



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



Sultanate of Oman
Diwan of Royal Court

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Climate change phenomenon threatening the globe





NFRCEC honours national climber Nazira Al-Harhiya

The National Field Research Centre for Environmental Conservation (NFRCEC) of the Diwan of Royal Court honoured Omani national climber Nazira bint Ahmad Al-Harhiya for her recent achievement as the first Omani woman to reach Mount Everest.

The award was given as part of the efforts of the centre to support Omani youth and develop their capacities in the field of environmental research, the environmental system and its natural components. Dr. Saif bin Rashid Al Shaqsi, Executive Director of the NFRCEC, gave the award to Nazirah Al-Harhiya.

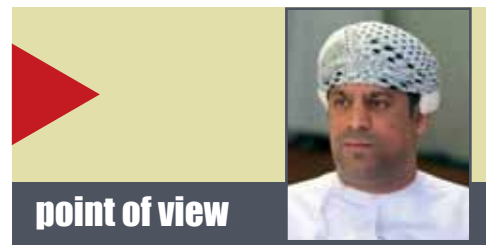
During the meeting, they discussed various aspects of cooperation and the possibility of benefiting from this national achievement, which is closely related to the environment and climate affairs, in increasing environmental awareness among the various segments of the society, particularly among athletes in the areas of adventure and mountain climbing. The possibility of benefiting from the Glob Environment Program in creating awareness about environment among youth and schools students in the Sultanate of Oman also came up for discussion. They also talked about the implementation of environmental field research programs in the Sultanate.

Dr Saif Al Shaqsi said that this award was part of the efforts of the NFRCEC to support Omani youth in their national achievements related to the environmental and climatic affairs. This



is an added value to the environmental achievements of the Sultanate as Mount Everest is one of the peaks which attract scientists due to the climate changes taking place there. He pointed out that many global awareness campaigns headed to Mount Everest to increase the environmental awareness and highlight the importance of stopping global warming and the greenhouse gases which have led to melting of many mountain peaks and its snow in many parts of the world. It has led to deteriorations and extinctions of living organisms and caused many hurricanes and devastating floods. He said that we were proud of this national achievement made by Nazira Al-Harhiya, in the hope that there will be more national achievements in the environmental field in the future. Nazirah Al-Harhiya thanked NFRCEC for this commendable gesture of honouring her. She said that the talk on environment

conservation always referred to Mount Everest as the highest peak in the world. But it is also the most polluted mountains due to the waste left behind by climbers, tourists and other companies. Cleaning drive has been carried out through helicopters or on the back of the climber people of the Sherpa tribe. Similarly, the operations of uploading wastes from the top camps also continue. Still, a lot of work required to be done to keep Mount Everest clean. She said that this was related to our awareness and interest in environmental conservation. This also applies to the Sultanate where we sometimes see the pioneers of sport adventures or tourists leave a lot of waste after practicing their favourite sports. I believe that athletes and nature lovers should be an example in their determination to keep the environment in all its areas clean to ensure the continuation of its beauty and to maintain its natural balance.



point of view

Roll back air pollution

Dr. Dawood Sulaiman Al Balushi
Editor-in-Chief

World Environment Day was celebrated on June 5 this year under the theme «Roll Back Air Pollution.» These celebrations underlined the fact that air pollution has become one of the most important environmental issues in the world. It has become more devastating recently. Thousands of people are victims of air pollution, particularly in the developing countries which lack modern technological components to deal with the situation.

According to the United Nations, about 3.8 million people die every year in developing countries, due to air pollution caused by the burning of fossil fuels, wood and other biomass fuels used for cooking, heating and lighting. More than 400,000 people have died as a result of pollution caused by the global transport sector which, emits a quarter of the total CO2 emissions, as well as deaths from air pollution due to power plants which use coal, agricultural incineration pollutants, petrochemical plants pollutants, open burning of wastes in landfills and other places, and chemical, biological and nuclear warfare pollutions.

All these real scientific evidences suggest that the countries in the world today are living in danger posed by air pollution. It is the air pollution which increases the intensity of climate change, resulting in global warming leading to the melting of snow in the polar region, increase of tropical cyclones, drought and desertification, loss of natural habitats, depletion and extinction of living organisms.

There are huge efforts made globally to stop air pollution through various conventions, treaties and international environmental protocols. But it lacked implementation of the provisions of these agreements. The technological, military, chemical and nuclear arms race is now dominating all countries of the world without any considerations about their impact on human health and natural resources.

On the eve of the World Environment Day, António Guterres, United Nations' Secretary-General, gave the message: "My message to the governments is clear: tax pollution; end fossil fuel subsidies; and stop building new coal plants. We need a green economy not a grey economy." I wish this becomes a reality.

General supervision

D. Saif bin Rashid Al Shaqsi

Editor

D. Dawood bin Sulaiman Al Balushi

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Al Hajar Al Gharbi Starlight Reserve, Al Rustaq Wildlife Reserve



balance between safe environment, security and protection of living organisms. It is a legitimate and justified issue. The Light Management Plan (LMP) relies on the basic ethics of dealing with lighting inside and around the reserve considering when and where we need to use light, its appropriate quantity. The light which does not have heat exceed 3000k will be used. Also rich blue lighting will not be allowed. The external lighting equipment should be fully covered and, will use sensors for time and movement. If any exceptions is required it would need permission from the Ministry of Environment and Climate Affairs. All the companies and industrial areas must comply with the lighting plan and take safety measures and use means to mitigate the impact of lighting.

Characteristics:

The reserve has forests of endangered trees of Juniper in the highlands, especially in Jabal Al-Sorah, which is known for the forest of these existing Juniper trees. The environmental components of the reserve are known for its geomorphological diversity and height from the sea level as well as diversity of plants which include old trees, shrubs and seasonal plants. It is also considered a shelter for many endangered species as well as a transit and feeding area for migratory species. The environment in the reserve is considered suitable for different species of birds which get vegetation and their food. There are also many wetlands in reserve, as well as the rocky drifts which are important for the species of raptors birds and others.

The mammals recorded in the reserve were the Arabian Tahr, spread in the northern slopes of the reserve and is found in areas away from human activities which are their appropriate habitat. In the past, the spread of Tahr was wider than it is today. The Lynx was recorded to be found in the upper reaches of the wadis of Al Rustaq. The Lynx was caught in yaseb village in 2016 and delivered to the ministry. This is another evidence of the presence of the animal in the reserve, as there are red and mountain foxes in the reserve.

Mountain ranges:

The Rustaq Wildlife Reserve is a mountain range extending from Wadi Bani Kharas in the east to Wadi Al-Sahtan in the west and from tributaries of the Wadi Al-Farah and Wadi Al-Sahtan in the north, to Wadi Bani Auf and Al - Sahtan in the south. It is on the high altitude of more than 2,000 meters above sea level.

More than 110 types of plants and wild trees were recorded in the areas mentioned above. Also there are plant species which are in the Red List of the International Union for the Coservation of Nature (IUCN) as the atajah plant. The northern slopes contain more densities of vegetation and growing old grasses and tree covering this area very well other than big stones or rocks in some of the areas. The Al Zatar plant is one of the most important plants which are present in the reserve.

The wild mammals in the reserve are spread in various areas which are actually tough terrains. These rugged terrains in most part of the reserve has affected the wild mammals. The field surveys conducted by conservationists have recorded six species of mammals, three of which are small mammals; mountain fox, hedgehog, and bats, and the others are large mammals; Arabian Tahr, Lynx, and white-tailed mongoose. The Arabian Tahr are one of the most important wild mammals in the reserve. Also there are 16 species of wild birds recorded there. All of them are settled in the Sultanate. The eagles and vultures live in the high mountains difficult access.

Al Hajar Al Gharbi Starlight Reserve

Al Hajar Al Gharbi Starlight Reserve is located in the western Al Hajar Mountains between Al Dakhiliyah, Al Dhahirah, and South Al Batinah governorates. It is situated in the upper chain of Al Hajar mountains. It is part of the sedimentary rocks mountains, which consists of rock tops, deep wadis and steep rocky slopes on (1300 - 3000) meters above sea level. The purpose of the lighting management plan is to establish the laws and guidelines for external lighting in the reserve and its buffer zone. The reserve is one of the most important areas in terms of the darkness of the sky in the region and has a high value. It must be protected from everything including basically from entry of external lights which effect the nature (the living organisms) and the sky at once.

The management of lighting in the reserve is a challenge at different levels. There is need to



His Majesty Sultan Qaboos bin Said has issued two royal decrees to establish the Al Hajar Al Gharbi Starlight Reserve in Al-Dakhliya Governorate and to establish the Al Rustaq Wildlife Reserve in South Batinah Governorate. Is a sign of the high interest in the Omani environment system and the conservation of its natural resources. This achievement is added to the balance of the Omani Renaissance in the environmental field.



The global warming and climate change are long-term global problem involving complex interactions with natural, economic, institutional, social and technological systems. All assessment reports of the Intergovernmental Panel on Climate Change (IPCC) have confirmed the scientific consensus that climate change is a reality which has implications and impacts at the international, regional and national levels. According to the IPCC's Fifth Assessment Report, the warming of the climate system and global warming is unambiguous. Since 1950s, many unprecedented climate changes were seen which have taken place for thousands of years, such as rise in atmospheric and oceanic temperatures, acid rain, devastating hurricanes, drought, desertification, increase in sea level, melting of ice and snow, and increase in concentrations of greenhouse gases.



phenomenon

Climate change

threatening the globe



Major impacts being faced by the countries of the world are:

- Decreased rains and increased duration of droughts
- Decline in vegetation, loss of biodiversity and decreasing mangroves and coral reefs

On the Sultanate of Oman's efforts to limit the consequences of global warming and climate change, Ibrahim bin Ahmed Al-Ajmi, Director General of Climate Affairs at the Ministry of Environment and Climate Affairs, said: «The Sultanate has given huge importance to the issue of climate change, as it was one of the first countries to join several related international conventions, protocols and agreements. It established Ministry of Environment and Climate Affairs in 2007 as per the Royal Decree No. 90 / 2007. This was followed by setting up of the Directorate General for Climate Affairs to assess the vulnerability and risks of climate change, conducting studies and developing appropriate plans in the areas of adaptation and mitigation of climate change and strengthening cooperation at the national, regional and international levels. Ibrahim bin Ahmad Al-Ajmi said that similarly, a national strategy for adaptation and mitigation of climate change has been prepared. The ministry has implemented a project to prepare a national strategy for adaptation to climate change and mitigation of greenhouse gas emissions to determine its impacts and risks on some sectors of biological development. It is also for assessment of the implications and risks according to practiced international standards. It is also to propose plans and procedures for mitigating greenhouse gas emissions and adapting to the impacts and risks of climate change as well as training

and building national capacity in the area of climate affairs. Al-Ajmi said that the Sultanate of Oman has supported international and national efforts for research and scientific studies on climate affairs in cooperation with concerned international organisations.

On the effects of global warming and climate change on the Sultanate, Ibrahim Ajami said: «The Sultanate, like the rest of the world, is exposed to the risks and effects of climate change with the vulnerability of various sectors, ecosystems, social and economic life. The areas under the risks include depletion of some ecosystems such as vegetation, biodiversity, mangroves and coral reefs as well as decline in the fisheries. These implications is seen also in the form of change in the level of rainfall and increase in drought and desertification, reduction of agricultural production. In addition, threatening the lives of residents and infrastructures in the coastal areas due to a high level of sea and floods caused by heavy rains.

Beginning of the problem:

With the beginning of the twentieth century, there was a significant imbalance in the atmosphere as a result of human activities, including industrial advancement, transport and urban development. This all began with the industrial revolution. All these activities were dependent on fossil fuels as the main source of energy and there was use of chlorofluorocarbons in industries which has led to increased



■ **The phenomenon has its implications at the international, regional and national levels**

■ **The Sultanate has given priority to the issue of climate change and has prepared a national strategy for adaptation and mitigation of climate change**

The most important scientific indicators On the existence of global warming

1 Increased concentrations of greenhouse gases in the atmosphere

Concentrations of carbon dioxide, methane and nitrous oxide gases in the atmosphere have increased to unprecedented levels in the last eight hundred thousand years. There is also concentration of carbon dioxide in the atmosphere increasing by 40% from the pre-industrial period.

2 Change in temperature:

The average global surface temperature rise is estimated at 0.84 ° C during the period from 1880 to 2012.

3 Change in sea level:

The global average sea level rose by 0.19 meters. The sea level rise is expected to reach 26 - 82 cm by 2100.

4 Changes in snow cover:

The arctic glaciers have decreased by an average of 3.8% per decade since 1970. It is expected that the glaciers and snow cover in the Greenland will lose part of their size in the 21st century, because the melting rate will exceed snowfall.

5 Effects on ecological and environmental systems:

The effects of climate change on a wide range of species, their natural habitats and genes, formation of their communities and on biodiversity in general were noticed.

6 Changes in extreme condition such as warm waves, droughts, floods and hurricanes:

Since 1950, there have been changes in extreme weather conditions, such as increase in the number of warm nights and days, increase in heat waves, high rainfall and intensity of rainfall, increase in droughts and increase in tropical cyclones and their strength

was very important and required by all of us to reduce climate change.» said Hebatullah Abdul Aziz.

Impact of climate change:

Dr Hamad Bin Mohammed Al-Ghailani, Director of Environmental Awareness at the Environment Society of Oman, said: «The most important challenge being faced by the environment in the Sultanate is climate change. This is causing increase in temperature, rise in sea level, changes in sea currents and natural conditions. Ghailani said that there was red tide in recently which led to the death of sea organisms. It result in pollution of the environment and emission of unpleasant smells. He said that changes in temperature, changes in sea level, melting of snow and other such happenings are related to the rise of carbon dioxide in the air. It means that there is a relationship between rising temperatures, rising sea level and the rise of carbon dioxide in the last 40 years. That climate change is one of the reasons which led to the extinction of some species of organisms in the Sultanate. Now there are certain species, such as Arabian Leopard, Egyptian vulture, as well as the loggerhead turule which are facing extinction.

He said that the Environment Society of Oman participated with concerned authorities in some studies related to environmental changes and gave certain proposals. The society is always interested in protection of some species of organisms such as the Arab whale, which became one of the rarest whales in the world. Not more than 100 Arab whales are surviving now. It is also carrying out studies about birds like Egyptian vulture, and some times of turtles particularly loggerhead turule. It also prepared studies about certain types of frankincense trees, the number of which are going down in Dhofar governorate.

Intensification of awareness campaigns:

Dr. Maha Abdul Majid Al-Ani, Director of the Student Guidance Centre at the Sultan Qaboos University, said: The sharp changes in weather conditions such as temperature rise, which is one of the causes of climate change, lead to negative emotions in some people. For example, anger is extreme and productivity is low. There is anxiety, fear and leading to depression due to the climate change. These changes in weather conditions also affect human communication and their psychology. She said that the awareness campaigns in the various media platforms should be intensified to reduce the risks of climate change.



global warming and the occurrence of so-called «greenhouse effect». This is due to the increase in concentrations of greenhouse gases from their natural levels in the atmosphere, causing climate change which was defined by the United Nations Framework Convention on Climate Change as:

A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and be observed over similar time periods.

Contrast in degree of compliance:

«Climate change is one of the most important environmental challenges being faced by the entire world, and the Sultanate is not isolated from this,» said Hebatullah Abdul Aziz, dean of the Faculty of Economics

and Business Administration at the German University of Technology. She said that the Sultanate's commitment to both the Kyoto Protocol of 2015 and the Paris Convention of 2016 was the best proof of its concerns. The Sultanate is also committed to the sustainable development goals, the most important of which is the thirteenth goal on climate change. The primary reason for climate change is increase in the volume of carbon emissions - which, of course, are largely produced by the burning of fossil fuels. The Sultanate reflected this commitment to international frameworks in its vision 2040, which gave the environment and natural resources special importance.

She said: «The biggest challenge is the varying degree of commitment between the

government sector and the private sector and the absence of an incentive system to meet these standards.» It is important to pay attention to the sectors in which economic diversification has been committed. Either they are logistics, tourism and manufacturing sectors as well as those closely linked to logistics strategies. There should be complete commitment to reduce carbon emissions. The Sultanate's airports have been accredited by the Airport Carbon Accreditation Authority for its good management in this area.

«The government of the Sultanate is committed to whatever can help in reducing climate change. Now it is important to pay attention to the private sector, consumers and young people. They should be taught that it





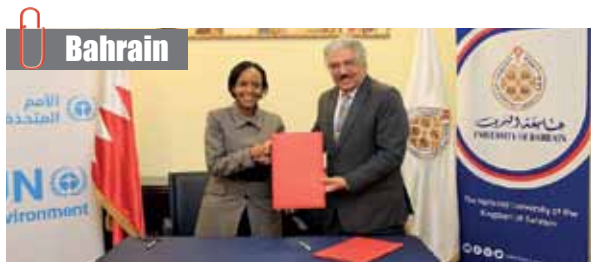
ESO organizes awareness campaign about turtles in Masirahisland



As part of its continued efforts to protect sea turtles in their natural habitat, the Environment Society of Oman (ESO) concluded its five-day awareness campaign on «Masirah Island Turtles». The society has launched the campaign to create awareness about the threats being posed by fishing nets in island to endangered marine organisms. The campaign included educational lectures for school students, kindergartens, local fishermen, the Royal Air Force of Oman and the Omani Women's Society. A football competition was also held in which participating teams had the names

of sea turtles. A clean-up campaign was also organised in one of the beaches of the island. Thousands of sea turtles annually migrate to the shores of Masirahisland for nesting and hatching. It is considered one of the world's largest gathering of Rimani turtles. The nesting sites of these turtles on the shores of Masirah today are increasingly threatened by the growing number of human activities on beaches, illegally cruel practices of fishing, nets and other gears, developments in the coastal areas and environmental pollution in the oceans. In February, the ESO coordinated with the Ministry

of Environment and Climate Affairs, the Ministry of Agriculture and Fisheries, Masirah Municipality, Oman Environment Service Holding Company (Be'ah) and Vision Environmental Services to put three containers as sites for collection and disposal of fishing waste in three beaches used as fish landing sites. The implementation of the idea of container availability was accompanied by guidelines written in five of the most common languages spoken in the fishing community on Masirahisland. This was to encourage them to get rid of their nets instead of leaving them in aqueducts and seas.



Bahrain

Cooperation Agreement between the University of Bahrain and the UNEP

The University of Bahrain has signed a memorandum of understanding with the United Nations Environment Programme (UNEP) to provide strategic support to youth in education. The university has also joined the Youth and Education Alliance. DrRiyadHamza, President of the University of Bahrain, and Joyce Massoya, Acting Executive Director of the UNEP, signed the MoU in the presence of Sami Dimassi, Regional Director of the UNEP for West Asia. With this, the University of Bahrain will become the first university in the West Asia region to sign this memorandum.



UAE

UAE internationally honoured for its environmental excellence

Dr. Thani bin Ahmed Al Zeyoudi, Minister of Climate Change and Environment of the United Arab Emirates (UAE), received a special honour for the emirates conferred by the «Monaco Better World Forum» on the side-lines of the Cannes Film Festival. This was in recognition of the UAE's commitment to work for the environment, conservation of natural resources and biodiversity, and ensure its sustainability. The Monaco Better World Forum is a global platform of think tanks and influencers of the areas of innovations, humanitarian assistance and protection of biodiversity and environment.



Qatar

Qatar implements a pilot project to protect sea turtles from endangered beaks

On the occasion of World Turtle Day, May 23, the Ministry of Municipalities and Environment, with its Department of Protection and Wildlife, stressed on the great importance Qatar attaches to the implementation of its Strategy for the Protection of Endangered Species. Efforts are being made to search for endangered marine and wild species, which are considered to be a national treasure for the country and for its future generations. These efforts are also focussed on monitoring and conservation of these rare and endangered species. The global regulatory and legislative authority on extinct species of the International Union for the Conservation of Nature (IUCN), has listed hawksbill sea turtle as an endangered species since 1982. Efforts to protect sea turtles began early by the Qatar University, with the support of Qatar Petroleum. A team of experts from the Ministry of Municipality and Environment has also joined it. The project of protecting hawksbill sea turtles was announced way back in 2003.



KUWAIT

30 tips to protect biodiversity in Kuwait

Nawaf Al Muwail, a member of the Kuwait Environmental Protection Society (KEPS), said: «The protection of biodiversity is one of the greatest environmental challenges which the world has to face at the beginning of the 21st century because it has an active global role in the area of environment and sustainability.» In a press statement today, Al-Muwail said that the KEPS, in cooperation with the Environment Public Authority (EPA) of Kuwait, released a booklet «30 ways to protect biological diversity in Kuwait.» He pointed out that the Swiss group «GDF» was committed to meeting these challenges, and that is why on the occasion of World Biodiversity Day, opportunity of cooperation between the group and the Belgian Royal Institute of Natural Sciences and the Belgian Society for Public Health, Food Chain and Environment Security, could be explored to prepare and publish a brochure entitled «52 Tips for Biodiversity.»



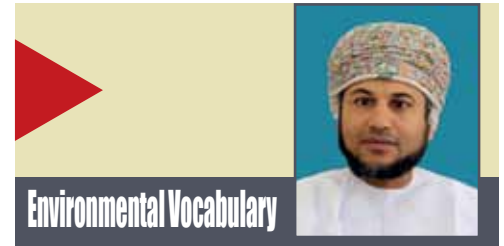
Saudi Arabia

Saudi Arabia: Construction of Solar Power Station in Yanbu Industrial City

A memorandum of understanding was signed between the Royal Commission for Jubail and Yanbu, the Saudi Basic Industries Corporation (SABIC) and Marafiq company to study the construction of a photovoltaic solar power plant in Yanbu Industrial City in the Kingdom of Saudi Arabia. The plant will be the first large renewable energy project to be implemented by the private sector in Saudi Arabia. The production capacity of the project is expected to reach between 200 - 400 megawatts, equivalent to the daily energy supply to all SABIC plants in the Yanbu Industrial City.

UN: Decreasing number of bees threaten coffee, apple, tomato crops

The United Nations (UN) has warned that bees and other pollinators, such as butterflies and birds, are increasingly threatened by human activities, as well as the effects of climate change. It has stressed that the disappearance of bees will eliminate coffee, apples, almonds, tomatoes, cocoa and other crops. This international warning came on the eve of the UN International Year of the Bee last month. The day is celebrated to highlight the importance of pollinators of many plants, including food crops, and help them reproduce.



Environmental Vocabulary

The Navigator

Eng. Khalifa Badawi Al Higgi
almitc@yahoo.com

It prowling the sky with its wings, hitting the ground with its feet. Horse in the heavens and Mare in the Earth. Does not love to climb trees, neither at night nor in day. It finds in the plains and mountains its safety, and close water its food and drink. Be warned to escape the danger for ever. Settles the place where feels calm, safe and finds benefits for itself. In which reproduces, from which begins its journey and to which returns.

When temperatures rise, chooses the coldest and most rugged places of nature. Combining both the power of walking and the speed of flight. It walks with its snowshoe-like legs smoothly, beating them on stones hardness, flowing lightly over the surface of rocks, and may walk more than fly. When it flies searching for water, it flies speedily in the sky penetrating the space at a speed of up to 120 km per hour to go long distances up to hundreds of kilometers. Returns back loaded with water to where it started without being lost or mistaken its goal. It is never be lost and has a strong capability to disappear, because of this people simulated a parable. This bird flies in swarms as it lives in groups. It keeps water long time through the distinctive feather on the chest. Its calmness, splendor and elegance imposes it to replace a feather three times a year in order to adapt the weather changes, and for protection. With its permanent calmness, however, males sometimes produce loud noises to be noticed by females inspired them for male needs. Local residents predict from their voices future changes in weather.

The male loyalty to his wife prevents him from associating with another even after her death. Female bears the burden of family life, allowing no one to contribute to the construction of their nests even to one straw. After the mating season, which lasts from March to July, the female gives mostly three eggs, each one in a week duration. The chicks go out to live from their oval eggs after a month of incubation. Then the mother will teach her young life requirements with her instinct, experience and intelligence. Male bigger little bit Than the female. The average weight of this bird is about 300 grams, and feeds on insects and larvae.

Its name is derived from its random lines feather on its back like a wild cat. This kind of bird is found in the plains and mountains of Oman, the most predominant is the crowned type. Its populations have decreased dramatically worldwide due to overhunting. The loss of this bird as a distinctive environmental component that gives the nature a great beauty and a precious scientific treasure, is considered a huge and irreplaceable lost. Therefore, protection and propagation programs must be strengthened by governmental, community and individual efforts, especially this bird can be reproduced in captive. It has been known to people since the past. Because of its precision in determining places, people simulate a parable for the man who never lost in the desert, the proverb says (The X man is more guidance than a Sandgrouse).

Malaysia faces smuggled plastic waste

Yeo Bee Yin, Minister of Environment of Malaysia, said that her country has become repository of world plastic waste. Some of the wastes, which could not be recycled, were being sent back to developed countries which have originally sent them. She said that these countries were responsible for what they sent. Some plastic waste was in violation of the United Nations' Basel Convention on Trade in Plastics Waste and Disposal, she said. Malaysia has already repatriated five containers of contaminated plastic waste smuggled into the country from Spain. The minister did not reveal the identity of the smugglers, but said the investigation was still under way.



Ibis back to South Korea after 40 years of extinction

Due to the efforts of the local authorities, the rare ibis bird has returned to South Korea after facing extinction for 40 years. The crowned ibis is on South Korea's national treasure list, but it was last seen in 1979 in the demilitarized zone which divides the Korean peninsula. This species also lived in China and Japan. But it faced the threat of extinction partly because of pesticides which destroyed their sources of food. A special breeding program was developed to rescue them from extinction. After the arrival of the birds of this species on the initiative of Beijing, the number of birds in South Korea has reached 363. The Ministry of the Environment said that 40 of them were released in Yobo, 350 kilometers southeast of Seoul.



Bats

Marwa Al Mukhamir

Bats are mammals capable of flying .

Do you know that 25% of bat species are endangered ?!

Bats are the largest predator of insects
They reduce the number of agricultural harmful insects and those that spread diseases .



How can bats see in the dark ?

The bat making a very high sound frequency when it flies. These sound frequency is returned back to the bat when it hits anything,so it can make a full sound plan to the surrounding place,and it can determin the type of the insect, its way and its flight speed .

Amazing !



There are about 1200 species of bats in the world. In Oman there are 17 species so far, 3 types of them are vulnerable to extinction.

Bats
make up 1/5
species of mammals
in the world !!

Bats live in
caves, trees and
dark Outstanding
places

