



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



Sultanate of Oman
Diwan of Royal Court

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Issue 61

As a result of a field study carried out by the Centre:

Nimr Concession Area

**A positive
Balance**

**Between Oil
Production**

**and Environmental
Richness**



Bee'ah Signs an Agreement with "Nakheel Oman Development" to Recycle Green Waste

Oman Environmental Services Holding Company (Bee'ah) signed with Nakheel Oman Development an agreement on the right of usufruct and the recycling of green waste collected at Barka engineering landfill site. This comes within the frame work of the two companies' efforts to achieve the sustainability goals, develop the circular economy system and extract economic value from these wastes. The agreement was signed by Eng. Tariq bin Ali Al Ameri, CEO of Bee'ah, while "Nakheel Oman Development" was represented by Ali bin Saeed Al Arami, General Manager of the company, in the presence of a number of officials from both sides. It is noteworthy that the Nakheel Oman Development Company was established

as a partnership between the Diwan of Royal Court, represented by the General Directorate of the One Million Palm Tree Cultivation Project and the Omani Company for the Development of National Investments (Tanmia). The Nakheel Oman Development Company seeks to become the leading Omani company in the production of dates and palm by-products and one of the largest suppliers of these products in the world. The company also aims to invest in date palm, healthy food and sustainable agriculture.



point of view



Environmental Innovation

Dr. Dawood Sulaiman Al Balushi
Editor-in-Chief

With the launch of Oman Vision 2040 and its entry into execution, as work will start in it since January 2021, the Sultanate is preparing for the next stage of serious and fruitful work based on scientific studies and the actual needs of all aspects related to the developmental life of the Sultanate. The environmental dimension, preserving natural resources and achieving environmental sustainability is one of the main pillars of the vision, in a recognition of the importance of this dimension, its pivotal role in preserving human health, ecosystems and natural resources, and its direct impact on the daily life of individuals.

Innovation is one of the most prominent indicators of Oman Vision 2040, as the vision aims to place the Sultanate in the top 20 Countries in the indicators of global competitiveness and global innovation. Consequently, the Sultanate will become in the ranks of developed countries that build a diversified productive economy based on modern scientific and technical innovation in all fields. Since the vision focuses on the axes of environmental dimension, the principle of innovation in this vital and important aspect comes at the forefront of its goals and priorities, as modern innovation, technology and their uses are mainly included in the objectives of the vision that seeks a sustainable use of natural resources and wealth to ensure the realization of high added value, creating renewable energy, various sources and rationalizing consumption to achieve energy security and creating a green and circular economy that responds to national needs and is consistent with the global trend, with an environmental awareness associated with the effective implementation of sustainable rules in consumption and production.

Many countries in the world have made great strides in the modern world of environmental innovation. Individuals, scientists and those interested in the environment as well as environmentally specialized companies, have had the opportunity to present innovative global models that have contributed to reducing pollution in all its forms and patterns, and preserved the ecosystems of wildlife from degradation and extinction. This is improved through innovation processes, good systems and environmental orientation towards better levels in maintaining the environmental sustainability for the benefit of their resources to ensure their survival and continuity. Therefore, environmental innovation is the new approach of various countries of the world in solving their environmental problems and issues and finding effective solutions to them in a way that contributes to improving the standard of living of individuals and society.

Therefore, the authorities responsible for the environment in the Sultanate should take the principle of environmental innovation into consideration because of its positive effects on the environment and society, and opens the way for interested individuals, researchers, and specialized companies to support and motivate them to adopt new technical environmental innovation to contribute in achieving sustainable development for the Omani environment according to Oman Vision 2040.

Mazoon Dairy Uses Biogas Technology to Produce Energy for the First Time in the Sultanate

Oman LNG has signed a development agreement with Ejad Foundation and Mazoon Dairy Company to provide an energy generator using biogas technology for the first time in the Sultanate at the Mazoon Dairy Company site. This agreement reflects the cooperation to implement the effectiveness of partnership concepts under the umbrella of «Ejad» between the food sector (represented by Mazoon Dairy Company) and the energy sector (represented by the Oman LNG

Company), which will cover areas of technology supply and innovation. In addition, this agreement will consolidate concepts of using biogas technology and contribute to provide the feasibility of using such technology in producing energy in large-scale for the first time in the Sultanate. In 2019, Mazoon Dairy opened the first biogas plant in the Sultanate and the first of its kind in the field of food production in the region.



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The Oman Environmental Forum, in its fourth session, issued a set of recommendations. The most prominent of which is the work for utilizing energies in order to achieve a balance between environmental, economic and social requirements, as well as working according to the rules of sustainable development. It is the necessity for concerted efforts to achieve the desired goals with regard to environmental aspects within the future vision «Oman 2040». In addition to using biodiversity resources in a sustainable manner, linking this to development plans and interim requirements in a way that contributes to achieving the desired balance for a better future, as well as creating a safe environment free of damage and pollutants, in order to help provide a decent and comfortable life for everyone in society. The Forum urged the participants to expand the implementation of national initiatives that contribute to ensuring environment protection and completely get rid of negative behaviors harmful to the both environment and society alike.



The «Oman Environmental Forum»

Stresses

the Importance of Utilizing Energies to Achieve a Balance Between Environment Economic and Social Requirements



The Minister of Housing and Urban Planning

■ The Sultanate's march is full of distinctive milestones in protecting the environment and preserving its natural resources

The recommendations also included the need to adopt the green economy system by making use of the various renewable energy sources in the Sultanate, encouraging recycling operations, achieving a balance between development and the environment, between production and consumption, between the environment's ability to give and its endurance, and also the sustainable use of resources and natural wealth in order to achieve high added value, renewable energy, diversified resources, and effective rationalization of consumption in a way that achieves energy security. In addition the need to raise community awareness in relation to environment protection and compliance with the rules of consumption and production, by expanding environmental awareness programs and creating legislation governing the preservation of the environment and its sustainability. It is important to associate the work of the diverse industries and sectors to achieve a balance between the requirements of the economy and the principles of preserving the environment, in addition to striving to build high-quality and pollution-free environments by tightening the rules of control over all sources of air, water, radiological and thermal pollution. It is also important to develop the mechanisms, and launching an innovative national community program, based on incentives policies for the best uses that reduce life pollutants.

«Oman Vision 2040» particularly, is the real bet to achieve the element of safe sustainability for Oman's renewed renaissance.

His Excellency added that the Sultanate's march is full of distinct milestones in terms of protecting the environment and preserving its natural resources, whether through the completion of the system of legislation and laws, or through the specific efforts made to preserve the environment, develop its resources, ensure its optimal developmental utilization, strengthen institutional organizational structures of environmental planning, inspection and control departments. In addition, the Sultanate's accession to many agreements and protocols for the environment, all of which ensure a balance between the dimensions of sustainable development.

His Excellency affirmed that the Sultanate's aspirations for the future are in accordance with the axes, priorities and objectives of the «Oman Vision 2040» and after the instructions of His Majesty Sultan Haitham bin Tariq - may God protect him - to establish an environment authority, the national aspirations are strengthened for the efforts of specialists and workers in the environmental field to bear fruit during the next two decades, with the ability to achieve adequate protection for all types of wildlife, ecosystems, the use of biodiversity resources in a sustainable manner, and to link this to development plans and interim requirements. Thus, contributing to achieving the desired balance for a better future.

For his part, His Excellency Dr. Abdullah bin Ali Al Amari, Chairman of the Environment Authority, said that, the environmental dimension in the future vision «Oman 2040» as a main title for the work of this year's forum session is a title for the current and future stage, consistent with the sustainable development goals, which stipulate the necessity of achieving the budget and planning for permanent, continuous and renewable development that meets the needs of the present without sacrificing the requirements of the future.

Hatim bin Hamad Al-Taie, Secretary-General of the Forum and Editor-in-Chief of Al-Ru'ya Newspaper, affirmed that the Sultanate has made great strides in the way of preserving and protecting the environment and was one of the first countries to allocate bodies or ministries specialized in the environmental sector. Therefore, the Omani International Awards were the best reward for all who contribute to preserving the environmental components.

President of the Environment Authority

■ The environmental dimension in the future vision «Oman 2040» as the main title of the forum's session this year is a title for the current and future stage

The Themes

The first theme of the forum was launched under the title «The Environmental Future According to the Priorities of Oman 2040 Vision» Eng. Omar Al-Riyami, Head of the «Environment and Natural Resources Priority» Working Group in the tenth Five-Year Plan at the Ministry of Economy, presented a working paper entitled «The Priority of Environment and Natural Resources ... a Roadmap towards a sustainable environmental future.» Dr. Muhammad bin Saif Al-Kalbani, Director of the Environment and Sustainable Development Department at the Environment Authority presented a working paper entitled «Environmental Sustainability Goals and Targets 2030».

Then the second theme of the forum's activities, which was entitled: «Towards a Guidance Draft for the Implementation of National Objectives» started it included a discussion session with the participation of a group of environmental experts, namely: Engineer Ismail bin Suleiman Al Sawafi, Director General of the Social Responsibility and Public Relations at the Development Corporation at Oman LNG, Salem bin Muslim Al Saadi, Director of the Environment and Ansab Lakes Department at Haya Water Company and Dr. Mohab bin Ali Al Hinai, Head of the Environmental Excellence Center at Oman Environmental Services Holding Company (Bee'ah). The discussion session was managed by Dr. Thuraya Al Saririah, Assistant Director-General for Nature Conservation at the Environment Authority.

Secretary General of the Forum

■ The Sultanate sought to contribute to the preservation of the global environment and the preservation of natural resources. The Omani International Awards were the best reward for everyone who contributes to preserving the environmental components

■ The use of biodiversity resources and natural resources in a sustainable manner, the expansion of the implementation of national initiatives related to environmental protection, the need to adopt a green economy system and raise community awareness regarding environmental protection, are among the most prominent recommendations of the forum

The participants also emphasized the importance of restructuring the water sector and expanding water resources, especially for the agricultural sector. They emphasized the importance of using modern and advanced technology aimed at reducing production costs and applying the principle of economies of scale, as well as the importance of developing policies and regulations concerned with encouraging investment in renewable energy in the private sector and civil society, and adopting Government investment policies in natural capital to achieve energy security. This came during the Oman Environmental Forum 2020, under the title «The future of the environment in light of the priorities of Oman 2040 Vision», under the patronage of His Excellency Dr. Khalfan bin Saeed Al Shuaili, Minister of Housing and Urban Planning, with the participation of specialists and experts in the environment and sustainability sector.

His Excellency Dr. Khalfan bin Saeed Al Shuaili, Minister of Housing and Urban Planning, said that the environmental dimension in the development system generally, and the future national vision

“ The results of the wildlife survey in the Nimr Concession Area at the wilayat of Al-Jazer in the Al wosta Governorate - which came as a result of cooperation between the National Field Research Centre for Environmental Conservation (NFRCEC) at the Diwan of the Royal Court and the Petroleum Development Oman - showed a richness in the biodiversity of the region. Various types of wildlife have been found, such as the Arabian Gazalle, the red fox, the wild rabbit, and the wild cat, in addition to the presence of nearly 150 species of birds and more than 100 types of vegetation have been counted. The most prominent of which is the Picket plant, which is one of the rare plants in the Sultanate, as well as the endangered plant *Blepharis Linariifolia*. ”

Nimr Concession Area

A positive
Balance

Between Oil
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The survey aimed to identify the different habitats in the study area and the types of wildlife, it also aimed to create a digital environmental database as a reference for studies and a basis for preserving and protecting the environment. In addition to updating the map of biodiversity in the Nimr Concession Area, as well as identifying the influences on the existing environments in the region and putting in place the plans for sustainable development. The survey confirmed the large presence of the Arabian red fox in Nimr Concession Area. The camera traps recorded groups of three foxes, most of which were captured at night. The Arabian gazelle, its presence was also recorded as well as the wild cat in addition to wild rabbit.

Bird Survey

The survey results concluded that there are about 150 species of birds. Such results also indicate that the wetland area (cultivation of reed plants – Nimrbor) is the most attractive environment for most species in the Nimr Concession area, despite the fact that the wetland environment is the habitat for shorebirds such as herons (The great hypocrisy, the sooty gull, the tern, the water chickens,); However, the presence of areas of water (resulting from the purification of the reed plant) from which the birds drink at the site, led to monitoring the garden and farm environment types of birds (such as the yellow wagtail, the laughing pigeon) and the birds of the desert environment (such as the crow, the cordoned pigeon and the desert wag). The presence of this diversity formed a target for raptors

such as the Steppe Eagle. Some small fish were observed in the Reed swamps as a result of birds transporting fish eggs in their stomachs and dumping them to hatch in the water in the study area. This leads increase the polarization of birds that feed on them. Thus, the relationship between environmental variables becomes clear in providing a habitat for many environmental elements. The environment of gardens and parks, represented in the residential camp for PDO employees, at the Nimr concession area, where the hoopoe and domestic sparrow were recorded in this environment. In the mountainous region of the Ronab Wady, the team observed the presence of the little owl due to the presence of the caves in which they nest, as well as a group of Arabian partridges and pterocles, which is distinguished by its travel for far distances in search of water. The Omani Prosopis forest in southern Ghubra recorded the presence of the encircled pigeon in relatively more numbers than the other study sites. Sand sprawl was recorded in Sheibon Wady in Amal area. This is in addition to the chatter bird, crow, buzzard, lark and laughing pigeon, other birds that were recorded in the Nimr concession area.

Plant Survey

Due to the geomorphological and climatic nature of the Nimr region, the vegetation has been characterized by the presence of desert trees that are resistant to heat and drought. The presence of such vegetation is concentrated in the low areas that are traversed by wadis waters. Presence of plants is also evident in the soil that has not been exposed

to erosion by wadis, and it is noticed that there are seasonal plants that grow after periods of rain. Through the survey work in the region, more than 100 types of vegetation cover were counted, such as trees, shrubs, and Prosopis trees are one of the most important desert trees and are among the perennial trees that spread in the Sultanate and are distinguished by their permanent greenness, and concentrated in high density in the soil of the sandy areas in the southern Ghubra region and the Ronab Wady, forming a forest of vegetation. It is noticeable that the Prosopis in the southern Ghubra is subjected to camel grazing, and therefore its branches took a unified shape that reflects the effect of the phenomenon. There are recently growing Prosopis trees, but they are also subjected to continuous grazing before they can increase their height. Other desert trees such as acacia and Talh and other trees, have also been recorded. Plants represent one of the forms of vegetation cover in the region. They are concentrated densely in the Sheibon Wady due to the cohesion of the soil and lack of exposure to erosion. Among the most notable of those recorded are the Picket plant which is considered as one of the rare plants in the Sultanate, as well as the endangered *Blepharis Linariifolia*. The Ronab Wady was characterized by the presence of a type of climbing tree called *Cocculus Pendulus*. It is a vine with white stems that expands and climbs over rocks and trees and spreads across the drier Dhofar region. This type of tree is intrusive to other trees; intruding on the trees' share of light and the elements of life destroy the host tree "Dhofar





Conclusion

Based on the field surveys in the region and the findings of the study of the biodiversity, the results showed that the region still enjoys its natural environmental richness despite the presence of oil activities and associated works. Some indications of prosopis trees are declining, which is attributable to unorganized grazing by the local community. In general, the results of the research have yielded the fruits for the efforts made by companies operating on oil and gas sector, led by the Petroleum Development Oman, in preserving the environment and the success of the programs it has adopted in this regard. In order for these efforts to have the chance of being integrated, it is imperative to continue technical and research cooperation between these companies, at one side and the environmental authorities with further research, implementation of protection methods and breeding programs in this region and all the Concession areas, on the other side.

plants in the southern region of the Sultanate of Oman, traditional, economic and medicinal uses, 1988, Anthony Miller-Miranda Morris".

Reptile Survey

The field survey at a Nimr included the study of reptiles, which name indicates the way they move, which crawling. Reptiles are cold-blooded, so their movement is active on hot sunny days. The team relied on eye observations to record the types of reptiles and identify the footprints of some species. The team recorded nearly seven species from four different families. The Omani lizard was spotted in the Sheibon Wady. The Omani lizard is distinguished by its small size (15 cm), dark color and its tail in the form of a semicircle. No types of snakes were recorded, though the team spotted traces of them. The previous observations confirmed the presence of several types of snakes in the area, and perhaps the most important reason is that the period of the survey was not during the summer and may some organisms be in their winter hibernation.

Small Mammal Survey

The survey of small mammals aims to determine their species, the extent of their spread in the study area and to build environmental relationships between them and the presence of other organisms that are associated with them in the food chain. Three different types of small mammals were arrested in the study sites at the Nimr Concession area. The total number of these



species reached 79 small mammals. 45 spiny mice were recorded in traps. The number of spiny mice ranged, without repeating, 27 mice. 18 mice were repeatedly hunted. The presence of spiny mice was concentrated in the Ronab Wady. Perhaps this is due to their preference for mountainous areas and the large vegetation that forms safe environment. Ten wild rats that resemble domestic mice, were captured, 2 of them were previously caught and were more concentrated at (cultivation of reed plants -Nimrbor) site. In addition to that, 24 jerboas were captured, 9 of which were previously caught. They are concentrated in the Sheibon Wady.

The results indicate a good density of small mammals, which provides food for predators which are higher in the food chain, such as red foxes, wild cats, and others.

Insect Survey

During its surveys, the team spotted some water insects such as Gerridae, some semi-aquatic like dragonflies, Coenagrionidae, some types of robber flies (Asilidae) and mosquitoes (Culicidae). Some of insects live close to water bodies such as Gryllidae. Most of the water insects were caught by light traps when there is no sun. Water nets are used during the day for some insects which are not attracted to light at night. As for insects that eat plants (Noctuidae, Miridae, Rhyparocromidae), they were caught directly by air nets. Others insects are attracted to the light at night and some to water dishes. Some of them feed on flower components such as pollen and beetles (Melyridae, Dermastidae, Scaptiidae, Coccinellidae) and some of them feed on nectar, such as Butterflies and moths (Nymphalidae, Hesperidae, Sphingidae). The team spotted a group of predatory arthropods that share with various groups of insects and most of them are hymenoptera group such as wasps, which feed on locusts, bed larvae, and anteaters of the group (Neuroptera) and mantis, which are considered among the broad-feeding predators on most insects, lizards and spiders, as well as some types Parasites specialized in a group of plant-eating insects (Braconidae, Perilampidae). Most of them were caught by using yellow water traps as well as using the aerial net on the flowers because they feed on flower pollen as an additional food to their diet. Also, species of bees have been recorded that feed on nectar and pollen and play an important role in pollinating wild flowers such as (Apidae, Colletidae). Some species of crustaceans and multinodular worms have been recorded and have not been classified because they need specialized references for defining them. It is expected that the number of insects and other arthropods will exceed 500 species in the region if surveys are intensified and various traps are scattered during the spring season (from February to April), as well as times of rains fall. As for other arthropods such as scorpions, spiders and semi spiders, different types have been observed that included two families of scorpions, five families of spiders, and two groups of spiders such as Abu Shabak and (Soliphuge, Mite). All other groups of arthropods are predators and prey on various other groups of arthropods in addition to some small lizards, most of which were caught by yellow water traps. Accordingly, work has been done to classify more than (130) species of insects, scorpions and spiders. It should be noted that many of the discovered species have not been scientifically recorded in the Sultanate, while others reflect the size of the environmental diversity in the region due to the relationship of some species with others, which did not discovered due to shortness of the period collection and surveying, as well as the limited tools used in surveying operations, especially since some types of insects require special methods of collecting and some of them need special treatment in catching and preserving, in order to study their classification.

➤ Musandam Environment Organizes Environmental Campaigns for the Basin and Beaches of Khasab Port

The Environment Department in Musandam Governorate, in cooperation with the Municipality of Khasab and the Environment Company in the Wilayat of Khasab at the Musandam Governorate, carried out a campaign to clean wood and plastic waste and various waste such as iron pieces and the remnants of discarded and randomly scattered fishing equipment from the port basin. All this waste was collected and transported by municipality equipment to the landfill designated for it. Abdul Salam bin Hassan

Al-Kumzari, acting director of the Environment Department in Musandam, indicated that the Environment Authority is keen to intensify campaigns cleaning the beaches and coral reefs from waste that pollute the environment and distort the general view of Omani nature and spread awareness among all segments of society in order to limit negative phenomena. "We work hard to protect wildlife and natural resources and preserve public places from waste that lead to the deterioration of the elements of nature. This initiative is considered one of the initiatives included in the priorities of the Environment

Authority, so that the Omani environment remains a clean and sustainable environment' added he.

For his part, Eng. Ali bin Ahmed Al Hareef Al Shehhi, Director of Khasab Municipality, said that, the municipality's participation in this campaign comes in line with the partnership with the relevant authorities that aim to get rid of waste randomly scattered in the Port Basin. Such wastes were collected and transported by municipality equipment to the landfill designated for it. In acknowledgement of the sense of responsibility towards our environment, the municipality sought to participate with its crew in this campaign.



UAE



Kuwait

Releasing White Pelican in Mubarak Al-Kabeer Reserve

The Environment Public Authority, in cooperation with the Coast Guard General Administration, released the Great White Pelican in the Mubarak Al-Kabeer Nature Reserve which belongs to the Environment Public Authority on Bubiyan Island. These birds were confiscated from one of the accounts that sold them, which is in violation of Article 100 of the Environmental Protection Law No. 42 of 2014. Accordingly, coordination was made, in cooperation with the Environmental Police, to confiscate the pelican and holding the perpetrators accountable. The white pelican is a migratory bird that spawns in eastern Europe and Central Asia and migrates in flocks to Africa, India and some East Asian Countries.



Qatar

The Public Parks and Al Ahly Club Participate in the One Million Trees Initiative

Within the initiative to plant one million trees, the Ministry of Municipality and Environment, represented by the Public Parks Department, in cooperation with Al-Ahly Sports Club, organized an event to plant trees in the garden (65) at Al-Markhiya, in the presence of Mr. Muhammad Ibrahim Al-Sada, Assistant Director of the Public Parks Department and Mr. Muhammad Abdullah Abbas, Head of the Department Parks in Doha Municipality, with the participation of a number of Al-Ahly Sports Club officials and players. A Number of trees and agricultural seedlings were planted on the site.

Discussion of Stimulating Investment Opportunities to Promote the Transformation to the Green Economy

The Ministry of Climate Change and Environment discussed opportunities to enhance environmental sustainability with the local business sector by stimulating the capabilities and role of small and medium-sized companies to create environment friendly investment opportunities, in a way that contributes to strengthening the UAE's drive to shift towards a green and circular economy. This came during a meeting of the Economic Environment Council hosted by the Ministry of Climate Change and Environment in cooperation with the Ministry of State for Digital Economy, Artificial Intelligence and Labor Applications with the participation of Dubai Future Foundation, (Tahalof) for Global Sustainability, the World Green Economy Organization, the United Nations Global Compact, and the Sharjah Research, Technology and Innovation Complex.



Bahrain

An Initiative to Afforest Sitra Industrial Zone

The Capital Municipality, with its two wings, the Executive Body and the Capital Municipality, launched an initiative to afforest the industrial zone in the Sitra region, as an extension of the slogan «My capital is more beautiful», in cooperation with the Gulf Aluminum Rolling Mill (Garmco). This initiative comes in the light as part of the Capital Municipality role in afforestation of public areas and squares and its plans to cover the largest possible area with green color to reflect the extent of association with the tree as a true facade of man's relationship and concern for his environment.



Saudi Arabia

The Launching of "Lets Make It Green" Initiative by Planting 85,000 Trees

The Office of the Ministry of Environment, Water and Agriculture At Al-Ahsa launched an initiative "Lets Make It Green" by planting 85 thousand trees at a number of sites in the governorate in cooperation with the «Nadec» Company. Through this initiative, the Ministry aims to plant approximately Ten Million trees of endangered species and other varieties in various regions of the Kingdom for the purpose of raising the percentage of cover Vegetarianism and control of desertification. The office stated that this initiative aims at afforesting national parks, sowing seeds in all sites that require afforestation and selecting varieties according to the appropriate nature of each site with the participation of volunteer teams and community partnership.



Paramount Temperatures in Australia and Fears of Bush fires

Sydney - Reuters: Some regions of Australia, including Sydney, witnessed the hottest November nights ever. Australia is familiar with hotter and longer summers or «black summer» as Prime Minister Scott Morrison described the last season, due to unusual forest fires that occurred on about 30 million acres and killed 33 people and an estimated 1 billion animals. The Fire Service imposed a blanket fire ban in most of eastern and northeastern New South Wales.



Environmental Vocabulary

Black Rose

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When cold air breezes are scattered announcing the arrival of winter, no trace found for this animal except in the chapters of tales and human thoughts. It hides in its hole, furnished with leaves and branches of trees to give it warmth and comfort. It sleeps deeply for about 18 hours a day. Hibernation is one of its most beloved innate behaviors, matched by its aestivation in hot weather areas. This animal is isolated from the world, and if it goes out for its nutritional and reproductive needs, it covers itself with night's darkness and quietness. It is nightly movement and activity. It is a shy and brave animal at the same time. When it faces danger, it rolls its body into a ball shape like a coward, while when hungry, it becomes a brave and eats worms and snakes. It may combine opposite behaviors, but in fact they are integral features in its nature appear as actions and qualities.

This small mammal's diet includes a variety of insects, worms, rodents and birds, sweetened with roots, leaves, fruits and plant seeds. It breaks its extreme shyness with the full audacity covered by self-protection to get its favorite meal of snakes and their eggs by entering their burrows to be a hearty meal among its 44 sharp teeth, ignoring its poisons, where it can withstand the power of fifty times of poison. The scorpion - of course - is not far from this favorite predation. Its small body is only 30 cm long and weighs more or less one kilogram. This body is based on four short and strong legs and end with large feet. Each foot has five fingers ending with strong claws that help it for digging and prey. The conical face connects directly to the body without a visible neck and ends with trunk and wet nose. Its ears are large, so it is very hearing as well as smelly, unlike the sense of sight which is weak. This black-colored body is shielded by about 5,000 sharp thorns. When it feels threatened, it immediately rolls its body into a thorny ball stained with stinky saliva to give it repulsive taste for predators. These powerful defenses often surrender against its predatory enemies of foxes, honey badger, eagles, falcons and owls, perhaps they are not stronger than it, but they know its weaknesses in term of time and place.

The female gives four babies after a pregnancy period of about 40 days and once a year, between July and September. At birth, each baby weighs about 250 grams and its body is covered with about 150 soft white thorns. The babies become adult after 11 months, and can live in the wild for eight years, while 10 years in captivity. The presence of this animal in farms and residential areas is something lovable to a human because it contributes to the cleansing the places from harmful organisms. In some ancient and modern cultures, its meat has been a source of food and medicine, and has even expand its uses in the metaphysics sciences.

Two types of hedgehogs are common in Oman, particularly in the Hajar Mountains and surrounding Provinces; Brandt's/black hedgehog and Ethiopian/desert hedgehog. The first type is larger than the other one, and they have some differences in size and color. Despite the differences, the first look to both proves that are both hedgehog which carry opposite and harmonious concepts in a thorny body.



Recommendations for Listing the Platypus as an «Endangered Species»

Sydney - «dpa»: Researchers have recommended that the Australian platypus, called the duck's beak, be included in the «endangered species», as a result of the significant decline in the numbers of this small mammal. Researchers from the University of New South Wales made this recommendation to Government of New South Wales, after completing an assessment of endangered species. The University of New South report found that the eastern Australian platypus has shrunk by up to 22% over the past 30 years. Researchers speculate that the population may have decreased by more than 50% as a result of historic land clearance, river control and severe drought.

It is also possible that the increased intensity and incidence of wildfires has contributed to the dramatic decline in platypus numbers. «The platypus is still facing persistent threats across its range. Unsustainable water

extraction and land clearance will continue to put pressure on the fresh water environmental system and will lead to future decline» said the Lead author of the report, Gilad Benno.



Currently, the platypus is listed as a «semi-endangered» species by the International Union for Conservation of Nature (IUCN), but is not listed as a threatened species under Australia's Environmental Protection and Biodiversity Conservation Act.



Migratory Species Live a More Mobile Pattern and Die at a Younger age

Paris, «AFP»: A recent study revealed that migratory birds and mammals that expend great energy after traveling long distances to find sustenance or a nesting site die at a younger age than congenial animals with less movement, but their offspring are larger. The authors of this study, the details of which were published in the journal «Nature Communications», analyzed more than 700 species of birds and 540 mammals, and concluded that no strategy is better than the other in terms of species evolution. «They are

two different ways of confronting existential problems. One of the two methods is to live a pattern full of movement and death at a young age, while the second strategy is to adopt a calm pattern and neither method prevails» said Stuart Pearhop, a lecturer at the University of Exeter, UK. The study revealed that some species adopt the two patterns, such as the Black cap (Sylvia atricapilla), which may be settled in its habitat or migratory. In the latter case, the bird lives for a shorter period, matures more quickly, and has more offspring.





Humpback whale



Hi friends
My name is humpback
whale. I'm one of the
biggest whales

I am a strong and skilled swimmer
I use the tail fin to push myself in the water
and use it to jump out of the water



My average height is between 40- 60
feet and my weight reaches up to 44
thousand tons

I live in all major oceans
of the world

I'm one of the noisiest
whales, where I can make
sounds for 15 minutes

I face many threats such as
noise pollution and water pollution

