



The National Field
Research Centre for
Environmental Conservation
About innovative Environmental Research



Sultanate of Oman
Diwan of Royal Court

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Issue 52



A scientific Study Confirms That

**The Pastoral Productivity
Decreased to More Than 85%
in Jabal Samhan Reserve**

» Within the Celebrations of the World Wildlife Day .. The National Field Research Centre Participates in an Environmental Exhibition

Written by: Fatima Al Zadjali

Photography by: Abdullah Al-Sabie

The National Field Research Centre for Environmental Conservation (NFRCEC) at the Diwan of the Royal Court, participated in the environmental awareness exhibition «Sustainability of all life on the planet», organized by the Ministry of Environment and Climate Affairs within the celebration of the World Wildlife Day, which falls on the 3rd of March 3 each year. A number of government agencies Universities and civil society institutions in the Sultanate have participated in this event too. The centre showcased several field research devices used in environmental research to monitor wildlife in the Sultanate. It also presented a number of environmental books such as “The Arabian Tahr”, “Field Research”, “Fresh Water



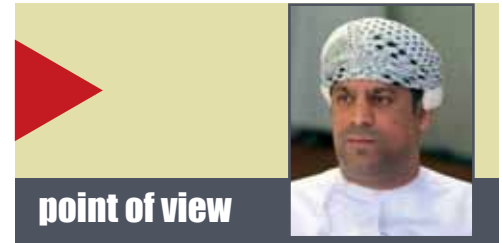
Systems”, “The Biological Diversity in Jabal Samhan” and “The Vegetation in Jabal Al Akhdar”, as well as several issues of “The Lynx Environmental Bulletin”. The Centre also presented a number of environmental films on birds, marine environment, and environmental education in the Sultanate of Oman. The exhibition aims at developing and preservation of environment and its natural resources against deterioration and pollution. It also aims to educate various groups of society on the importance of preserving biodiversity and living organisms, as well as promoting environmental culture among members of the Omani society.

» The Omani Sidr Society and «Green Seeb» Implant 450 Wild Trees in the Al Seeb Wilayat

The Omani Sidr Society (under incorporation) and the Green Seeb Group implemented the «Seeb Green 3» initiative and implanted about 450 seedlings of local Omani wild trees at Al-Maarefa Neighborhood in the sixth village of Al-Khoud in Al Seeb Wilayat, with the participation of more than 100 volunteers from Al Seeb and other Wilayats. They also planted seedlings of wild trees in the homes of the villagers, and distributed a number of seedlings as gifts to the participants. This initiative comes within a series of Green Seeb initiatives implemented by the citizens of Al Seeb. This initiative aimed at educating the community on the importance of preserving the local Omani wild trees from the danger of deterioration and extinction, in addition to the



importance of preserving the vegetation area in the Sultanate from desertification, as well as conveying a societal message on the need for cooperation and solidarity in all the Wilayats of the Sultanate on the importance of forestation and cooperation in validating the culture of Nature Conservation and preservation against tampering and sabotage. These initiatives were marked by the participation of large numbers of children of the neighborhood. Such initiatives help develop the concept of forestation and preserving of nature in the minds of children.



point of view

Banning of Plastic Bags

Dr. Dawood Sulaiman Al Balushi
Editor-in-Chief

I was very pleased with the recent decision of His Excellency the Minister of Environment and Climate Affairs on banning the use of single-used plastic bags in the Sultanate, starting from January 2021. That is because this decision has formed a good trend in the Sultanate, in line with the global efforts being made to reduce the use of plastic and to get rid of it. Also, this decision came to add another block in protecting the ecosystem in the Sultanate.

The decision came after a very long discussion in many government agencies concerned in this regard, and after joint meetings, seminars and debates between these government agencies and private sector institutions which produce and import plastic bags in the Sultanate. There was tension in such joint meetings, seminars and debates, as some people approve and some oppose the idea, but the public interest always overcomes self-interest.

Human health and the preservation of the environment and natural resources are among the highest priorities of the rational government. Therefore, it was necessary to issue this decision in order to ward off the dangers of plastic bags. Many countries of the world and the Arab and Gulf States have applied similar decisions a long time ago.

The latest statistics in the Sultanate (according to the statistics of the Omani Environment Society) show that the rate of use of plastic bags in major shopping centers only, has reached 40 million plastic bags annually for each mall. This is a very scary number. The problem becomes clearer if we add to this alarming figure, the daily consumption of plastic bags in restaurants, cafes and retail outlets. This picture does not only indicate the high consumption of such bags in the Sultanate, but also indicate that there is no awareness on the part of the consumer about the dangers and damages caused by the plastic bags. As it is well known, plastic bags are elastic materials made of chemicals and petroleum derivatives and need hundreds of years to decompose, causing fatal dangerous effects on human health and on the environment throughout such prolonged times.

We hope that private sector organizations will cooperate in implementing this decision, as they now have a period of nine and a half months until they start implementing it. We also hope that the next stage will witness the production and import of environmentally friendly bags that are rapidly degradable and have no effects on public health and the environment, as the preservation of environment is everyone's responsibility.

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The late Sultan realized the importance of Preserving the Environment and the Danger of its Neglect ...

The Legislation and Speeches of the late Sultan on the Environment Issues

Since the renaissance in 1970, His Majesty the late Sultan Qaboos bin Said bin Taimur - may God have mercy on him - cared much for the environment and the various development sectors associated with it. The environment is one of the most important issues to which the late Sultan devoted most attention, because he realizes the importance of preserving the environment and the danger of neglecting it. His Majesty's efforts to protect the environment have been multiplied through decrees, legislations, directives and speeches in various occasions and forums. That is why the Sultanate did participate 1972 in the first international conference on the environment in Stockholm - Sweden under the auspices of the United Nations. The Office of the Environmental Protection Adviser was established in 1974, and the name of which is currently changed to the "Office of Conservation of Environmental (OCE) at the Diwan of the Royal Court". The Sultanate has prepared an integrated national strategy for environmental diversity that has been emphasized in the five-year development plans that have been implemented since 1976. In 1979 the Environmental Protection and Pollution Control Council was established. His Majesty the late Sultan - may God have mercy on him - said in a speech in 1980: «We must cherish and preserve this good land against everyone who wants to tamper with the beautiful nature that God has bestowed on it. The protection of the manufactured environment and the gifted nature is a national duty and every one of us must shoulder his responsibility towards them.» Again, His Majesty, the late Sultan, issued the Environmental Protection and Pollution Control Law in 1982.



United Nations Framework Convention on Climate Change

The Sultanate was one of the first countries to sign the United Nations Framework Convention on Climate Change at the same conference in 1992, as it ratified it by the Royal Decree No. (119 / 94), and it also ratified the protocol by the Royal Decree No. 107 / 2004 .

Pursuant to the Royal Decree No. 117 / 91, the Environmental Protection Council & Pollution Control and the Ministry of Environment were merged with the Ministry of Regional Municipalities to become the "Ministry of Regional Municipalities and Environment". After that, the Ministry organized an international symposium through which it laid the basic foundations of the strategy, defined the formal environmental action approach. The Cabinet approved the strategy in 1995 and adopted an action plan for it, which should be evaluated during the five-year plans. The Ministry of Regional Municipalities and Environment at that time and the Ministry of National Economy were assigned to following it up.

As part of the efforts to protect and preserve the environment, many natural Reserves were established in various regions of the Sultanate, such as Ras Al Shajar Reserve, the Wetlands Reserve, Bandar Al Khiran Reserve, Demaniyat Islands Reserve, Jabal Al Akhdar Landscape Reserve, Salil Natural Park Reserve, and the Turtle Reserve among others.

The Sultanate did not lose sight of the inclusion of environmental protection and pollution prevention in the Basic Statute of the State issued by Royal Decree (101 / 96). Article (12) of it stipulated the Sultanate's commitment to preserve the environment, protect it and prevent pollution. The Future Vision of the Sultanate focuses on the basic axes of managing renewable environmental resources. Also, a voluntary civil society was established in the Sultanate in March 2004 by the name of the "Environment Society of Oman", aiming to enhance environmental work in the Sultanate. A Royal Decree was issued in 2006 to establish the Oman Botanical Garden and Trees with the aim of preserving Omani plants subject to extinction. In 2007 The Ministry of Environment and Climate Affairs was established by the Royal Decree No. 90 / 2007.

In 2009, an authority was established under the name "National Field Research Centre for Environmental Conservation (NFRCEC)" by the Royal Decree No. 54 / 2009 to form another dimension to the epic of efforts that was made by the late Sultan Qaboos bin Said - may God have mercy on him - for the Omani environment because of his belief in the importance of scientific research and its active and positive role in the march of environmental work. In continuation of the same efforts, the Oman Center for Animal and Plant Resources was established by Royal Orders of the late Sultan Qaboos bin Saeed - may God have mercy on him - in 2012 to study and evaluate the opportunities available in the animal and plant genetic resources sector of the Sultanate.



The Establishing of Environmental Institutions

One of the things that indicate the high status of the environment in the thought of the late Sultan - may God rest his soul in peace - was the allocation of his Majesty to a ministry for environment under the name «The Ministry of Environment» in the year 1984, in order to be concerned with the implementation of environmental plans in coordination and cooperation with various agencies to preserve the environment. At the end of the same year, His Majesty Sultan Qaboos - may God have mercy on him - directed the Council of Ministers to prepare a national strategy for the protection of the Omani environment, to be assigned to the Council for Environmental Protection and Pollution Control as a competent authority in this regard. In 1985, the Council for Environmental Protection and Pollution Control issued a decision for its general secretariat to prepare a draft of the strategy, after which the mission of this strategy was transferred to the Ministry of Environment, which, in its turn, held a symposium to prepare the national strategy for the protection of the Omani environment in partnership with

the United Nations Environment Program and the International Union for Conservation of Nature (IUCN) in 1986. In 1989, during his visit to UNESCO headquarters, His Majesty the late Sultan Qaboos bin Said - may God bless him - announced the launch of (UNESCO - Sultan Qaboos Environment Protection Prize), which aims to focus on and pay attention to the outstanding contributions made by individuals, groups, Governmental and non-governmental organizations in managing and protecting the environment, as well as the environmental education and training, in addition to establishing and managing biosphere Reserves, natural world heritage sites and global geological parks. Sultan Qaboos - may God have mercy on him - said in his speech on this occasion: «In appreciation of the role of UNESCO in intensifying scientific efforts and stimulating them to participate effectively in the happiness of mankind, we are pleased to present a financial gift to the organization, the annual proceeds of which are to be allocated as a prize for scientists, institutes and institutions that contribute prominent effort in preserving the environment.»



Collective Responsibility

In a speech on the 3rd of June 1990, at the United Nations Environment Conference known as the «Earth Summit» held in Brazil, His Majesty the late Sultan focused on the preservation of the environment as a collective responsibility. He said: «Preserving the environment is a collective responsibility that is not bounded by political borders of countries. This has been proven more than once. Therefore, man, wherever he is, must contribute to preserving the environment, reconcile with it, deal with it rationally, and pay attention to the many causes of pollution, whether natural, biological, or industrial, being chemical or physical». Sultan Qaboos bin Said - may God have mercy on him - was chosen to be the spokesman for the peoples of the Arab nation at the United Nations Environment Conference in 1992, and His Majesty - may God rest his soul in peace - addressed in his speech the danger posed to the world by neglecting the interest in preserving the environment: «We

who live on our earthly planet, have neglected the issue of preserving the environment and natural resources a lot. That is because of the absence of collective coordination. We went further on the opposite direction in a strange race in search of luxury and industrial progress without taking into account the assumed balance between development and the environment and without taking into account the dire effects of this industrial progress on our atmosphere, the layers of Ozone, the waters of rivers and seas, the extinction of the living, forests and pollution of fertile soil. If the situation continues in this way, humankind may witness a kind of collective suicide". «We in the Sultanate of Oman with our personal attention and our permanent directives to our government and in coordination with the countries surrounding us, have made sincere efforts to keep our environment and territorial waters away from pollution and noise» added the late Sultan.

A scientific Study Confirms That

The Pastoral Productivity Decreased to More Than 85% in Jabal Samhan Reserve

**Prepared for publication by:
Ali Salem Bait Saeed**

Jabal Samhan Natural Reserve in the Sultanate of Oman is characterized by a unique ecosystem, as the large area of the Reserve (4,500 km²) and its containment of different environments contributed to the enrichment of its biological diversity. Jabal Samhan Natural Reserve is exposed to many human-caused pressures such as overgrazing, and overexploitation of frankincense trees in addition to the natural pressures that are caused by climate change as well as the fact that the park is exposed to the impact of tropical storms. The current study which is under the title: (Integrated Environmental Assessment of Pastoral Resources in Jabal Samhan Reserve in Sultanate of Oman) and which is achieved by: Ali Salem Muslim Beit Saeed, Muhammad Suleiman Abido, Asma Ali Aba-Hussain, and Hisham Abdel Monsef Muhammad, from the Desert Sciences and Arid Lands Program at the College of Graduate Studies at the Arab Gulf University, aims to conduct an integrated environmental assessment of pastoral resources in the Reserve using the DPSIR analysis matrix and by following the steps of policy analysis based on the vegetation analysis studies.

The Quadrates method and the 50-meter metric strip were used and 10 readings per site were taken to estimate the quantitative characteristics of the herb vegetation including coverage, density and frequency. Then the relative coverage in each site was calculated to determine the plant communities. A mowing and weighing method was used to estimate the plant productivity of rangelands (tons / hectare), in five locations south and west of the Reserve, two of which are outside the Reserve and two inside, in addition to a fenced plant since 18 years in the Twai Atair district, which was considered as a reference point.

The results of the vegetation survey showed that there has been a decrease in pastoral productivity in the Reserve by about (50%) compared to that in the fenced areas for grazing 18 years ago. Also, 6 plant species were registered within the Reserve, compared to 19 species recorded in the five study sites. The degradation increased in the south of the Reserve, where the pastoral productivity decreased to more than 85% compared to the fenced areas, where only two plant species were recorded. The analysis of policy responses showed that, despite the numerous legislations for protecting the vegetation in the Sultanate, they did not pay direct attention to the pastoral resources in the Reserve. The study came out with a proposed policy matrix aiming at activating the Law of Reserves and Wildlife Conservation, the Law of Rangelands and the Management of Livestock, so as to regulate the grazing process in the Reserve.

The Reserve

Jabal Samhan Reserve is located to the east of Dhofar Governorate, within the administrative borders of the Wilayat

of Sadah, Shalim, the Hallaniyat Islands, Mirbat, and Taqah. The idea of establishing the Jabal Samhan Nature Reserve began in the mid-1980s when the International Union for Conservation of Nature, in cooperation with the relevant authorities in the Sultanate conducted a survey study to define the chosen areas for protection and Jabal Samhan area was nominated as a natural Reserve because it contains rare ecosystems and endangered neighborhoods, notably the Arabian Leopard and the frankincense tree. Samhan Mountain consists of a group of limestone arid peaks and steep cliffs with a height of 1,800 meters, separated by deep and narrow valleys.

As a result of the desert nature, water sources are scarce and herders compete within and outside the Reserve. Mirbat Wilayat represents the main population weight, and most of its residents are shepherds and the largest numbers of livestock (cows, camels, and goats) are concentrated there in comparison to other Wilayats adjacent to the Reserve. Therefore, the southern and western areas adjacent to Mirbat are subject to overgrazing, the matter that threatens the biodiversity in the Reserve.

The Study Methodology

To estimate the characteristics of the pastoral (grassy) vegetation from outside and inside the Reserve, a Quadrates method was used. The quadrates are placed along a metric strip of 50 meters length, so that the strip is extended in two directions (north - south-west). The square was placed with dimensions of (0.5 m x 0.5 m) every 10 meters from the centre in each direction and repeated every 10 meters where 10 readings per site are taken to estimate the quantitative characteristics of the grass vegetation to include the cover (Density), and (Frequency). Then the relative coverage at each site is calculated

to determine the plant communities (Kent and Coker, 1992). In addition, a method of weeding and weighing was used in a square with dimensions of (1m × 1m) so that three readings were taken at each site and the samples were placed inside an oven at 60 C°, and a humidity of 15% until the weight stabilized to estimate the plant productivity of pastures (t / ha). In September and October 2009, five sites were selected for grassland vegetation sampling from the south and west of the Reserve, in the two areas severely affected by grazing. hedged vegetarian was selected 18 years ago at the Towi Atair district (25 km west of the Reserve) (A1) as a reference point for measuring the vegetation cover in this area, and another non-fenced site along the first site (A2) to identify the effect of grazing in this area. As for the third site, it was chosen inside the Reserve in the (Asahart) area (A3) and it is not fenced and subject to grazing by camels and goats. As for the south of the Reserve, two locations were chosen, one outside the Reserve in area (Jabjat) area (B1) 16 km east of Mirbat, and the other south of the Reserve below the southern slope in

the area of (Ghanjait) (B2) between the Wilayats of Mirbat and Sadah.

Future Scenarios of Jabal Samhan Reserve:

1- The Current Situation Scenario

The current policies support the dominance of supply and demand mechanisms for the goods and services provided by the ecosystems in the Reserve at the expense of available natural resources, and is dominated by the slogan (achieving the highest economic growth at any cost), and looking at the exploitation of the natural resources in the Reserve through the securing of cheap labor and large quantities production. It is looked to as a necessary quality to reduce prices and enhance competition. Thus, the economic development is a priority and social problems and environmental pressures are ignored. In this context, lax implementation of legislation is taking place at the expense of environmental regulations in order to attract tourism investments to the Reserve.

The support and development of livestock through the provision of veterinary services, securing water sources, and the purchase of livestock by

The Results of the Study

1. Herbal vegetation measurements inside and outside the Reserve indicated less pastoral productivity by more than 50% in the west of the Reserve than in fenced grazing areas 18 years ago. Six plant species were recorded inside the Reserve based on 19 species recorded in the five study sites. The degradation increased in the south of the Reserve, where the pastoral productivity decreased to more than 85% compared to the fenced areas, where only two plant species were recorded.
2. In spite of the numerous legislations for protecting the vegetation and preserving the biodiversity in the Sultanate, that did not limit the deterioration of the herb vegetation.
3. The sustainability scenario developed according to the methodology for building scenarios in the integrated environmental assessment is considered the only scenario through which the sustainability of the ecosystems in the Jabal Samhan Reserve can be preserved.

the competent authorities at good prices in the form of non-continuous projects aiming to reduce the numbers of livestock in order to protect natural resources, such as the cows purchase project that began in 1984 Until the year 1993, and the project to reduce camel numbers that started in 2004 until 2005 for only one year. This trend pushed the local population to maintain their flocks and increase their numbers in the areas surrounding the Reserve at the expense of pastoral resources, which contributed to its steady deterioration during the past 20 years.

At the same time, it is expected that the demand for water will increase due to the rapid rates of population growth and the large expansion of economic activities in light of the limited renewable water resources in the Reserve, represented by a number of springs and other water resources that are being contested by livestock herders, frankincense collectors and wildlife at the present time. The situation is further exacerbated by the effects of climate change, the expected decrease in rainfall, increase in drought rates, and consequently the scarcity of available water resources, and increased competition for them between different sectors, which will reduce the chances of wildlife access to sufficient water, as well as the continued deterioration of habitats and ecosystems by the increasing human pressure on the natural resources of the Reserve. This will drive the future trend towards reliance on desalination plants and the associated environmental problems such as air pollution and the marine environment, while continuing to use fossil fuels as a primary source of energy production. This means more stability for the population, preparation of the infrastructure for larger numbers of residents and tourism projects, and thus greater pressure on natural resources, and a failure in the goals for which the Jabal Samhan Reserve was established.

2- Sustainability Scenario

The trend to develop human capital in the areas adjacent to the Reserve through rehabilitation, training and awareness of the local population will contribute to increasing their awareness and providing them with new experiences that reduce their dependence on raw materials such as pastoral resources. Also, long-term strategic planning to conserve biological diversity, encourage scientific research, and enable and give priority to environmental laws and legislations, will help decision-makers to move forward in implementing environmental policies drawn for resource sustainability in the Jabal Samhan Reserve.

In light of the increase in public participation in decision-making and policy-making, the government will provide basic services in the districts and villages, which will reduce the flow of displaced population from these villages to coastal cities and this will limit the indiscriminate growth in those areas and thus reduce pollution rates and preserve biological diversity.

The policies to rehabilitate the areas affected by desertification through resting them from grazing and cultivating more areas in the frankincense Reserve, will give another dimension to the sustainability of natural resources, where an ambitious plan will be developed to organize the process of collecting frankincense, which will raise productivity in light of a remarkable flowering in the number of trees and this will improve the income level of the local population, and the dependence of the Reserve on its own revenues. All of this will give new hope for the Reserve to thrive and conserve its natural resources for the next 20 years.



■ Six plant species were registered within the Reserve, compared to 19 species recorded in the other five study sites

■ The importance of fencing the main entrances of the Reserve, especially in the eastern and western sides, to limit the flow of livestock into the Reserve

■ The necessity of activating the Rangeland Law and Animal Wealth Management to organize the grazing process in the Reserve



Recommendations

1. To build a database for the population (fixed and temporary population) centers located within or on the periphery of the reserve, so that the inventory includes the population, their herds, income sources, and handicrafts based on the environmental services provided by the Reserve.
2. To activate the Law of Pasture and Livestock Management to organize the grazing process in the Reserve.
3. To fence the main entrances of the Reserve, especially in the eastern and western sides, to limit the flow of livestock into the Reserve in order to preserve the vegetation and activate environmental control.
4. To establish a number of fenced pastoral areas outside and inside the Reserve in order to study the changes in the vegetation.
5. To encourage and finance research and scientific studies on the Reserve.



“The Ministry of Environment“ Issued a Decision Banning the Use of Single-Use Plastic Shopping Bags

His Excellency Mohammed bin Salem Al-Tobi, Minister of Environment and Climate Affairs issued Ministerial Decision No. 23 / 2020 regarding the ban on the use of single-use plastic shopping bags, as of the 1st of January 2021. The First Article of the Ministerial Decision stated that companies and institutions are prohibited from using single-use plastic shopping bags that are used once, for the purpose of protecting Omani environment. Article 2 stipulates the penalty of no less than 100 Omani riyals and no more than 2000 Omani riyals will be imposed on anyone who violates the provisions of this decision. The fine will be doubled in the event of repeating the violation, without prejudice to any more severe penalty stipulated by the the Law on Conservation of Environment and Prevention of Pollution.

It is reported that this decision was made according to the Law on Conservation of Environment and Prevention of Pollution, issued by Royal Decree No. 114 / 2001, and Royal Decree No. 18 / 2008 defining the competencies of the Ministry of Environment and Climate Affairs and adopting its organizational structure. In this regard, His Excellency Najib bin Ali Al-Rawas, Undersecretary of the Ministry of Environment and Climate Affairs, stated that this

decision comes within the plan developed by the ministry in preserving the Omani environment from pollution and the waste harmful to the environment and wildlife abundant in the Sultanate in implementation of the provisions of the Law on Conservation of Environment and Prevention of Pollution No. 114 / 2001 to achieve greater harmonization and complementary, for integrating sustainable

development goals and their indicators, into the national action plans for the management of plastic products and waste. His Excellency explained that this decision came after a set of studies and workshops conducted by the Ministry in cooperation and coordination with the relevant government and private agencies, and was issued after verifying the readiness of companies and institutions to implement it, and an appropriate and sufficient period has been put in place before this decision came into effect in order to ensure it will be fully implemented and in a proper manner without affecting manufacturers as well as consumers, the matter that will help to keep abreast of developments and successive changes in the relevant global agreements.

His Excellency pointed out that this decision will contribute greatly to reducing plastic pollution on the local environment, and the ministry was familiar with the experiences of many countries that have applied similar decisions in preventing single-use plastic bags, which contributed significantly to preserving the land and marine environment from pollution. His Excellency affirmed that the Ministry is determined to implement this decision, and will take all appropriate measures to ensure the commitment of companies and commercial institutions to implement it.



Qatar

Planting of Sidr trees in Al Bayan Primary School garden

The Public Parks Department participated in the event of planting Sidr trees in the front garden of Al-Bayan Second Primary School, as part of the school's campaign, under the slogan (We plant with our Hands), and within the framework of the initiative of planting a million trees launched by the Ministry of Municipalities and the Environment. The initiative aims at achieving the caring for trees in support of the State's efforts in achieving sustainable development and environmental conservation.

KUWAIT

A Workshop on Documenting the Biodiversity in Aljahra Reserve

The Public Authority for the Environment, in cooperation with a group of specialists in monitoring and documenting wild plants, visited Aljahra Reserve, to hold a workshop within the plan of the project for monitoring and documenting Biodiversity in the State of Kuwait, in cooperation with the International Union for the Conservation of Nature. The workshop led to the identification of scientific methods for measuring the density of vegetation, and the latest methods for storing plant samples and using them to identify fungal plants and save their genetic resources.

UAE

«Climate Change and Environment» Organizes the Forum «Our First National Seas»

The Ministry of Climate Change and Environment organized the first National Seas Forum, which aims to create a national platform for experts specializing in the state in the field of marine sciences to exchange scientific knowledge and develop marine environment research in the country in line with global trends and innovations and to enhance the state's standing in international forums in this field. The activities of the forum included reviewing and discussing a set of studies and working papers in the fields of research related to marine habitats, including seaweed, coral reefs, and mangroves, in addition to research related to storing blue carbon.

Saudi Arabia

A Cooperation Agreement for Developing Environmental Aspects

His Excellency Eng. Abdul Rahman bin Abdul Mohsen Al-Fadhli, the Minister of Environment, Water and Agriculture, signed with Dr. Enas Bint Sulaiman Al-Issa, the Director of the Princess Noura University, a cooperation agreement to develop environmental aspects (academic, research, training and development), to contribute to achieving the goals of the National Environment Strategy, in line with the «vision» 2030 «.

Bahrain

Planting of 300 Shade Trees in Albusaiten Housing Area

In support of the distinguished agricultural initiatives led by a number of citizens of the Second District in Muharraq Governorate, and in response to the request of the Municipal Member, the executive in the Muharraq Municipality began planting shaded trees, in the presence of the Municipal Representative, Hassan Al-Dawy and the General Manager of the Municipality, Engineer Ibrahim Youssef Al-Jowder. During the visit, the General Manager and the Representative of the Second District reviewed the areas planted by the Bahraini Red Crescent staff and volunteers, earlier, with the support of the Municipality and the Municipal Council.

Endangered Birds and Mammals are Environmentally Distinct and Irreparable Species

A new study shows that endangered birds and mammals are often environmentally distinct and irreplaceable in their environment, and that most of these species are not a priority in current conservation plans despite their important role in maintaining the environmental balance and biodiversity. The researchers also found that many distinct and endangered organisms are also attractive to humans because of their behavior or appearance, which can help enhance efforts to protect them.

Scientists estimate that a quarter of mammals and about 14% of birds are threatened with extinction, and many other organisms, including plants and animals, are on the way to extinction.

The results of the new study, published by researchers from the University of Southampton in the journal «Global Ecology and Conservation» on February 14th, highlight that many of the threatened species are among the most distinguished species in their environment, and other species cannot replace them if they disappear completely.



Study Expects The Elimination of Coral Reefs by 2100

According to a new scientific study by the University of Hawaii Manoa, presented at the Oceanography Conference 2020, the rising sea surface temperatures and ocean acidification that bleach coral reefs could lead to the elimination of 70% to 90% of coral reefs over the next twenty years.

The impact of climate change on the oceans could extend to the elimination of all coral reefs by the year 2100.

The climatic effects on coral reefs have led researchers to study the dimensions of this phenomenon, by relying on simulating the oceans in which coral reefs are located. The results of the study indicated that some sites in the seas and oceans will remain viable habitats for coral reefs in the year 2100, which are small portions of the Baja seas in California and the Red Sea in East Africa. According to the new study, despite the pollution that poses many threats to marine organisms, coral reefs are more vulnerable to climate change, which requires efforts that go beyond combating beach pollution.



Researchers Develop a New Algorithm to Predict Devastating Earthquakes

Earthquakes are considered the most dangerous among natural disasters because we cannot predict the timing of their occurrence, but a study published in the «Earth and Planetary Science Letters» in its issue No. 536 last February, managed to change this perception. The study explains an algorithm developed by a team of researchers from the Helmholtz Potsdam Center - German GFZ Center for Geological Research, to calculate « Prompt elasto-gravity signals - PEGS» with high accuracy and without great effort. Researchers have shown that we can rely on these signals to conclude the mechanisms, intensity, and duration of devastating earthquakes. The earthquake suddenly changes the rock panels in the ground, and thus it changes the overall distribution of blocks in the earth. This means that each earthquake will generate a simple but immediate change in gravity, which will change the density of rocks and thus change gravity for a short period, which means that the Earth's gravitational fluctuates somewhat in conjunction with the earthquake which results in secondary seismic waves as well.



Environmental Vocabulary

The King of The Dining Tables

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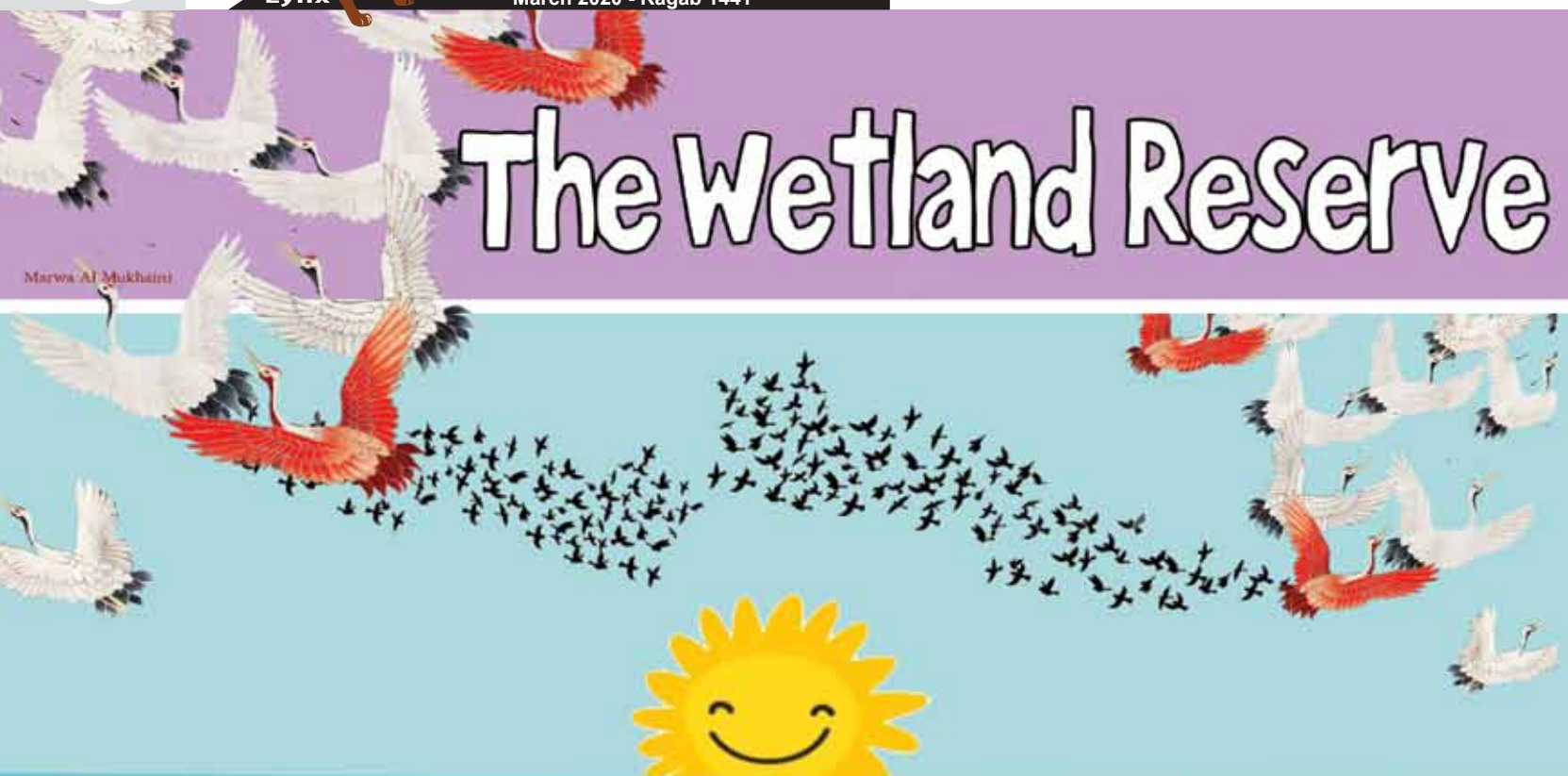
At the beginning of March, the fishermen await this period with passion each year. Before March preparing their boats and cages for this precious season. Their hearts thirst for it, and so they sharpen their arms and their concerns. Why they cannot do so and they are going to gain from one of the most important and precious marine treasures that are waiting for the huge money from the pockets of people eager for its delicious taste and greed for its great benefits. This precious 10-legged marine animal is one of the largest crustacean species, lives among rocks and corals at shallow depths of about 15 meters near the beaches, taking its caves and burrows as a safe haven during the day, and goes out at night for food and reproduction. It feeds on live and dead fish as well as on plants. When the appropriate breeding environment is in place, the fertilization process is carried out through the internal semen receptors in female through male claws located at the base of third and fourth legs. The breeding period lasts from May to February, during which the female produces nearly 900,000 eggs. The mature animal is about 12 cm long and is not allowed to be fished up if it is less than 8 cm, while its life span lasts up to 18 months if avoided from the fishermen's cages.

Artisanfishers along the coastal line of the Arabian Sea, which is overlooked by the provinces of south-east, Al Wustaand Dhofar, work like bees' honey during the three months of March until the end of May to fishing this precious marine animal because of its great economic importance due to high demand locally, regionally and globally for its high benefits. It contains very high percentages of protein, potassium, zinc, iron and varying proportions of calcium, magnesium and other important elements, so it sits on the throne of huge dining tables and tops all seafoods where some people who are looking for ability find through it their virility. Official statistics indicate that demand is increasing year by year and therefore its economic return is rising. The production in 2016 to 2018 reaching 420, 464 and 473 tons, respectively, while the production jumped to 958 tons in 2019. This is an indication of continued high demand despite its high price, and the availability of fishing as a result of the ongoing protection program implemented by the competent authorities.


Spinal marine locust, spinal lobster, locally,sharkha or sharoukh (lobster) are the same name for one species and is one of the most important commercially and most produced species in Oman. About 90% of this species produces amongst the three species, while the second species called colour dmarine locust (coloured lobster) scores the second place in production. The third species is the slipper lobster which less produced in Oman,while it is the most widely common globally. This period of the year is a valuable opportunity for those who wish to reap the benefits from the taste of the king of dining tables.

The Wetland Reserve


Marwa Al-Mukhairi



The wetland reserve is one of the important sites for hatchery of many types of fish and other marine creatures, as well as being a nesting area for turtles, and an area from which whales and other marine mammals feed.



The reserve is the main site of international importance for migratory waterbirds during the winter season.



The Wetlands Reserve is located in Mahut, Al-Wusta Governorate, while a part of it is located in Jalan Bani Bu Ali , Al-Sharqiyah Governorate .

The Barr al-Hikman Peninsula makes up the largest portion of the Wetlands Reserve in Al-Wusta Governorate .