



The National Field  
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Environmental Conservation  
About innovative Environment Research

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Sultanate of Oman  
Diwan of Royal Court

Issue 19

# Jabal Samhan

The biggest and diverse  
reserves in Oman



## Environmental Enrichment in Oman ...

### >> A paper presented by the National Centre during the Environmental Forum at Al-sharqia University

The National Field Research Centre for Environmental Conservation presented a paper entitled "Environmental Enrichment in the Sultanate of Oman" at the First Environmental Forum organized by Al Sharqia University in North Sharqia Governorate, Ibra Wilayat, in cooperation with the National Centre. The paper presented by researcher Hussain bin Ali Al Qasimi from the National Centre, dealt with the Centre's policy on the scientific research and the activities, programs and work plan of the Centre, in addition to utilization of the scientific research carried out by the Centre in the field of environmental conservation. On the other hand, Iman Bint Farooq Al Shuhaybiya from Volunteer Environmental Team (SEDIC's) said that the forum aims to raise awareness among university students and participants in all fields related to voluntary environmental work, as well



as training a number of Omani youth who are interested in Omani environmental issues, through addressing such environmental issues. The meeting included a discussion session under the title «Environmental Behaviors, conducted by Volunteer Environmental Team (SEDIC's) in the university, in addition to the presentation of a workshop entitled «Environmental Volunteering, presented by the Omani Volunteer Network (Taawn). It is worth mentioning that the forum seeks to contribute to the voluntary environmental

aspects of the teams and volunteer groups in the university and the local community in the Governorates of North and South Sharqia and the educational institutions in the Sultanate as one of the students' activities which contribute to the student environmental volunteer work for preserving the environmental facilities that the Sultanate boasts.



point of view

## His life is in Danger

**Dawood Sulaiman Al Balushi**  
Editor-in-Chief

Once you see his body embraces the mountains, and his eyes monitoring the distant horizon to observe the wildlife with all of its natural icons, you will know that you are looking to a man who is loyal to his country and its natural and environmental system. Sometimes he is under the sun's rays and sometimes in the thick darkness. All this is to prevent some irresponsible person who comes at different times to catch some animals for the pleasure of hunting, eating or selling.

His life is always endangered by guns fired at animals and by the chase of cars raging in the prairies and nature reserves. Some wildlife rangers in the Sultanate have survived the death, some have been shot and others their lives ended by car accidents as result of the chasing. Their daily lives are in imminent danger due to some of the misdeeds of some people.

Such misdeeds by individuals who tend to hunt wild animals, is a serious threat to the sustainability of the Omani environment. Despite the environmental and legal awareness of this issue, there are still ongoing violations in this aspect, and rangers are exposed to many challenges, including loss of life. There are strong claims by the environmentalists in the Sultanate to activate the judicial side in this matter, and to tighten the legal penalties for the perpetrators of this environmental offense. It is also time to open an environmental court or judicial department to consider environmental issues that are constantly increasing in the Sultanate. Such judicial arrangements will be a deterrent to those who tend to commit environmental crimes and encroach upon the wildlife of the Sultanate.

Greetings and acknowledgments go to all the rangers of wildlife in the Sultanate. We are very grateful to you for your generous efforts and putting your life at risk in order to monitor and preserve wildlife and protect the homeland. Everyone is also required to be an advocate for and defender of the Omani environment and of all the achievements of the blessed renaissance. Environment is for us now and will be for our future generations.

### >> The Centre Organizes an Activity on Waste Types and Recycling

The Environmental Education Team at the National Field Research Centre for Environmental Conservation (NFRCEC) set up an environmental activity for the students of Bahjat Al-Anwar School for Basic Education entitled «Waste Types and Recycle». The activity aimed to develop the moral values of the students to help activate the positive relationship between man and the environment, to raise awareness about the main factors causing environmental problems and how to find appropriate solutions to them, as well as to promote positive individuals environmental behavior to serve the environmental system, to promote aspects of environmental education in the Sultanate and also to promote joint work between the government agencies and the academic and research institutions in the Sultanate. The event included a lecture on the types of waste and how to recycle them, a short film about waste recycling. As well, an explanation was given about waste recycling mechanism. Students were divided into groups to carry out some activities and use some materials and recycle them.



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The scientific study prepared by the Omani researcher Omran bin Mohammed bin Ali Al-Kamzari proved the possibility of using specialized computer programs to classify the environment of coral reefs using photographs or videos taken through underwater photography, with an accuracy ratio up to 95% instead of the traditional methods of coral reef surveys which are time-consuming and costly to obtain the required data. The study, entitled «Automated Identification of the Components of Coral Reefs using Underwater Photography», was awarded the Best Postgraduate Award for the academic year 20162017- from Sultan Qaboos University



### A Good Performance

More than 90% of non-living components were correctly identified. For speed and simplicity in determining coral cover, nearest three neighboring coral communities were used to classify 7800 sample images from 9 species of coral communities (6 species of coral reefs and 3 non-coral species). The average of correct identification of all species was 85% with some differences between some species ranging from 72% to 99%. The quality of the automatic classification increased significantly when both colour and texture characteristics were used, but there was no significant difference between methods used of the different algorithms.

# A Computer Based Omani Scientific Study for Classification of Coral Reef Environment



### The Recommendations

- The importance of developing an automated monitoring system for the coral communities area based on an automatic classification of coral reef components to contribute to the assessment and monitoring of the Marine Reserves.
- Future work should include assessing the need for underwater colour correction and developing some algorithms based on the program of (the nearest neighbor).
- In this study, 9 types of coral components were entered into the database. It would be interesting to test the algorithms with more coral and non-coral species such as sponge etc. which may be abundant in some habitats.
- To use this dual approach (feature extraction and classification), it is proposed to encourage easy-to-use software to monitor coral communities.
- Further studies may depend on creating of a much larger data bank containing underwater videos that more of their substrates can be extracted. It may be interesting to expand the geographical scope and depth of these video surveys to cover most coral communities.

#### Traditional Methods of Data Collection

What distinguishes this study is its adoption of modern technological methods compared to traditional methods, where traditional methods of coral reef data collection include a variety of sampling-based methods for assessing the types and abundance of coral reefs and calculating their area. The common denominator between those methods is the long time spent by coral reef experts in analyzing data either under the sea by diving or in the laboratory, to analyze those images or videos to reach satisfactory results, but such methods are high-cost methods.

#### A Technical Shift that Saves Time and Efforts

The aim of this study is to define the properties of underwater images (especially texture and colour) and to develop usable algorithms for classification of video images in semi-automatic illustration. That is a survey of coral reef communities in a less costly and time-consuming manner.

#### ◆ The study aims to define the characteristics of underwater images and to develop algorithms that can classify coral reef communities

#### The Importance and Benefits of This Study

This study provides a basis for the development of rapid coral reef monitoring systems to assess changes in living coral cover for disturbances or different levels of protection. It accurately estimates coral coverage across sites and years by taking an important and reliable step towards automated photo explanation for coral reefs. Thus, it will be possible to monitor the status of benthic coral groups and to properly apply appropriate sampling capability to detect major spatial and temporal changes in the current cover of a variety of bottom types. Errors of discrepancy between observers can be

avoided through this technique. This method can also provide an excellent opportunity to measure performance.

#### Results of the Study

The study concluded that the computer can contribute with automatic or semi-automatic system in the classification of coral reefs through photographs or videos. This will reduce the time spent by the specialist in underwater sampling and access to underwater data and thus reduce costs. As well it will compensate the efforts of hosting experts specialized in identifying communities of marine organisms. In addition to the possibility of using very accurate electronic classification of coral reef components with accuracy up to 90 - 95% by using the simplest methods of classification. Also there is the possibility of using the study to develop rapid automated systems for coral reef monitoring as well as the contribution of this mechanism in using more accurate methods to classify coral reef components with high results and better than using more complex algorithms.



**A Research study on  
land usage, livelihoods  
and conservation of the  
reserve area**

A team of researchers from the National Field Research Centre for Environmental Conservation conducted a research study on the use of land, livelihoods and conservation of the environment in the Jabal Samhan Nature Reserve. That is because the size and diversity of the Samhan Nature Reserve make it the most diverse in the Sultanate. The reserve includes a number of endangered species, especially the endangered Arabian Leopard, as it is the most important habitat in the Sultanate of the Arabian Leopard, and is the last hope to protect this species in the Arabian Peninsula as whole.

# Jabal Samhan

## The biggest and diverse reserves in Oman

- ▶ It covers an area of 4500 km<sup>2</sup> and combines the unique cloud forests affected by monsoons in the southern part with mountainous regions and the dry plains of Najd in the north. It extends to 80 km towards the Eastern coast
- ▶ It includes a number of endemic breeds and endangered species, particularly the Arabian Leopard
- ▶ This research project seeks to support the future management for the conservation of the environment in Jabal Samhan by clarifying the geographical distribution of natural resource usages in the reserve area

This framework includes 37 population gatherings, 928 families, as well as a total of 7599 members of the community including men, women and children. The strategy of samples collection required communicating with families, about 20% of the total population of Jabal Samhan. To determine the spatial reference of the mentioned human activities, a network of 16 areas of human activity was established to cover the area of the Reserve area. Field work was carried out in cooperation with the Ministry of Environment and Climate Affairs, then the data were entered into a database designed specifically for research and analysis.

### The Results

The study found that more than half of the total population in Jabal Samhan live in settlement along the eastern coastline, and a few live on the northern border of the Reserve, while the smaller population is located on the southern side in small scattered communities on the hills and the valleys in the mountainous slopes. The data indicated that the families of the communities surrounding the Jabal Samhan Reserve are large families with an average of 12 persons per the family. Their income is based on the wages of their employed members. Many of them work in public sector jobs, either in the civil ministries or the military. These are the highest employment rates and income levels within the communities which live the north.

Although households rely on monthly wages from jobs, most households in Jabal Samhan continue to carry out traditional economic activities, particularly grazing livestock such as sheep, camels and cows in some areas, as well as harvesting natural resources. The results also show that 60% of the total number of livestock is owned by communities in the southern part of the Reserve area, while 17 per cent of the total number of livestock is owned by the communities living in the north. The majority of the households in the

### Information About the Reserve

Jabal Samhan Nature Reserve area was established by the Royal Decree No. 48 / 97 under the management of the Ministry of Environment and Climate Affairs. It is the largest protected area in the Sultanate. It covers an area of 4500 km<sup>2</sup> and combines the unique cloud forests which are affected by monsoons in the southern part of the mountain and the dry plains of Najd in the north which extend as far as 80 km towards the coast in the east. Studies and researches have unequivocally demonstrated that the unique environments in the Jabal Samhan Reserve are increasingly vulnerable, particularly as a result of the sustainable exploitation of natural resources in over grazing and unregulated harvesting of mountain resources.

### The Research Project

The research project, carried out by the National Field

Research Centre for Environmental Conservation, sought to support the future management for conservation of the environment in Jabal Samhan by identifying and knowing the local communities that exploit the protected area economically wise and clarifying the geographical distribution for the use of natural resources in the reserve, as well as identifying the contribution of the Jabal Samhan Reserve in the local economy and the challenges and opportunities to be faces by the process of involving the community in environmental protection plans, by identifying the protection priorities that emerge as results of this study.

### Work Methodology

This research study was based on a methodology that sought to survey the samples through taking random social classes samples from the secondary data and field visits.



▶ The importance of involving the investors in the southern slopes for supporting the conservation plans in the reserve area

▶ The study found that more than half of the total population in the region is living in settlements along the eastern coastline

▶ The study indicated that grazing is the most used of natural resource in the reserve

▶ Despite the low income of livestock, the consumption of meat and dairy products is important in the region's human food



south send their livestock each season to the Reserve area for grazing and harvesting the natural resources, while a small number of households located in the north and east of the protected area practice similar activities.

#### Analysis of Livestock Production Systems

The analysis of livestock production systems indicated that despite the low cash returns of cattle, the consumption

a shepherd.

In the northern part of the Reserve, which is characterized by drought, herds of cattle prefer grazing woody perennial plants, especially the Cactus trees, frankincense and Seder. The sheep look for plants full of seeds and Juicer plants along with perennial trees that are available in the varied vegetation in valleys at the center and the east. In the south, which is characterized by a vegetation more versatile, camel prefer grazing perennial trees that include species listed in the Red List of the International Union for Conservation of Nature (IUCN), such as the Dhofari Comb Tree, while sheep and cows prefer grazing small shrubs and plants that contain Juice, such as the grass and astrals.

#### Cattle Feed Data Analysis

Analysis of livestock feed data in different protected areas revealed that sheep and cows meet less than half of their food needs through grazing, while camels may consume about two thirds of their dry feed needs through grazing. Due to the scarcity of feed resources, annual expenses of on camels feed spent by families living in the dry Najd area in the north of the reserve, exceed that of the families living in the south by 25% and 10% more than the families living on the eastern coasts.

#### Harvesting of Natural Resources

The study showed that many of the families surveyed, practice activities of harvesting other natural resources either for domestic use or selling. The majority of the households surveyed indicated that they usually collect medicinal plants, honey and milk within the frankincense in the territories of Jabal Samhan Reserve.

The comparison of the sampling data contributed to the calculation of the annual total value of the natural resources utilized in the Jabal Samhan Reserve. The wild products were compared with the market prices, while the number of

## Conclusions

- The study estimated the total value of natural resources exploited in Jabal Samhan Reserve at RO 476390. Given the magnitude of this contribution to the local economy, it would be impractical to impose strict restrictions on the use of the Reserve resources. Instead, future protection plans must include a balance between resource exploitation and resource conservation and should encourage the sustainability of the environment while using the land.

- The study showed that grazing is the most important use of natural resources (in terms of value). Different types of livestock practice different behaviors and effects in feeding which should be taken into consideration in the planning of the Reserve management.

- Although livestock do not provide significant financial returns to communities living in Jabal Samhan, evidence has shown that milk and other livestock products are an important part of household food and meeting of some social obligations such as sacrifices, banqueting and gifts, especially for communities of the south.

- Only a small number of households at Jabal Samhan rely solely on natural resources for their livelihood. Most of the households surveyed indicated that natural resources were only used for grazing livestock and they support their incomes through the sale of coal and frankincense.

- The study pointed out the importance of involving stable communities in the southern slopes of Jabal Samhan for supporting environmental conservation plans due to their great economic dependence on the exploitation of the natural resources of the Reserve and their direct association with the unique cloud forests that comprise the largest part of the rich biodiversity in the Reserve.

- The integration of data illustrating the environmental values in the Reserve with the results of this economic study, will contribute to the identification of the future management areas in the Reserve, thus achieving the best results for environmental conservation and economic returns.

of their meat and dairy products is important in the region's human diet. This is particularly evident in the diet of households in the south. However, the size of the herds exceeds the number of animals needed to feed these families. There are 5.43 goats per person in the northern settlements, 6.86 goats per person in the eastern settlements and 13.24 goats per person in the southern settlements. Sheep and camels spread in search of forage most of the Reserve areas. The highest grazing rates for both types are in the southern areas of the Reserve along the mountain slopes which are affected by the monsoon. It is often that herd of sheep are accompanied by the shepherd while camels are left without

days of grazing was compared with the value of the alternative feeds. The spatial reference of all land use activities at the Jabal Samhan Reserve, which was pointed out by the surveyed families to facilitate to draw the map of the known economic values in the Reserve. This map shows that the areas with the largest economic productivity in the Reserve are located in the south and east along the mountain slope and within the part affected by the monsoons, according to the perspective of the local community which used the land. Data analysis revealed that camel and sheep feed is the largest source of economic value, followed by trade of frankincense, coal and livestock breeding.



## Salalah Hosts an Environmental Conference on «Underwater Life»

An Environmental Conference on “Underwater Life” held recently at Salalah Crowne Plaza Hotel in Dhofar Governorate. It is an environmental conference where leaders, decision-makers, researchers and persons interested in Underwater Life (marine environment), gathered from inside and outside the Sultanate. Latest researches were discussed and the participants came out with ways, mechanisms and recommendations that serve maintaining sustainable development in the marine environment. The conference which was held over two days, addressed many important topics most notably the impact of industries on the underwater life, and underwater tourism (diving), as well as how to make use of the marine resources while maintaining sustainable development. The conference was accompanied by exhibition that included wings for governmental, private and civil institutions supporting the conservation of sustainable development in the marine environment.



◆ The restoration of the Arabian Oryx to its natural habitat is one of the most important achievements of the blessed Renaissance. Had it not been for the efforts of the Sultanate and the efforts of the Office of Conservation of Environment, the Arabian Oryx would have been now an extinct species of animals, and we would have only seen them in animal science books.

## Arabian Oryx



### An Omani Miracle and an International Cooperation Model

Thanks to the establishment of the natural reserve in the Sultanate in 1980, and the release of 12 pairs of these animals after breeding them in the United States through strains brought from the Sultanate of Oman, Saudi Arabia and Yemen, the Arabian Oryx were rescued. The efforts of the Office of Conservation of Environment were able to increase the numbers of Arabian Oryx to 658 in the Preserve of Living and Fungal Organisms at “Jaalony” in Al-Wusta Governorate. Those efforts preserve them from extinction. So, they returned to their natural habitat again and to inspire poets by their

beautiful eyes once again.

#### An End That Turns into a Starting Point for a New Beginning

The end was declared at the beginning of the seventies, when it was announced the Arabian Oryx was eliminated due to hunting and the last herd of 6 heads was seen in Jeddah Al-Harrasis, but alas, even that small number was eliminated by the the violators of the wildlife who used Firearms. In addition, urban expansion was also a reason for the extinction of the Arabian Oryx from the wild. Thus, wildlife lost the beauty of the Arabian Oryx which

was adapted to the desert environment and beauty. Then came the first initiative by His Majesty Sultan Qaboos bin Said, may Allah protect him. He directed the specialist's to the necessity of the resettlement of the Arabian Oryx. His Majesty initiative was in line with efforts of a group of international bodies which hunted 3 heads of Arabian Oryx in 1970 to save this rare kind of animals and secure until circumstances allow resettlement in their native habitat. In March 1980, the Sultanate introduced the first herd of Arabian Oryx coming from Phoenix Zoo at Arizona (USA) to be resettled and reared in Jeddah Al-

## Awareness Campaign on Desertification for School Students in Dhofar

The General Directorate of Environment and Climate Affairs at Dhofar Governorate, in collaboration with Raysut Cement Company, has organized an environmental awareness campaign in a number of schools in the governorate, coinciding with Planet Earth Day, which falls on the 22nd of last April and the Regional Environment Day which falls on the 24th of the same month each year. The campaign, which lasted until April 30, targeted the schools located on the mountainous strip of the governorate Wilayats, starting from the Wilayat of Mirbat and ending with Dhalkut. The lectures dealt with the phenomenon of desertification in the Sultanate in general and the Governorate of Dhofar in particular. Those lectures aimed at the school students in the mountainous areas affected by the desertification phenomenon and explained its causes as well as the damage resulting from it. That is because this phenomenon is related to the reality of their living in terms of accommodation and lifestyle.



### Environmental Achievement by Muscat International Airport

Muscat International Airport has achieved the first level of carbon credits from the International Airports Council (ICAC) for its developed efforts in carbon emission mapping, which the only internationally recognized standard for managing global airport carbon emissions. The Director of HSE at Oman Airports Management Company said that

the company believes in its environmental responsibility and is committed to reducing the causes of climate change in the context of its strategy. It is also part of the company's interest to develop a sustainable future for its airports through effective management of the environmental impacts of its operations, in consistence with the Ninth Five Year Plan of the the Sultanate of Oman Government.

## Clean and Planting of 300 Seedlings of Mangrove Trees In Khor Al-Hafri – Barkaa

In cooperation with the Omani Women's Association in the Wilayat of Barkaa and the school of Thabit bin Qais for Basic Education (5 - 10) and the school of Asmaa nit Alnuman for Basic Education, with the participation of the people of the Al Hafri region, the Ministry of Environment and Climate Affairs carried out a campaign for cleaning and planting of 300 seedlings of mangrove trees in Khor Alhafri at Barkaa. This campaign comes as part of the pursuit of the Ministry of environment and climate Affairs to highlight the importance of mangrove trees. As well the Ministry also aim to instill the principles of proper environmental education for all segments of the local community. This will provide the participants with various skills, such as the scientific environmental information, field skills needed for society contribution to all righteousness Program and the activities of the Ministry that aim to disseminating sound environmental culture and to evolve everyone in the joint efforts to instill environmental education conscious among young people through schools and various field activities.



one male. The return journey began six years after the project establishment in the zoos of the United States of America under the orders of His Majesty the Sultan Qaboos, who arranged for the return of the Arabian Oryx to the sands of the Sultanate and to be considered a National Heritage. Two years later, after the re-adaptation and sponsorship of the Oryx, they were released to live again in their natural habitat at the Nature and Wildlife Reserve.

□ **The international herd started by 12 heads of Arabian Oryx that were collected from the Arabian Gulf**

□ **Thanks to the Royal directives, the total number of Oryx reached 658 in the Living and Fungal Organisms Reserve at Al-Wusta Governorate**

and appointed as observers for the sanctuary and guarded it constantly, the matter which rapidly contributed to the cessation of this infringement on the Oryx.



Harasees, Al-Wusta Governorate, due to its validity for Oryx environmental needs. There, the survived coming Arabian Oryx found lush vegetation watered by fog coming from the sea, in addition to the existence of many types of wildlife. The returned Arabian Oryx herd consisted of 12 heads, originally collected from the Arabian Gulf countries. The Sultanate played a major role in this. It provided the global herd with two females and

## The Activities of «Globe Environment» in Al-Dakhilia and Al-Wusta under the Slogan «Scientists of Oman»

The Sixth Student Forum for (Globe Environment) was held in Al-Dakhilia and Al-Wusta Governorates under the slogan «Young Oman Scientists». The events were held at Ras Madarka area, Al Wusta Governorate, Wilayat of Duqm in the presence of Mohammed Hilal Al Mahrouqi, Assistant Director of Finance and Acting Director of the Directorate, as well as the program teachers and supervisors, with the participation of students targeted by the program in each of Haima, Rima. Duqm AL-Khloof schools. In Al-Dakhilia Governorate, the forum was held at Al-Risais Farm in the Wilayat of Izki under the auspices of Ahmed bin Jabr Al-Mahrouqi, Assistant Director-General for Educational Evaluation, Educational Programs and Private Schools with

the presence of a number of participating school principals and science supervisors. The program included a number of schools at Al-Dakhilia educational area, such as Shaikh Mohammed bin Masaud School, Heritage District School Al-Fadhl bin Al-Hawari School, Jamaa School, Um Hanai School, and Umm Ayman School. The gathering, sponsored by the US space agency NASA, which was launched in 2009 under the Memorandum of Understanding signed between the Sultanate and the US Agency, aims to provide an opportunity to discover the creative ideas in the fields of science and environment among students and to introduce the local and educational community to the program and its objectives, as well as the protocols included in the program.


**Environmental Vocabulary**

### Space Knight

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Riding his horse, his horse is his will, his strength, his courage, his patience, riding him in a wide space, has no guidance except his innate possessions and natural abilities. He is free and free, does not settle in one place throughout his life. He is the knight who searches for freedom, Beauty and space, and so employs the precision of time. Do not fade his wings from flying in the vast space astronomical distances to reveal skillfully where his eggs will be saved, and hatch his young.

He travels individually, crossing distances of up to 7,000 kilometers, leaving the Adansonia tree in Madagascar and East Africa heading north, as if there is a fine thread that attracts him to the targeted place. He crosses the desert of the Empty Quarter and breathes a sigh of relief when he sees with his sharp eyes from a distance the pristine mountains of Oman and its Green orchards; he arrived in the safe country, which he knew its security before being described by humans. This inspired Falcon, which is called the sooty Falcon, sculpts his nest in the mountains on the coastline, especially in the archipelago of the islands of Oman (Demaniat) and the island of Al Fahl. He settles in pairs in his sculptured mountain nest from May to November. This seven-year period is his period of royalty in which he bleaching and hatching his young, and then trains them for air travel to become space knights.

This Falcon ends his reproductive cycle and then summons up his energy to an opposite journey. He returns to where he came. This reminds us of the winter and summer journey, but his journey free of food and water. His young, which grew up in the north, how can guide themselves and travel towards south, to a place where they have nothing except the smell of their sex. Fly and fly, and passes to places not previously seen by him. Some falls and some reaches, those who arrive from these young, the nature stops him to the place of his migration, until he is nostalgic and reaches the amount of adults returning to where he grew up.

Studies have shown that approximately 10% world widely of this bird has reproduced in Oman and the total population has decreased by 15% from the statistics of the last century. This is a clear warning to move the competent authorities to protect this beautiful bird in its form, strong in its action, the strangest of its kind. With no doubt, its protection must be a continuous process and interconnected with the places that share the geography of this bird and its paths.

The automatic tracking of this bird continuously monitor its movement through its migration routes, confirming that it is the bird that deserves to be a knight of space.

## Shaath Area at Rakhyoot .. Spectacular Nature and Unique Landscape



By: Ali Mohammed Baqi – Rakhyoot

God has blessed our dear country Oman with a beautiful nature and diversified environmental phenomenon from north to south and east to west, including beaches, plains, mountains, deserts and other natural components such as caves, valleys, Aflaj and springs, as well as temperate climates in most of the Sultanate's governorates and Wilayat. Due to its natural tourist attractions, the Sultanate has become one of the countries that have natural and tourist attractions. The Sultanate's regions are distinguished by nice atmosphere and temperate seasons during the whole year. In this article, we highlight one of the tourist areas that have become a tourist destination due to its height of 1500 meters above sea level. It is the area of Shaath which is located on the outskirts of the of Rakhiot Wilayat to the east. It is a unique natural beauty throughout the seasons of the year. There are several tourist sites in this area, most notably the heights of Zanat, Ras Sajer, dissolution sink hole and other beautiful tourist spots overlooking the sea. The area of Shaath is one of the most famous tourist sites in the Sultanate and outside. It has magnificent views and natural caves in the middle of the mountains, overlooking the sea, as well as the high altitudes, the gentle breeze and the calmness that prevails in the region. The environmental diversity that we find in many regions, plays an active role in preserving this environment with its properties, its beauty and its natural terrain. Our wise government has paid great attention to preserving the environment both in tourist seasons and after. That is because it is a national duty for everyone and in some countries it considered as main source of economic and income source.



## 7222 Marine Species Threatened with Extinction

Dr. Abdul-rahman Al Awadhi, Executive Secretary of the Regional Organization for the Protection of the Marine Environment, confirmed the recent increase in the number of threatened marine organisms to 7222 species in different continents of the world. Dr. Al Awadi explained that the most endangered marine organisms in the region are Shark Whale Sea Turtle, Dugongs, Humpback Whale and others. For his part, Sheikh Abdullah Al-Sabah, Director-General of the Kuwaiti Public Authority for Environment, said that his Authority has chosen this year, a slogan aimed at urging the competent authorities in the member countries of the Organization to activate and tighten the legal procedures necessary to stop the abuses that lead to the extinction of many endangered animals. He explained that the extinction of these organisms will lead to imbalance in the environment and food chain and loss of services and benefits provided by the extinct organism and prevailing of other new types of organism, less useful and less benefits.

## Scientists Determine the Number of Tree Species in the World

Botanic Gardens Conservation International (BGCI) in Britain has identified an approximate number of trees on the planet, with about 60,000 species. The largest number of these species is in Brazil, 8715 species, and the lowest number is in the northern region of North America, less than 1400 species. That means, about 58 percent of tree species are found in only one country in the world, and these species do not exist in other countries. According to scientists, this poses a threat to the existence of plants, due to weather phenomena and human activities. About 300 species of trees are at risk of extinction, because the number of trees in one species does not exceed 50. For example, in Tanzania, «Karomia Gigas» trees grow up to only six trees. Scientists plan to collect their seeds to protect them from extinction.

Despite Reaching Record Levels of Production Capacity ..

## Global Investments in Green Energy Drop in 2016

Results of a research supported by United Nations have shown an increase level of renewable energy production around the world, but the low cost of green energy equipment led to a 23 percent reduction in funds spent on investments.

A total of 138.5 Gigawatt of wind, solar and other renewable energy capacity worldwide added last year, up to eight percent to the previous year.

