cooperation between Mendel University in Brno and Socotra Community College

Hana Habrova & Petr Nemeč, Mendel University in Brno
hana.habrova@centrum.cz

Building on the successful implementation of different developing and educational projects, where Mendel University worked with communities, primary and secondary schools and teachers, work has begun on the development of university education on Socotra.

Socotra Community College (SCC), under Yemeni Ministry of Professional Training and Technical Education, was established in 2014 with the aims of building the technical and professional capacities of tribal communities and improving the education of people of Socotra. Two major study programmes started in the academic year 2014/2015 – Computer Sciences and Accounting. In September 2015, a study programme in Environmental Studies should be established, to be followed by others such as Marine Ecosystem Studies, Terrestrial Biodiversity Studies, and later on also by Chemistry, Mathematics, Botany, Tourism, Water Management, Electricity Engineering etc.

In 2014 the Czech Development Agency decided to add Yemen to a group of priority countries for projects of cooperation between Czech and foreign universities. After discussions with SCC representatives, Mendel University applied and later won a project. If the political and security situation will allow, the project would start in June 2015.

The goal of the project is to increase the expertise and level of education of local people through the involvement of Mendel University teachers, and to support inter-university cooperation. Teachers from Mendel University will help to improve education curricula; they will also cooperate on preparing new lectures and courses in the field of natural sciences. SCC students will participate under the guidance of MENDELU teachers in relevant field-trips. The other project goal is the purchase of scientific literature, focusing particularly on books and papers dealing with Socotra, as there is currently no library on Socotra. Mendel University teachers will as also assist in guiding students final theses.

The islanders, who currently are increasing in numbers, will be able to find work, thanks to a good education, in various positions now generally filled by people from outside the island, including in tourism and government. The project idea is welcomed on the island. The local leaders are well aware that the lack of knowledge about environmental issues by Socotra residents can lead to mismanagement of natural resources and the gradual damage of some of the most attractive features of the island.



Photos: Mohamed Amer Zrkine, Petr Nemeč and Terezia Durdiakova



LIFE ON THE ISLAND

VEGETATION SUCCESSION ALONG NEW ROADS ON SOQOTRA ISLAND (YEMEN): EFFECTS OF INVASIVE PLANT SPECIES AND UTILIZATION OF SELECTED NATIVE PLANTS FOR RESISTENCE TO DISTURBANCE

Petr Maděra¹, Pavel Kovář², Jaroslav Vojta², Daniel Volařík¹, Luboš Úradníček¹, Alena Salašová¹, Jaroslav Koblížek¹ & Petr Jelínek¹

¹Mendel University in Brno, Faculty of Forestry and Wood Technology, Department of the Forest Botany, Dendrology and Geobiocoenology, Zemědělská 1/1665, 613 00 Brno

²Charles University in Prague, Faculty of Science, Department of Botany, Benátská 2, 128 01 Prague

Paved (tarmac) roads have been constructed on Soqotra island over the last 15 years. The vegetation along the roads was disturbed and erosion started immediately after the disturbance resulting from the road building. Our assumption is that analysis of plants growing after disturbance should minimise the problems caused by erosion and improve stabilization of the road edges.

The knowledge of which plant species are able to grow in the unfavourable conditions along the roads is important for correct selection of plants used for replanting. The vegetation succession was observed using phytosociological relevés as a tool of recording and mapping assemblages of plant species along the roads as new linear structures in the landscape. Data from phytosociological relevés were analysed and the succession was characterised at different altitudes. The results can help us to select group of plants (especially shrubs and trees) which are suitable to be used as stabilizing green mantle in various site conditions and for different purposes (anti-erosional, ornamental, protection against noise or dust, etc.).



Fig.1: the local network of pathways used by people and domestic animals served as only means of transport. Such a network was created foot by foot by man for centuries and is a valuable cultural heritage.

Fig. 2: Transitional period with non-paved roads, when cars came to the island

Fig.3: The paved (tarmac) roads were constructed on Soqotra island over the last 15 years.



LIFE ON THE ISLAND

FIELD SURVEY OF *DRACAENA CINNABARI* POPULATIONS IN FIRMIHIN: METHODOLOGY AND PRELIMINARY RESULTS

Radim Adolt Ing. Ph.D.

In 2010 and 2011 more than 100 inventory plots distributed over the Firmihin area (Socotra Island, Yemen) were surveyed. Locations of all these plots were generated according to random tessellation stratified sampling design with congruent, squared cells each containing one sample location (field plot). Plot centers were permanently marked by geodetic landmarks to facilitate future comparisons of the measurement situation at each plot (including repeated identification of individual trees). Field work was conducted using FieldMap survey and mapping technology by IFER Ltd.

Dracaena cinnabari (DC) specimens located within fixed area circular plots were divided into several subpopulations, their positions mapped and a set of tree and plot-level variables were recorded. In addition to the most common dendrometric measurements (diameter in breast height, total tree height, stem height, mapping of crown projections) we also collected mean number of branching orders, a variable necessary to predict crown age.

All survey data (including spatial data) have been transferred into a PostgreSQL/PostGIS database. Under PostgreSQL first preliminary estimates on main DC population parameters were obtained using survey sampling methods, which are in principle identical to approaches used within national forest inventories worldwide.

At the 12th Annual General Meeting of the Friends of Socotra (Czech Republic, held on 13.-15. September 2013) our survey methodology was presented along with preliminary estimates of total number of DC specimens, their spatial density, mean crown age and proportion of specimens of given crown age classes. Detailed information about this survey, methodology and results will be available through a special issue of the Journal of Landscape Ecology (vol. 6, Nr. 3).



CONFERENCES

13TH FRIENDS OF SOQOTRA AGM

Rome, Italy

Julian Jansen van Rensburg

The 13th Friends of Socotra conference and AGM was held on the 19th and 20th September 2014 at the 16th century garden of an aristocratic palace in the historic centre of Rome. The venue could not have been more idyllic and suitable. Being surrounded on all sides by an historic garden with an important artistic heritage hosting several valuable plant species collections added to the wealth and range of talks centred on the theme, Biodiversity and Culture of Socotra: A multi-disciplinary outlook on the islands' past, present and future.

Thanks to our hosts from the Department of Environmental Biology of Sapienza, University of Rome, most notably Fabio Attorre, this year's conference had an unprecedented number of Yemeni attendees, which allowed us to enjoy lively debates on botanical and cultural heritage issues.

Abstracts from many of the presented papers are included on the following pages. Photos by Dirk Vandorpe.



RESEARCH

SOCIO-ECONOMIC IMPACT ANALYSIS – SOQOTRA, PROGRAM ON CONSERVATION AND SUSTAINABLE USE OF BIODIVERSITY IN YEMEN

*Daniela Siebeck**

Socio-Economic Impact Expert, GIZ. Address: Am Muehlberg 23a, 83093 Bad Endorf, Germany
cpas.siebeck@gmail.com

Responsible management of natural resources contributes to economic development. Based on this premise the GIZ Program on Conservation and Sustainable Use of Biodiversity developed the concept of "Conservation through value addition" which safeguards biodiversity while benefiting from its potential to improve the living conditions of poor communities on the UNESCO World Heritage Site the Socotra Archipelago.

The presented SIA is based on empirical research conducted in December 2013 and highlights Socotra's socio-economic conditions, project-related traditional knowledge, resourcefulness, values, conflict-and-cooperation-practices and trends shaping the program's context. Guided by the principle of conflict sensitivity, reciprocal impacts between program, community, environment and interrelated dynamics are evaluated for their potential to promote cooperative / positive and mitigate disintegrative / negative impacts on society and program objectives.

Interim results indicate a complex and challenging program-context: contrasting stakeholders' interests range from conservation to development to exploitation; imported goods, competing ideologies and structures triggered disintegrative trends and emerging conflicts which challenge social cohesion. Yet, there is no reason to give up on Socotra: Projects that strengthen social cohesion, a joint benefactor-beneficiary ownership and that build on the Socotran people's unique cultural resilience and ability to integrate diversity may contribute to not only human development and biodiversity conservation but even to local stability and peace.

BIODIVERSITY CONSERVATION THROUGH IMPROVEMENT OF LIVELIHOODS – A GIZ APPROACH ON COMMUNITY DEVELOPMENT

Malek Abdulaziz¹, Katja Setzkorn² and Mazen Aldarhe³

¹Project Dictator (Manager), GIZ, Hadaa, San'a Yemen

²Programme Manager, Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH, P.O.Box 692, San'a, Yemen

³Technical Officer on Conservation & Sustainable Use of Biodiversity Program in Socotra, GIZ, Hadiboh, Soqotra, Yemen.
malek.abdulaziz@giz.de

To alleviate the impact of local communities on biodiversity in Soqotra Island, GIZ implemented an approach based on three complementary tools: i) passing a significant role in decision making on the use and management of resources to local communities (strengthening ownership), ii) providing economic alternatives to natural based livelihoods to the local population and iii) to foster local understanding of sustainable biodiversity use via direct community participation in all implementation stages. In order to achieve this approach the "Cash for Work" mechanism was introduced and the local population has been closely involved in all planning stages. The implementation phase has been conducted by an elected committee representing the people of the villages; the whole process has been supervised and monitored by GIZ. The benefit for Soqotri people began appearing during the implementation process, for example through their self-organization in development committees, profiting from training and empowerment measures. Also job opportunities for local communities were created offering short-term income generation; women have participated actively in the implementation. In addition to that, sharing of technical knowledge and networking (learning from each other) among different projects took place. This creates a long-term asset to address the communities' needs and to improve their livelihoods while aiming to mitigate the pressures on biodiversity.

Training activities

- Practical training
- Leaves harvesting
- Juice and gel extraction



Three months later

- Locals started to replant the aloe in wider areas



Overall benefits

- Strengthening communities
- Training, motivation and empowerment
- Creation of job opportunities for local communities offering short-term income
- Active involvement of women in the implementation.
- Sharing of technical knowledge and networking (learning from each other) among different projects.
- Long-term asset to address the communities' needs and to improve their livelihoods
- Mitigating consequently the pressure on biodiversity.

RESEARCH

PROGRESS TOWARDS UNDERSTANDING AND CONSERVING THE FLORA OF SOQOTRA: DATABASES AND DISTRIBUTIONS, EVOLUTION, ETHNOBOTANY AND FUNCTIONAL TYPES

Alan Forrest¹, Felicity Anderson¹, Anna Hunt¹, Sabina Knees¹, Sophie Neale¹ and Malek Abdulaziz¹

¹Centre for Middle Eastern Plants, Royal Botanic Garden Edinburgh, Scotland, UK
A.Forrest@rbge.ac.uk

As previously discussed at Friends of Soqotra congresses in the last two years, a three year research program to integrate evolutionary and other data into the conservation of the Flora of Soqotra has been established. During this brief presentation, we will present some progress during the first year of the project, including some details of the database developed, the use of distribution data, the incorporation and analysis of evolutionary data and some new studies of Soqotran plants, the spatial analysis of ethnobotanical information, and the use of functional types in conservation planning.

DEVELOPMENT OF DRAGONBLOOD TREE ARTIFICIAL PLANTATION DURING 8 YEARS

by Petr Madera¹, Hana Habrova¹, Jindrich Pavlis¹, Irena Hubalkova¹, Daniel Volarik¹ and Nadezda Nadezdina¹

¹Department of Forest Botany, Dendrology and Geobiocoenology, Mendel University in Brno, Zemedelska 3, 613 00 Brno, Czech Republic
petrmad@mendelu.cz

The first artificial plantation of Dragonblood trees was established at Shibbhon in 2006. More than 800 specimens were planted in area of 1 ha. The plantation was fenced and an irrigation system was built. The height, number of leaves, vitality and mortality were measured during eight years of the trees' growth. The results show the growth of Dragonblood trees is very slow. It is clear that it will be necessary to protect against goats browsing for a long time.

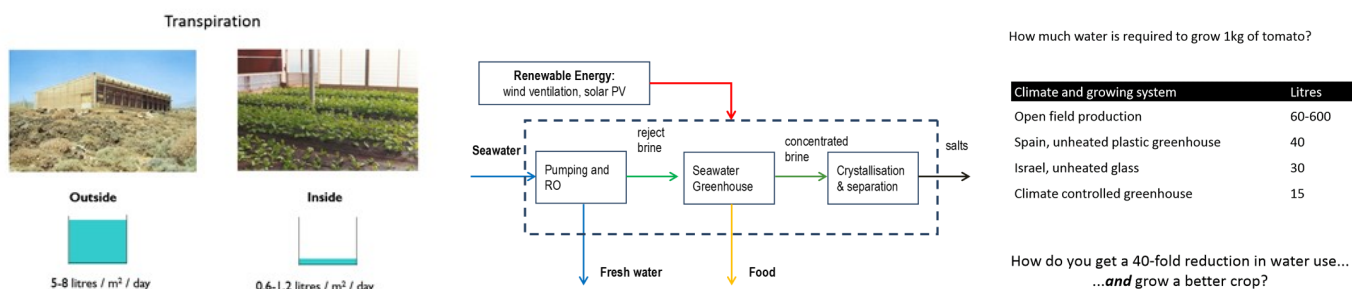
RESTORATIVE AGRICULTURE WITH THE SEAWATER GREENHOUSE

Charlie Paton

Seawater Greenhouse Ltd, 2a Greenwood Road, London E8 1AB UK
charlie@seawatergreenhouse.com

The Seawater Greenhouse creates fresh water and cooler, humid air, enabling crops to grow in hot, arid regions. The energy to drive the process is provided by the wind directly and sunlight (using solar PV). Operational CO₂ emissions are zero. The greenhouse will be covered with photoselective netting to protect crops from the extremes of the elements. The project will focus on regions where crop cultivation is difficult or impossible, due to low rainfall, high temperatures and desiccating wind.

Seawater Greenhouse have won an award from Innovate UK to develop a practical and low cost solution for protected agriculture in Somaliland, with a focus on developing methods of sustainable intensification of agriculture in the Horn of Africa region. Conditions in Socotra and Yemen are sufficiently similar to those in Somaliland and it is anticipated that the solutions may be adapted and transferred once the project is operational.



RESEARCH

A SCRIPT FOR SOQOTRI?

Miranda Morris

University of St. Andrews, 7 Union Street, St. Andrews, Fife KY16 9PQ, St. Andrews, UK
miranda@mirandamorris.co.uk

Although there are some 7,800 mutually unintelligible languages spoken in the world today, by the end of this century half of these will have disappeared. A purely oral language, once lost, can never be replaced.

The six Modern South Arabian languages, which include Soqotri, have no written form, and in the countries where they are spoken they are in competition with the highest prestige language of all, Arabic.

These languages can only survive if they develop a written form, a script. For our project, "Documentation and ethno-linguistic analysis of the Modern South Arabian languages", funded by Leverhulme, we made an initial decision that any script had to be easy to read and quick to learn. With this in mind, and with colleagues from the language-speaking communities, we have devised a script which is a slightly modified form of the Arabic alphabet. It is this script that will be used in all publications resulting from the project.

At the end of the first year and a half of the project, it has been tested on a variety of speakers and has already been used by speakers to transcribe many of the spoken texts we have so far recorded.

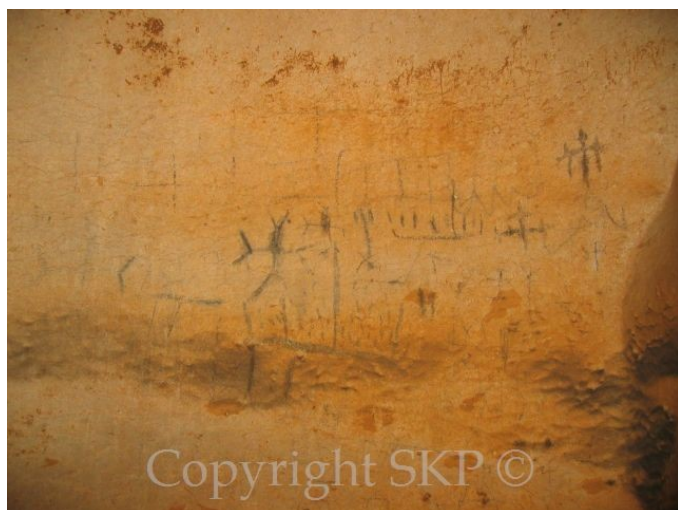
NEW PETROGLYPHS DISCOVERED ON THE ISLAND OF SOCOTRA

Julian Jansen van Rensburg

jansenvanrensburg.julian@gmail.com

In March 2011, a series of hitherto unknown petroglyphs were discovered and photographed by Vladimir Melnik. These images were given to Julian Jansen van Rensburg to include in his ongoing Socotra Rock Art Project. While further analysis is ongoing, at present Julian has identified a number of extremely interesting glyphs. These include outlines of different sized feet, an orant (a figure with raised arms), several cupules and markings that appear to be some form of script. These glyphs have parallels with the petroglyphs found at the well-known site of Eriosh on Socotra's north coast. The importance of this discovery is that it not only adds to our limited knowledge of rock art on Socotra (the current corpus includes six petroglyph sites and two cave sites), but also adds to our understanding of the cultural and religious lives of the people of Socotra in antiquity.

Naumkin, V. V., and Sedov, A. V. 1993. "Monuments of Socotra". *Topoi*. 70. 3. 2: 569-623.



RESEARCH

THE ROCK ART OF DAHAISI CAVE

Julian Jansen van Rensburg¹ and Peter De Geest²

¹Berliner Antique Kolleg, 4 Woodhead Drive, Orpingon, Kent, UK

²The Soqotra Karst Project, Destelbergen, Belgium

jansenvanrensburg.julian@gmail.com

The Socotra Karst Project (SKP) has been exploring, mapping and studying the cave systems of Socotra for over a decade. These explorations have resulted in the discovery of a range of archaeological findings, such as Hoq cave. Here the corpus of inscriptional evidence on the cave walls has shed light on the diverse range of maritime visitors to the island (Strauch 2012). This paper presents the next chapter in subterranean rock art on Socotra by looking at the rock art located in Dahaisi cave, situated in the eastern interior of the island.

Dahaisi cave is approximately 355 meters long and ends in a large chamber replete with depictions of anthropomorphic and animal figures, geometric designs that include rectangles, undulating lines and circles, and images of what look strikingly like ships. Amongst these designs are a number of different types of crosses, one of which is markedly similar to a Christian cross found in the Sinai (Kawatoko and Tokunaga 2006: fig.10, 225). These findings are critical to our understanding of the social, cultural and religious characteristics of Socotra's little-known ancient interior population. In this paper we will present our findings, question those suppositions made by earlier archaeologists (Doe 1992; Naumkin and Sedov 1993), and offer our own informed hypotheses.

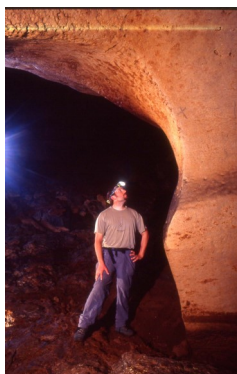
KARST MANAGEMENT AND CULTURAL HERITAGE

Peter De Geest

The Soqotra Karst Project, Destelbergen, Belgium

peterdegeest@hotmail.com

Karst is a unique, non-renewable resource with significant biological, hydrological, mineralogical, scientific, cultural, recreational, and even economic values. One of the key elements to karst management is acknowledging the importance of karst as a complex ecosystem, and focusing efforts on protecting the integrity of karst systems. The three-dimensional nature of karst causes it to function quite differently from other landforms and in particular the potential for karst hydrological systems to transport air, water, nutrients, soil, and pollutants into and through underground environments should be carefully managed. Over time a strong relationship between the karst areas and their inhabitants' lifestyle has evolved. Some aspects, such as water supplies, housing, land use, local products and beliefs will be discussed. The Socotra Karst Project has built up an extensive cave related database over the last decade and continues to investigate more karst aspects in a multidisciplinary approach.



RESEARCH

THE CONSERVATION OF BIODIVERSITY IN SOQOTRA, A STUDY CASE ON REPTILES

Mauro Fasola¹, Roberto Sindaco¹, Edoardo Razzetti², Cristina Grieco¹, Ugo Ziliani¹, Caterina Carugati¹, Francesca Pella¹, Daniele Pellitteri-Rosa¹, Fabio Pupin¹, Luca Butikofer⁴, Elisa Riservato¹, Salvador Carranza³, Raquel Vasconcelos^{3,4}, Xavier Santos⁴, Margarita Metallinou³, Elena Gómez-Díaz³, Joan Garcia-Porta³, Ahmed Saeed Suleiman⁵, Abobakr Salem⁵, Yaya Saleh Saeed⁵ and Salem Ahmed Saeed⁵

¹ Dipartimento Scienze della Terra e dell'Ambiente, Via Ferrata 9, 27100 Pavia, Italy

² Museo di Storia Naturale, Università, Piazza Botta 9, 27100 Pavia Italy

³ Institute of Evolutionary Biology (CSIC-Universitat Pompeu Fabra). Passeig Marítim de la Barceloneta 37-49, E-08003 Barcelona, Spain.

⁴ CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Universidade do Porto, Campus Agrário de Vairão, R. Padre Armando Quintas, 4485-661 Vairão, Portugal

⁵ Environmental Protection Authority, Soqotra
fasola@unipv.it

We describe the research carried out on the Soqotran fauna from 2007 to 2013, within the program on sustainable development by the Italian Cooperation and by the Environment Protection Authority. We focused mainly on reptiles, because we deemed that this taxon, albeit studied in the past, still deserved much interest, both as subject of zoological research for unveiling cryptic diversity, and as a group of conservation concern, being the most diverse vertebrate group in Soqotra with a very high endemism. The whole archipelago, including the smaller islands, was surveyed during five seasons of field research totalling 14 months from 2007 to 2013.

The main published results include: the description of two distinctive new species (*Hemidactylus inintellectus* from Soqotra and *Trachylepis cristinae* from Abd al-Kuri), an assessment of the phylogeography of the *Hemidactylus* geckos and the *Trachylepis* skinks, a description of the distribution patterns of all the 31 known species of terrestrial reptiles, and a morphological analysis. Further publications (in preparation) are due to include: the systematics and biogeography of *H. homoeolepis* complex, the phylogeography of the genus *Pristurus*, the ecological segregation among geckos, the morphology in relation to radiation, and the optimization and prioritization of the areas of major concern for reptile conservation. We had also started to tackle other research topics on Soqotran fauna, particularly some invertebrate groups, certain peculiar habitats, and the density of the livestock, its impact on the environment, and its relevance for the local economy. Unfortunately, since 2011 the lack of funds has impacted upon our initiatives and the cooperation project was suspended pending the settlement of the political situation in Yemen.

ENIGMAS OF SOCOTRA – RESULTS OF INDEPENDENT EXPLORATION

Vladimir Melnik

Independent researcher, Rublevskoe shosse 14/3-26, Moscow, Russia
zanskar@mail.ru

Tahrir phenomena – noble-looking animal of Socotra, which does not officially exist

Socotrans distinguish between feral and wild goats. They are certain that the wild goats are not feral, but a quite separate type of goat. From mountain herdsmen I heard stories about wild animal, which they called sometimes in Arabic style "ghazal" or more often tahrir. After careful study of historical documents and reports of first Socotra explorers a lot of references to the unknown mammal were found.

The tahrir is also mentioned in Socotri folklore and verses. For the last several years I have regularly visited one of the remote areas, where wild goats can still be found. Unfortunately, I witnessed constant livestock reduction. Tahrir is susceptible to hunting pressure and badly in need of protection through the establishment of effective laws and reserves. We have to save this "noble-looking animals" as James Raymond Wellsted described the tahrir.

Wall alignments and ancient structures of Southern plateau. Photo presentation of recent discoveries

The use of GIS technology provided data to find a number of new archaeological sites in remote and hard-to-reach areas and take a step closer to solving the mystery of the enigmatic wall alignments on Socotra.

RESEARCH

UNVEILING EXTRAORDINARY DIVERSITY – DNA BARCODING OF SOQOTRA REPTILES

Raquel Vasconcelos^{1,2}, Santiago Montero³, Marc Simó²; Roberto Sindaco⁴; Xavier Santos¹; Mauro Fasola⁵; Gustavo Llorente³; Edoardo Razzetti, Salvador Carranza²

1 CIBIO-UP, Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Universidade do Porto. Campus Agrário de Vairão, R. Padre Armando Quintas, 4485-661 Vairão, Portugal. 2 Institute of Evolutionary Biology (CSIC-UPF), Passeig Marítim de la Barceloneta, 37-49, E-08003 Barcelona, Spain. 3 Departament de Biologia Animal, Facultat de Biologia, Universitat de Barcelona, Av. Diagonal 643, E-08028 Barcelona, Spain. 4 Museo Civico di Storia Naturale, Via San Francesco di Sales 88, 10022 Carmagnola (TO), Italy. 5 Dipartimento Scienze della Terra e dell'Ambiente, Via Ferrata 9, 27100 Pavia, Italy.
raquel.vasconcelos@cibio.up.pt, salvicarranza@gmail.com

DNA barcoding is based on the idea of using a short genetic sequence from a standard marker (cytochrome c oxidase 1 gene, CO1) the way a supermarket scanner distinguishes products. It requires some standards of public availability and quality of data, and of required data elements. It has the advantage of accelerated identification of specimens and identification of candidate/ cryptic species in a largely reliably and cost-efficient way with many implications in conservation and management. However, it presents some technical problems, especially with reptiles, and methodological problems, such as difficulty in choosing the right threshold for delimitating species.

Recently barcoding studies of reptiles have been successful and so we wished to apply it to Socotra due to significance of this geographic region and of their reptiles in a conservation perspective.

We overcome problems and successfully sequenced 380 individuals of all presently recognised species and most of the specimens were correctly identified. This can be important to preclude the illegal pet-trade and introduction of exotic specimens in the archipelago that were already noticed, as in a near future non-experts and authorities will have access to ways of quickly identifying the Socotra reptiles using this DNA reference library.

We have also detected high genetic distance values within many of the gecko species, higher than distances among species. This indicates that more species than presently recognised should be taken into account for conservation planning and that cryptic diversity is unveiled. So future description of new species, using also morphological and ecological data, should be undertaken.



RESEARCH

COMMUNITY STRUCTURE AND FEEDING ECOLOGY OF CORAL REEF FISH ON SOQOTRA – YEMEN

Mohammed Kaed Hassan Ali¹ and Andrea Belluscio²

¹Ph.D. Student, Marine Biology, Sapienza – University of Rome. Address: Sheraton street, San'a, Yemen

²Dept. of Biology and Biotechnologies, Sapienza – University of Rome, p.le Aldo Moro 5, 00185 Rome, Italy
albrihy2@hotmail.com

Biology and feeding ecology of coral reef fish are virtually unknown in this area. The biology and ecology of nine species were investigated between April 2005 and May 2006. A total of 1238 specimens were sampled. Total length and weight were measured, sex was determined, and stomach contents were collected and analyzed. The species examined were: *Carangoides gymnostethus*, *Epinephelus stoliczkae*, *E. fasciatus*, *Euthynnus affinis*, *Lethrinus microdon*, *L. borbonicus*, *L. nebulosus*, *L. mahsena*, *Lutjanus kasmira*, *L. bohar*, and *L. gibbus*.

37.72 % of the stomachs were empty and the rest contained prey. Small pelagic fishes like clupeids and anchovies were present in the diets of all species examined except *L. nebulosus*. Crustaceans were important prey for *E. stoliczkae*, *E. fasciatus* and *L. gibbus*. Furthermore, molluscs were important for *L. mahsena*, *L. nebulosus* and *L. borbonicus*. Echinoderms were more important for *L. nebulosus* and for *L. mahsena*. The results showed that, *L. kasmira*, *L. bohar*, *L. microdon*, *C. gymnostethus* and *E. affinis* were carnivores—typically piscivores, however *L. gibbus*, *L. nebulosus*, *L. mahsena*, *L. borbonicus*, *E. stoliczkae* and *E. fasciatus* appear to be opportunistic.

Finally, it should be stressed here the need of more studies on the diet of fish if we wish to achieve adequate trophic models. Amongst carnivorous species, the main needs are towards the smaller pelagic fish species (Clupeids, anchovies, etc.) which often make the bulk of the abundance in the diets of most predators.

UNUSUAL WATER CYCLE IN SOQOTRA ISLAND (YEMEN), OXYGEN AND HYDROGEN ISOTOPE EVIDENCE

Maurizio Barbieri¹, Maria Battistel¹, Angela Nigro¹ and Ludovico Rossini¹

¹Department of Earth Sciences, Sapienza University of Rome, P.le A. Moro, 5 – 00185 Rome, Italy
maurizio.barbieri@uniroma1.it

A total of 135 water samples were collected in the Yemeni island of Socotra. All the samples were analyzed for physical-chemical parameters and the ratios of oxygen and hydrogen isotopes. The analysis of major ions, particularly the Na/Cl ratio, highlights that the ocean is the main factor which affected the chemical composition of the waters in Socotra. Besides the computation of the local meteoric water line (LMWL) as $\delta D = 7.6821 \delta^{18}O + 2.028$, both oxygen and hydrogen isotopes allowed us to identify the processes that involved the hydrologic cycle on Socotra Island. The isotopes values indicate that the influence of the winter monsoon is negligible whereas the geographical position, the surrounding sea and the topography of the island are the main factors affecting the hydrogeochemistry of the area. Oxygen and hydrogen stable isotope concentrations stress the peculiar daily cycle of evapotranspiration-drizzling occurring on the upper mountain, that represent the recharge of the springs located at the foot of the mountain. This dew and drizzle recharge system plays an important role providing water for human needs, even if it is not sufficient, in this semi-arid environment.



Svetlana and Andrew on a boat with 12 other tourists evacuated from Socotra to Oman. See articles page 2.
Photo: Felix Iten

CONTACTS

FRIENDS OF SOQOTRA

Friends of Soqatra (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 Soqatra island group
- Raise awareness of the archipelago's biodiversity and the unique culture and language of the islanders
- Help improve the quality of life of the island communities and support their traditional land management practices.



Contacting FoS

info@friendsofsoqatra.org
<https://www.facebook.com/FriendsOfSoqatra>

General Correspondence (Secretary):
 Julian Jansen Van Rensburg;
 fos.secretary@gmail.com

Tayf: Sue Christie, 49 Carnbane Road, Lisburn, BT27 5NG, Northern Ireland. Phone: +44 (0)2890 455770 or +44 (0)2892 682770 Email: drsuechristie@aol.com

Chairman: Kay van Damme, Birmingham University. Email: Kay.VanDamme@gmail.com

Country Representatives

Germany: Dr Dana Pietsch, Tübingen, Germany. dana.pietsch@uni-tuebingen.de

Soqatra: Muhammad Amir Ahmad Amir Di Min Selmehun [POB 111 Soqatra; mobile tel. 77727753]

Oman: Issam Khamis Thabit Al Soqotri, P.O.B. 766, Area Code 211, Governorate of Dhofar, Sultanate of Oman; telephone 00 968 95485734

The Gulf: Shukri Nuh Abdullah Al Harbi Di Kishin P.O.B. 1590, 'Ajman, U.A.E., telephone 00 97150 5775678 or 00 97150 2320808

Friends of Soqatra Website

<http://www.friendsofsoqatra.org>

The Friends of Soqatra website is managed by Dana Pietsch. It provides information on completed and ongoing scientific research on the Soqatra archipelago including data, bibliographies and contacts of institutions and research teams. The structure and layout also includes a page in the Arabic language which gives some general information about FOS. If you would like to submit content for the website, please contact Dana:
dana.pietsch@uni-tuebingen.de

Officers and Executive Committee

Chairman: Dr Kay Van Damme, Birmingham University, UK
 Kay.VanDamme@gmail.com

Vice Chairman: Dr Dana Pietsch, Tübingen, Germany.
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Secretary: Dr Julian Jansen Van Rensburg; fos.secretary@gmail.com

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 hctmorris@hotmail.com

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Communications Officer: Lisa Banfield, Dubai. lisabanfield@gmail.com

Website Manager: Dr Dana Pietsch, Tübingen, Germany.
 Dana.pietsch@uni-tuebingen.de

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 Vladimir Melnik,
 Miranda Morris,
 Bohdana Rambuskova,
 Raquel Vasconcelos

WEBSITES

www.FriendsofSoqatra.org
www.Socotraisland.org/fund

The following websites also provide information on the island:

<http://rbqesun1.rbge.org.uk/Arabia/Soqotra/home/page01.html> Royal Botanic Garden Edinburgh. Plants, panoramas and ethnobotany.

www.uni-rostock.de/fakult/manafak/biologie/wranik/socotra. University of Rostock (Animals)

www.soqatra.info A personal view by John Farrar.

www.yemen-protectedareas.org

www.socotraproject.org – SGBP website

<http://www.sogotra.com>; <http://www.soqatra.org/int/>
<http://www.sogotra.com/vb/showthread.php?p=39668>

<http://socotra.info/socotra-news.php?start=20>

TAYF

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If you would like to include an article, research note or notice in future issues please send to:

drsuechristie@aol.com

Editing, design and layout by Sue Christie.

Arabic Translation provided by Issam Edin Mohamed Ali,
azol12@yahoo.com

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Photos from the Socotra Karst Project. See page 15

