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

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Sultanate of Oman
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September 2018 - Moharam 1440

Environmental monthly newsletter issued by the National Field Research Centre for Environmental Conservation

Issue 35

The First Break through of Habitat of Humpback

the First Trans-ocean crossing of

LUBAN «Humpback Female»

from Masirah Island

Environmental Terms .. Cleaner Production Methods

They are several industrial production methods that are characterized based on the contaminated waste materials left behind. Cleaner production methods tend to leave behind less waste from the processed material, thereby reducing the need to treat and dispose of the contaminated waste. Cleaner production is characterized by greater efficiency in the production process, where the rationalization of usage of resources, such as raw materials, water and energy, is well within the limits, reducing the amount of waste produced during the production process. Cleaner production also includes the recovery of some useful materials from the production process rather than disposing it. Many modern industries are trying to apply the principles of cleaner production as it exempts them from many environmental responsibilities and helps them achieve economic benefits.

The National Centre Holds a Workshop on Recycling

Fatimah Al Zidjali:

The National Field Research Centre for Environmental Conservation (NFRCEC), in cooperation with PDO, held a workshop on the recycling of plastic cans for the students participating in the summer "World of knowledge" program. The workshop, held under the theme «My Environment is my City» was aimed to encourage the student to be environmental-friendly by adopting the right methods in dealing with the environment, identifying the impacts of environmental pollution on living organisms, and using images to explain about organisms affected by environmental pollution.

Theoretical Concepts

The workshop also provided an introduction to the concept of recycling, which contributes to environmental preservation by converting a harmful, or at least a useless commodity, into a valuable and high-quality commodity. The workshop reviewed the importance of recycling and the materials used in the process. A documentary film, which advocated the need for reduction of environmental pollution and recycling of used materials, was also presented.

Practical application

As part of a practical training, participants were trained on how to recycle plastic cans. In the process, cans were turned into agricultural flasks, moneyboxes for children, food plates for birds and animals, as well as other products. Some trainees recycled other materials too. In the end, the students were divided into groups to perform recycling practically. The students worked creatively by using many beautiful and simplified ideas to reuse plastic water bottles.

point of view

Green Arms

Dr. Dawood Sulaiman Al Balushy
Editor-in-Chief

The arms that work to build their homeland are noble arms. God Almighty has given them the wisdom and the ability to act. They are the arms that exert the right thought, noble nature and beautiful deeds. They are seen giving their time, efforts and wealth in order to see Oman among the ranks of developed countries. Their perseverance, diligence, sincerity and the ability to defy challenges enable them to work towards the progress of this dear country.

The « Al-Jabal Al-Akhdar Volunteer Team for Environmental Awareness», which recently launched its national campaign under the name «Zahya - Bright», is one of the green arms of this country. The purpose of this program is to make Al-Jabal Al-Akhdar a tourist, environmental and economic destination. It also aims to promote the destination, which has always captivated the hearts and minds of local and foreign tourists, and its beautiful green landscape.

The environment of Al-Jabal Al-Akhdar has been affected as a result of natural and human factors. This has adversely affected the natural and environmental system of the region. The erroneous behavior by some tourists has led to a slight imbalance in the ecological composition of the mountain and has affected the rare environmental elements of this unique destination. This is a great concern for the people of this region. They have realized the importance of restoring and preserving the environmental and natural elements of the mountain and promoting its development. Therefore, the national campaign «Zahya - Bright» aims to restore the former richness and beauty of Al-Jabal Al-Akhdar.

Thanks to "the Green Arms" volunteers of Al-Jabal Al-Akhdar for their continuous environmental awareness campaigns to protect the mountain ecosystem. Thanks to all the sincere Omani volunteers who have participated with various teams and voluntary associations to preserve the environment of this country. Thanks for their valuable time, efforts and funds. After all, the building of the nation is only realized through the sincere efforts of these volunteers.

Birds-of-Paradise

One Of The Most Beautiful Living Creatures with Feathers

Prepared by: Said Al Rashdi

The forests of New Guinea boast many natural attractions that enchant the hearts. There you may encounter a tree-climbing kangaroo or a butterfly the size of food plate fluttering through the rainforest. However, despite the plethora of attractive sightings, nothing can charm the hearts of scientists more than the Birds-of-Paradise, which can only be seen in New Equatorial Guinea, its neighboring islands and forests and in east Australia. These birds have won the title of the most beautiful living creatures with feathers, as described by the scientist Alfred Russell in the 19th century.

Fourty Species

It is possible to see all the 40 species of the Birds-of-Paradise in New Guinea. However, none of the 40 species were documented until the expedition of biologists Edwin Scholes and Tim Laman. They started their expedition in 2003 using instruments and equipment to track and document the birds. The project lasted eight years and included 18 exploratory field trips within rainforests. During these trips, the team faced a lot of adventures, difficulties and challenges and exerted great efforts to reach remote locations within these forests.

First Documentation

The team has collected a lot of sound and visual recordings of these birds, in addition to the beautiful documentary photos. The results of these trips have documented for the first time the bizarre behaviors and courtship rituals of these birds, which are strange. The rituals include comedic dance moves, robotic antennas-shaped feathers, iridescent irises hoops, and many more.

● Birds-of-Paradise project continued for 8-years included 18 exploratory field trips within rainforests

These birds prefer to live in dense rainforests and rely on fruit and some arthropods. The male birds are characterized by their beautiful and bright-colored feathers with magnificent shapes, their long curved beaks or heavy-feathered wings. These birds live in remote isolated areas in New Guinea where there is an abundance of food and lack of natural enemies and predators. The characteristics and behaviors of this species have evolved so much that they have become more attractive. Their charming features make them distinct from all other birds in this planet.

Unique Rituals

The Scientists' Project highlighted the unique rituals and courtship practices of these birds. The male birds are quite different from the females. The two scientists recorded nearly 2000 hours of video and audio recordings of these birds with nearly 39,000 documentary photos in the hope that the world will pay more attention to the protection of these species of birds. The world must prevent them from being trapped or trafficked and must stop the destruction of their habitats.

Photos by:
Darryl Macdonald

The First Break through of Habitat of Humpback

LUBAN moving from its isolated system to exceptional migration

the First Trans-ocean crossing of LUBAN «Humpback Female» from Masirah Island

Luban" an Arabian Sea Humpback Whale tagged in the Gulf of Masirah in November 2017, has made the first recorded trans-oceanic crossing across the Arabian Sea. "Luban" is one of 14 whales that have been tagged by the Environment Society of Oman (ESO) under the Renaissance Whale and Dolphin Project, and the first tagged female.

Dedicated studies in Oman since 2000 have established that humpback whales found off the Sultanate are the only population of humpback whales in the world that do not make an annual migration between tropical and polar regions. The Environment Society of Oman started deploying satellites on the endangered species in 2014 to monitor the movements of this isolated population, to understand their movements given that no other lines of scientific investigation had linked animals observed off Oman with those sighted elsewhere in the Arabian Sea, including, Iran, Pakistan and India..

Until recently all of the tracks generated by the satellite tagging project only showed the whales moving along the Southern Coastline of Oman. However "Luban" a female tagged in the Gulf of Masirah last November started heading east across the Indian Ocean and appeared on the Indian coast in December.

Andrew Willson from Five Oceans Environmental Services (5OES) in Muscat said: "The implications of this first trans-oceanic crossing reported by the tag represents a significant break-through for regional scientists whom have been challenged to understand if the humpback whales observed in the Arabian sea are connected – or reside in their own discrete areas". Willson continues "The population observed from studies off Oman since 2000 is thought to number less than 100 individuals and resulted in their endangered population status under the IUCN Red list process. The fact that one female has now moved outside Omani waters during the known breeding season now makes this theory concerning connectively across the region more likely and a first step towards considering humpbacks in the region as a single population unit. In the long term this question may be more fully investigated through genetic studies. It also raises the question as to whether there are more whales out there than have been only observed in Omani waters andmost importantly where other important habitats may lie. These results provide some hope for the conservation agenda of these whales which will now certainly

- (Luban) went to Goa, Karnataka and Kerala before returning to Masirah Island
- The first trans-ocean crossing of (Luban) has a high scientific value
- The Environment Society of Oman relies on satellites to monitor this isolated group in order to understand its movements

require regional cooperation to support further scientific investigations and their management."

"The challenge is now on to connect multiple lines of evidence using the satellite tracking, photo identification and humpback song analysis from acoustic recording units from across the region to produce population estimates, understand connectivity in greater detail and identify important habitats. Threats throughout the range of these whales is increasing, especially with proliferation of coastal fishing and a threefold increase in shipping traffic in the Arabian sea over the last 10 years – all of which provide risks of mortality from entanglement and ship strikes. Close coordination with government and private sector stakeholders is imperative for their continued survival", comments Suaad Al Harthi, Program Director at the Environment Society of Oman.

The whale arrived off Goa after a journey of over 1500km. It then continued heading steadily south at 5km/hr and its lastknown location was off the town of Mangaluru in Indian state of Karnataka. The importance of Luban's journey has taken the interest of marine mammal researchers working off the west coast of India who have embarked on a campaign to try and locate the whale and understand how it may be using habitat off this coastline.

As part of its mission to represent Omani society in conserving the country's natural resources, ESO remains committed to continuing its world-renowned whale and dolphin programme applying an evidence-based conservation approach to ensure research is used to identify on-going threats that may arise from human activities.

"This is very exciting news as it takes years of research for us to start unveiling the mysteries of this population. It's very clear that conservation of this population will need to involve both local and regional efforts. We look forward to further implications that will be revealed through this research." said Suaad Al Harthi, Program Director at the Environment Society.

The Environment Society of Oman (ESO) through sponsorship from Renaissance and in partnership with Five Oceans Environmental Services LLC, has been tagging the Arabian Sea Humpback Whale since whale tagging was initiated in 2014. The initiative is in collaboration with local entities including Ministry of Environment and Climate Affairs, Ministry of Agriculture and Fisheries Wealth, Five Oceans Environmental Services LLC, additionally international partners this year have included Smithsonian Institution, Blue Planet Marine Ltd of New Zealand and the Slovenian Marine Mammal Society. ESO has been recognized as research pioneers within the region and is a part of the Arabian Sea Whale Network (ASWN) a group of scientists and NGOs that have formed a network which aims to address knowledge gaps in the region, share information, raise awareness and develop strategies to help to protect whales.

The Sultanate of Oman

Establishment of Waste Reuse Centre at SQU

Sultan Qaboos University and Oman Environment Services Holding Company (Bee›ah) have signed a cooperation program to establish a mutually beneficial partnership that will enhance the mission of "Green University" at Sultan Qaboos University. The cooperation program aims to enhance the company›s strategic objectives to transform landfills and promote circular economy initiatives throughout the Sultanate, through the establishment of a reuse centre in the University premises. Through this partnership, Sultan Qaboos University and (Bee'ah) agree that the Reuse Centre will help achieve the objectives of both parties. The partnership's objectives include achieving the University›s goals of promoting better campus sustainability practices by encouraging participation in the Green Initiatives, as well as achieving Bee'ah strategy to shift waste disposal from landfill by introducing waste minimization and reuse practices, thereby reducing carbon emissions and green gas emissions from landfills. The partnership also seeks to achieve the In-Country Value (ICV) by creating employment, aiming to achieve at least 90% of the Omanization target during the operational phase of the Centre. The program seeks to consolidate and integrate the existing reuse efforts across the Sultanate under one umbrella to improve the Centre›s operations and achieve its objectives. This cooperation program will last for three years. Bee›ah has also launched a waste conversion strategy, which is aimed at shifting 60% of the waste from the landfill sites by 2020 and 80% by 2030. By establishing a «Reuse Centre», in collaboration with Sultan Qaboos University, Bee'ah also focuses on spreading the concept of reuse or recycling. On the other hand, SQU is currently exploring opportunities to promote sustainable development culture and practices in the campus. The Reuse Centre Initiative is the first of its kind in the region. The initiative will also encourage university staff and students to participate in waste reduction activities. The Reuse Centre will provide environmental, financial, economical and social benefits to all stakeholders and will become a centre for promoting sound environmental practices throughout the country. In line with Sultan Qaboos University's plan for sustainability and environmental stewardship, the Reuse Centre will be of paramount importance to facilitate the University›s sustainability goals.

Saudi Arabia

Initiation to Increase Number of Trees in Riyadh

The Supreme Commission for the Development of Riyadh, as part of «A Tree for Every Building» initiative, is working on planting and caring for a large number of trees in order to beautify the landscape and reduce the heat in the Saudi capital.

Kuwait

Environmental Protection Society intends to launch e-library

The Kuwaiti Society for the Protection of the Environment has announced its intention to launch the electronic library (e-library) project through its website to enrich the Kuwaiti environmental library and to spread awareness among various sectors and age groups. «The e-library includes films, video clips and paper publications, as well as full coverage of environmental events and developments that reflect the social role of the society,» Amina Ali, a member of the society and project coordinator, said. She added that this project is in line with the modern developments of the growing demand for electronic publishing. She also pointed out that the «e-library" includes environmental topics, studies and research to tackle different environmental issues in Kuwait, Arab countries, as well as issues around the world. The e-library will cover topics published in the Environment Magazine, of which 397 have been issued so far, through 38 years.

UAE

Dubai Roads Save 12.6 GW in 2017

Dubai Roads and Transport Authority (RTA) announced that it has achieved power savings of 12.6 GW/hour during the past year, in addition to reducing carbon emissions by 5,430 in 2017. These achievements come in line with the strategic objective of the Authority to create a sustainable environment through energy conservation. Engineer Maitha Bin Adai, Executive Director of Traffic and Roads Establishment, said that a plan has been endorsed to replace the traditional road lighting units (HIDs) with the new (LED) units, after the Traffic and Roads Corporation managed to successfully achieve power savings of more than 50% through its pilot projects in several areas of Dubai.

Qatar

Doha Bank Launches Green Car Loan

Doha Bank has announced the launch of the Green Car Loan, which aims to motivate residents of Qatar to choose environmental-friendly cars. This unique offer involves reductions in the interest rate of electric or hybrid car loans, in order to encourage customers to adopt a more efficient and sustainable approach to energy use when purchasing cars.

Doha Bank›s Green Car Loan includes a selection of new and used electric and hybrid cars.

Bahrain

Eco-friendly Schools Designed in Governorates

New eco-friendly schools, academic buildings and environmental-friendly facilities are being designed in several schools in all governorates of the Kingdom of Bahrain, in cooperation with the Ministry of Works, Municipal Affairs and Urban Planning. One of the advantages of these schools is that they are built in accordance with international standards and are consistent with the requirements of development projects implemented by the ministry. Eco-friendly schools are characterized by natural lightings to save energy, energy-saving bulbs, automatic shut-off water taps.

Scientists Develop New Technique to Turn Sunlight into Fuel

A group of scientists from the University of Cambridge has developed a new method to convert sunlight into fuel by altering photosynthesis, which converts water into oxygen and hydrogen in plants. According to the British "Mirror", the researchers stated that the hydrogen produced could be a renewable green energy source. The team used natural sunlight to convert water to hydrogen and oxygen using a combination of biological and industrial technologies. «Natural photosynthesis is not very efficient as it has evolved just to survive. Hence, it makes the minimum energy needed, which is about 1 - 2 percent of what it can transform and store,» said Katarzyna Sokół, who led the study.

Eight bird Species Extinct In This Decade

According to a new biodiversity list, 8 bird species have become extinct in the present decade amid fears of more animals on the verge of extinction due to forest degradation and global warming. A statistics from the non-governmental organization "BirdLife International" has explained that the giant American parrot is one of the birds that has become extinct. The list also includes other birds, such as the poop hunter and Po'ouli, which have become extinct in the present decade. As many as 26,000 species face a similar fate if mankind fails to take urgent action.

According to "The Guardian", the extinctions, which were once restricted to smaller islands and isolated places, have become a cause of concern as they are spreading out to larger areas in recent times. The official and researcher at "BirdLife International", Dr. Suart Butchart, explained that new extinction cases were recorded in South American region due to deforestation.

«Engineered Sand» Makes Rainwater Potable

In drought-stricken countries, water from heavy rainfall usually goes to the sewers. But experts from the United States have devised a method using «Engineering Sands» to remove impurities and contaminants from rainwater in order to make it fit for consumption. In this method, two compounds were added to normal sand to produce manganese oxide, which poses no danger to human health and the environment. «Soil scientists discovered the importance of manganese oxide 30 - 40 years ago. At present, we are the first to benefit from its characteristics in water purification,» Joseph Charbonnet, a researcher, said. When water that is contaminated with harmful organic materials (pesticides and bisphenol-A) passes through the sand, the chemicals begin to interact with the manganese oxide. Through this process, the chemicals are removed from the water, and they break down into less toxic compounds and degraded biologically.

The innovators emphasize that this sand does not purify water from all types of pollutants. Hence, this method should be used in conjunction with another system of purification. Experts also point out that the effectiveness of manganese oxide in water purification will decrease over time.

Environmental Vocabulary

The CalmTones

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It loves lakes and small swamps.They are its environment in which lives, from which it takes its manner, from which catches its life.To this environment remains loyalty, and around it revolves its life. It stands in front of the water swamps in a strange, quirky calm twisted its neck and lowering itshead. Giving to its environment fullrespect, and adds her touch of life and beauty of the nature. Itdraws a vital painting with aesthetic details around the swamp along with the reed plants that tell us the story of survival and eternity.

This calm, shy bird does not leave the water swamps, and if dose, leaves it to its nest, which it built from the remnants of twigs and sticks on the dense and high trees that wrapped around its home lake and breath. In Their safe nests, the average female lays five eggs in average surrounded them by security and tenderness, until they hatch after six months.Then gives them full care for two months to be able to fly and start a new life cycle after learningtheir innate behavior and instinct.

This beautiful bird is characterized by tall legs and big body of up to one meter length. When it brushes its wings, which extends to more than one meter, show the beauty of the feather that is often used to clean its body. It has a long twisted neck, and a long beak with sharp end that helps it catch its prey of fish, frogs and reptiles. It does not care if stays long time in a strange silence, as if its soul was separated from its body, waiting for the emergence of a small fish to catch it with its sharp beak.It may resort to disturbing its prey or dispersion until it emerges from hiding. This may be because it is a greedily bird so it needs large amounts of prey to satisfy its desire of food. After leaving its lake full stomach towards nests, it flies unlike the rest of the birds, its legs hanging behind its body and its head drawn back.

This bird, witch called Heron, lives in many parts of the world and includes 60 species that are distinguished by location and color. In Oman, the Gray Heron is wide spread and considered the most famous of its kind in the world.

Its harmony with its aquatic environment earned it loyalty and nostalgia.It stands with its long legs and its feet immersed in water ina stable character. Close to the lakeremains sadly in a calm situation after drying and releasing sad tones. So this bird was named the Sad Heron or Malik Al-Hazeen (Sad Malik).

Mangroves

by : Ifitkhar AlBadawi