



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



Sultanate of Oman  
Diwan of Royal Court

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Issue 48

# National Initiatives Challenge Difficulties to Plant Thousands of Wild Trees



## The Oman Animal and Plant Genetic Resources Center celebrates its winning projects from the Marathon of Ideas for Biodiversity

The Oman Animal and Plant Genetic Resources Center at the Scientific Research Council, has commended the winning innovative projects in the Marathon of Ideas for Biodiversity, (Manafie 2019).

The following projects have won:

1. Neem Line Project, which is about the production of oil from Neem tree seeds, which is used in many applications, the most important of which is the manufacture of cosmetics and

pest control. Seed residues are recycled in animal feed and also in organic fertilizers.

2. Al Maysam Project, It is a project to produce natural laundry liquid from one of the wild trees in the Sultanate.

3. Palmdf Project, It is a project to produce wooden boards (MDF) from palm waste.

4. Minnah Project, It is a project for manufacturing tea bags from bitter cucumber as a useful dietary supplement for diabetics.



## The Meeting of the Executive Committee for Plant Variety Registration

The Executive Committee for the Registration and Approval of New Plant Varieties held its second meeting for the year 2019, chaired by Dr. Hamoud Bin Darwish Al-Hassani, Director General of Agricultural and Animal Research at the Ministry of Agriculture and Fisheries with the presence of the members of the Committee from various government agencies.

During the meeting, they reviewed the most important topics agreed upon in the minutes of the first meeting of the Committee and reviewed the actions taken in respect thereof. The meeting also discussed the agenda of the meeting, which included several topics, most notably is the developments of the registration of the four varieties of

wheat at the International Union of New Plant Varieties, and the review of the final conception and functions of the registration of new plant varieties section and updates on the translation of the executive regulations of the Law of the Protection of the Rights of the plant variant into the English language by the World Intellectual Property Organization. The meeting also reviewed the final draft of the executive regulation of the law on the protection of the rights of new plant variants, in addition to the registration and approval of wheat varieties at the Intellectual Property Department at the Ministry of Commerce and Industry, as well as discussing the responses of the mango and palm registration applications.

## point of view



## The Peace Icon

Dr. Dawood Sulaiman Al Balushi  
Editor-in-Chief

Oman is a symbol of peace, a country of tolerance and harmony. It is a lighthouse illuminated in the midst of darkness. It stands as a majestic mountain which is resorted to at the time of problems. Its pillars were laid by His Majesty the Sultan to be a great nation.

As we live these days in the joy of the Sultanate's celebrations of its 49th National Day, we have the right to be proud of the achievements of this blessed renaissance, which has become a phenomenon that goes far and wide through this precious nation. Development achievements have contributed to the advancement of Omani people in the fields of education, health, roads, transport, communications, economy, tourism, security, social welfare and other aspects. The results of these achievements have stood obvious in reality and have benefited both citizens and residents in this dear country.

His Majesty the Sultan promised his people at the beginning of his reign that they will live happy and honored in this country. Here is the dream realized and written in gold letters, and here is the Omani person living inside this good land, in all walks of life, raising his head among other peoples that he is from the country of Qaboos of Peace. That he/she is from a country that all countries of the world turn to it order to contribute to solving the problems, difficulties and challenges they face with each other. A country whose words are deeds and its deeds are fingerprints on the reality. A country, if speaks, outperformed the speakers and if it moves everyone is waiting for the results.

We congratulate Oman on its leader Qaboos and congratulate this precious country for its 49th glorious feast, and congratulate the people for the developmental achievements realized on this good land. We pray to Allah to give his blessings to His Majesty, as He stands high in glory, bride and good health; Allah is responding to our prayer.

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# Beach Lagoons

## Environmental Attraction for Marine Live



By: Shaimaa Al Rasibiah



**A**l-Akhwar are widely spread along the Omani coast, starting from the peaks of mountains (Musandam) in the north, passing through Al Batinah coast and the coasts of the Sharqiya and Wusta Region, to the coasts of Dhofar Governorate in the south, such as Khor Awqad and Khor Al-Mughassil. Khor is an Arabic word entered in the Geomorphologic Dictionary. It refers to all saline and brackish coastal lakes include both lagoons and costal tidal lakes.

### Formation

The most important Akhwar in the Sultanate, ranking from north-west to east, are Khor Al-Qurum, Khor Bandar Al-Khiran, Khor Khuwair and khor Qurayat in Muscat Governorate. Then Khor Al-Shab, Khor Al-Rasagh, Khor Al-Bath, Khor Jrama, and Khor Al-Hajar in South-Eastern Governorate. There are Khor Awghad, Khor Sooli, and Khor Al-Baleed in Dhofar Governorate. Most of these Akwar formed in the Sultanate at the estuaries of large valleys and separated from the sea by sand or gravel barriers deposited by valleys and reconstructed by constructive waves. In this case, the Akhwar are called lagoons, and the source of the water of this type of Akhwar is the sea water that seeps from below, as well as high tidal water in addition to the fresh water that comes from the valleys, especially in periods of thunderstorms, when the sea is irritated and the rainwater comes through the valleys. These sand and gravel barriers abound, making direct contact between the sea and these lagoons, but after the thunderstorms stopped, they quickly return to what they are before.

If the Khor is connected to the sea by a permanently open canal, it is called a tidal lagoon. It is worth mentioning that the tidal lagoons are most common along the Omani coast. Most of this type of Akhwar is surrounded by mangrove forests that harbor many marine organisms, an example of this type is the Qurm Khor in Muscat, a large part of which is the occupied by the Qurm Natural Park.

### The Importance of Al Akhwar

Akhwar environment represents one of the aspects of natural heritage. Akhwar and associated environmental phenomena have a great economic, tourism and aesthetic value, if they are well

optimized. We summarize this value as follows:

- Many organisms take refuge in Akhwar environment and they are a safe place to breed, and some of them are even a safe place for migratory birds.
- Al-Akhwar is an ideal place for breeding to many types of fish, because Al-Akhwar environment contains seaweeds of great nutritional value for fish during their growth.
- In the past, these Akhwar were a major source of salt. Places of salt extraction were spread on the sides of Akhwar. Such places traces remain so far, as in the case of Khor Qurayyat.
- These Akhwar form tourist attractions with beautiful sandy beaches, mangrove forests and resort for various birds. If some facilities are set up there, they will become tourist attractions of great aesthetic value.
- Some of Akhwar are used for maritime navigation such as Sooli Khor.
- Khor Al-Batha is one of the largest khors in the Southern East Province. It is used as a commercial port where commercial ships and fishing vessels of various types are anchored. This Khor extends for a distance of 3 km. Like it, is the Khor of Al-Baleed which was used as a port.
- Khor Najd in Musandam Governorate, was used by sailors to protect them from bad weather.

### Challenges Facing Al Akhwar

- Conducting development projects without undertaking the environmental management plans and environmental assessment before and after the start of projects. The Environmental Impact Assessment (EIA) is an important tool for integrated environmental management for new facilities and projects or for extensions and renovations of existing

They form nursery areas for marine organisms, fish and crustaceans

Al-Akhwar are considered as an important tourist attraction

facilities, in accordance with the provisions of environmental law.

- The random distribution of all types of land (residential, commercial, industrial) near Al Akhwar.
- Performing of Archaeological surveys and excavations without strict control may cause heavy losses and wide violations such as looting and vandalism; causing loss of parts of the Al Akhwar.
- Indiscriminate development and its devastating effects on these natural environments, which may destroy parts of the Al Akhwar. Some of these Akhwar have virtually disappeared, such as the Khor Kashmir in North Al Batinah Governorate, a victim of indiscriminate development.

### Solutions for the Challenges

- The relationship between tourism and the environment is an integral one. The environment itself is a tourism product, so it is in the interest of the tourism industry to protect and preserve the natural and cultural environment. Some of the most important solutions to address the challenges faced by the Al-Akhwar in the Sultanate include:
- Protection of wildlife in its natural environments by enacting strict laws and regulations.
  - Protection of ecosystems from unguided activities.
  - Prohibition of random distribution of land near Al-Akhwar.
  - Integration between economic production institutions and these Akhwar.
  - Constructive awareness about the importance of Al-Akhwar and the need to protect them.
  - Conducting environmental management plans and assessing the environmental impacts of any project in or around Al-Akhwar.
  - Managing of Al-Akhwar and using them in sustainable ways for economic benefit.
  - Inclusion of some sites in the list of (UNESCO) Cultural Heritage list which further enhances its protection, such as Khor Rori in Dhofar Governorate.
  - Providing an information centre to monitor the biological and physical changes of Al-Akhwar, to facilitate their sustainability for many years.



On the Occasion of the  
Sultanate's Celebration  
of Omani Tree Day ..

# National Initiatives Challenge Difficulties to Plant Thousands of Wild Trees

■ ■ **The National Field Research Centre for Environmental Conservation (NFRCEC) at the Diwan of Royal Court and the Omani Society of Sidr (under establishment) has implemented the initiative of planting local wild trees in a number of Wilayat in the Sultanate. They planted more than 6,000 wild trees, on the occasion of the Sultanate's celebration of Omani Tree Day with the participation of government agencies such as the Ministry of Environment and Climate Affairs, the Ministry of Regional Municipalities and Water Resources, the Directorate General of the Million Date Palm Plantation Project at the Diwan of the Royal Court, Muscat Municipality, and the local community in various Wilayat. ■ ■**

The initiative was implemented in two phases. The first phase is aimed at planting local trees in the Wilayat of Al Amerat, Al Wadi Al Kabir, Wadi Al Ansab, Industrial Area in Muscat Governorate, as well as Bahla Wilayat in Al Dakhiliyah Governorate, Al Mudhaibi Wilayat and Sinaw Niyabat in the Alshargiyah North Governorate. The second phase was implemented by planting trees at Wadi Al-Khoud in Muscat Governorate, Ibra Wilayat in Alshargiyah North Governorate, Ibra Wilayat in Al-Dhahirah Governorate, Nakhl Wilayat in Al Batinah South Governorate and Izki Wilayat in Al-Dakhiliyah Governorate.

#### 6 Thousand Seedlings

During the period of the initiative, more than 6,000 seedlings of local Omani trees were planted in various Wilayats. 150 Sidr seedlings at the Wilayat of Modhbi, Mkazh, 45 in a private school, 2000 at Izki Wilayat, 300 at the area of Habil Hadeed village, 250 at Alaqil village, 80 seedlings at the Child Corner in both villages, 120 seedlings at Maqzah, Imti 150 seedlings, Wadi Halfain 250 seedlings, South Qaroot 80 seedlings Quraisaa 250, North Qaroot 60 seedlings, Izki Heights 80 seedlings. In Bahla Wilayat, 900 seedlings were planted in 34 locations, distributed among sports teams community teams, schools and mosques. In Ibra Wilayat, 500 Sidr seedlings were planted, Wadi Alansab at Bawshar Wilayat 690 seedlings of Sidr, Wadi Kabeer at Ruwi 200 seedlings, Wilayat of Ibra 260 seedlings of Sidr, Muscat Wilayat 230 seedlings of Sidr, Wilayat of Nizwa 300 seedlings of Sidr were planted at the University of Nizwa, and in the Niyabat of Sinaw, village of Alwasit 70 seedlings, Alkhashaba village at Al Modhaibi Wilayat 100 seedlings were distributed among houses, the village of Bani Difaa 75 Sidr seedlings were planted beside the road plus 200 in the same wilayat, as well as 50 seedlings for the cities of the Industrial Areas Management at Industrial Rusail.

#### Solid Cooperation

Dr. Saif Rashid Al Shaqsi, Executive Director of the National Field Research Centre for Environmental Conservation (NFRCEC), stressed that these initiatives are part of the environmental initiatives implemented by the National Centre on an ongoing basis for conservation of biodiversity in the Sultanate, especially with

regard to increasing the area of vegetation.

"There is a solid cooperation between the National Centre and various government and private entities, civil society institutions and individuals in the implementation of research projects and community environmental initiatives, which contribute to the preservation of the Omani ecosystem and the conservation of natural resources" Dr. Al Shaqsi added.

The Executive Director of the NFRCEC also said that the studies carried out by the Centre show that there are many factors that led to the deterioration of the vegetation cover in the Sultanate, some of them are natural factors related to the life of plants and climate change, some of them are caused by humans such as increasing the number of housing units and thus removing a large number of trees. Therefore, there must be a societal interest in the planting of wild trees such as Sidr, Samar and Ghaf. The lack of attention to such trees will negatively affect the environmental balance.

Al Shaqsi went on to say that the Centre has implemented the Green Wadies Planting Initiative in a number of the wilayat in the Sultanate, during which local wild trees were planted in a number of



## Some statistics related to planting local Omani trees during the initiative

- 200 Sidr trees at Almidhaibi Wilayat
- 1800 seedlings at Izki Wilayat
- 900 seedlings at Balaa Wilayat
- 500 seedlings at Ibra Wilayat
- 690 seedlings at Wadi Alansab, Boshar Wilayat
- 200 seedlings at Alwadi Alkabeer, Ruwi
- 260 seedlings at Ibra Wilayat
- 230 seedlings at Muscat Wilayat
- 300 seedlings at Nizwa Wilayat
- 70 seedlings at Sinaw Wilayat
- 100 seedlings at Almodhaibi Wilayat
- 50 seedlings at the Industrial Rusail



**Al Shaqsy:**

**The initiative continues to preserve biodiversity by increasing the vegetation area**

**Al Humaidi:**

**The interaction of people and local society in trees planting initiatives confirms the originality of Omani society and community sensitivity to preserve the environment**

**Al Adawi:**

**Oman Sidr aims to plant one million wild trees in wadies and fertile places**

wadies in order to preserve the vegetation cover, preserve the wadies and restore their tourism, economic and environmental importance.

Al-Shaqsy explained that the wadies were affected by several factors, including the dredging of water, as well as landfills, where some of these wadies are used as places for throwing construction waste.

He said that this initiative started two years ago, the process of planting wild and endemic trees in each valley, pointing out to the initiative of the establishment of the Omani Sidr Society, which is under establishment. And that it is managed by young people who are interested in trees, their importance and re-planting. That coordination was reached to for forestation of some wadies. "We found out that the the Omani Tree Day is an appropriate day for the launch of various events. So, three events other have been launched, the most important of which is the planting of Wadi Al-Ansab, Wadi Udai and Wadi Bahla with trees. This was preceded by the planting wild trees in the forefront of that was the planting of Arato trees in Bidiya Wilayat. We hope for the continuation of this activity and the youth interest in wild trees in the various regions of the Sultanate.

Al-Shaqsy pointed out that there must be interest from young people in the process of planting. This activity began with the planting of wild trees in some schools and the planting of palm trees which are of great importance to food security. Young people need to be aware of the importance of planting these trees. As we have seen at the Centre's activities, many of the participants were young, some less than 10 years old. This will undoubtedly inculcate new concepts among young people that will make them realize the importance of the tree.

#### Planting in Wady Alansab

Saud Mohammed Al Humaidi, a representative from the Ministry of Environment and Climate Affairs, said that this is a voluntary campaign on the occasion of the Tree Day, in cooperation with the Municipality of Muscat, the NFRCEC and the Omani Tree Society in Wadi Al Ansab. In order that this voluntary campaign shall be a nucleus of the green environment which serves the environmental and tourism aspects, and thus be an outlet for the residents of the region and tourists. In this initiative, we have seen the interaction of the people of the region and the civil society. This interaction represents the originality of the Omani society, and all this serve the preservation of the environment and sustainable development that serve the country. The environment, in its turn protects the land from desertification and increases the agricultural area in the region.

Mohammed Abdullah Al Adawi from the Omani Sidr Society said that, the Omani Sidr Society is still under establishment. However, it has celebrated the occasion of the Omani Tree Day. Its members participated in planting some seedlings in the various wadies of the Sultanate, including Wadi Al Ansab, Wadi Udai and Wadi Al Kabir. These efforts came in coordination with the National Field Research Centre for Environmental Conservation (NFRCEC). We have found great support from them and other government agencies with competence.

Al Adawi added that, the association aims to plant about one million wild trees of Sidr, Shua and Ghaf in the wadies and fertile places, provided that they are from the Omani environment. He explained that one of the objectives of this association is to protect and preserve existing trees.

Al-Adawi pointed out that the preparation for the planting campaign in Wadi Al-Ansab started from an early date. "We have identified the area and coordinated with the concerned authorities".

Mohammed Sulaiman Al Dabbas from the State of Palestine, one of the residents in the Sultanate, said that, this initiative came from the National Field Research Centre for Environmental Conservation (NFRCEC) with the participation of a number of competent authorities on the occasion of the Omani Tree Day. "We planted the Omani Sidr tree along Wadi Al Ansab. Omani Sidr tree is of great importance in creating an ecological balance. We must all join forces to create a clean environment, free of various pollutants, whether as Omanis or residents." Added he.

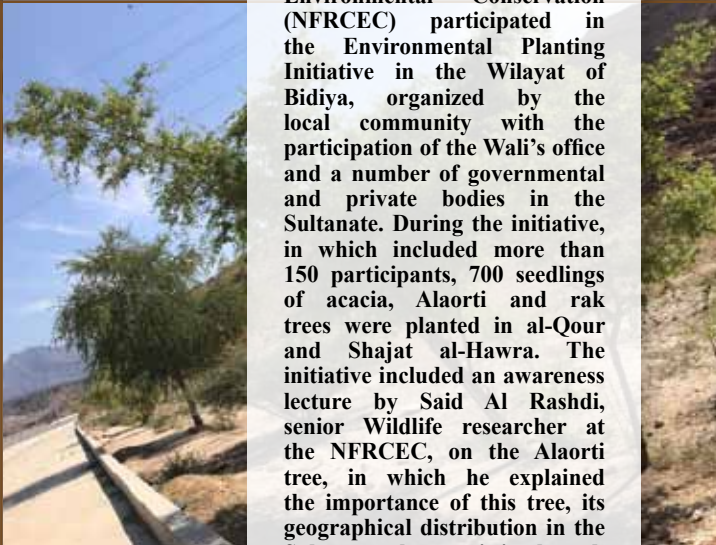
"A number of people from the region, participated in the initiative of planting trees at Wadi Al Ansab. Such initiatives would preserve the environment and create a tourist location that the visitors can enjoy." said Abdullah Al Rahbi, a resident of Bawshar.

The child Yazan Mohammed Al-Hadabi, enrolled in the fourth grade said: «I was pleased to participate in the initiative and the planting of trees. We carry on our shoulders the responsibility of keeping our environment clean and plant various types of trees." He added: "I will share with my family and colleagues what I have learned from this initiative, and I will participate in all agricultural initiatives that are in my school and my region." Added Yazan.

Like Yazan, the other child, Shehab Al-Qassabi, who is enrolled in the fourth grade, confirmed the importance of planting trees and taking care of them and that he will continue to plant trees in his house, will take care of them and will advise his colleagues to plant trees and care for them.

### Environmental Planting Initiative in Bidiya Wilayat

The National Field Research Centre for Environmental Conservation (NFRCEC) participated in the Environmental Planting Initiative in the Wilayat of Bidiya, organized by the local community with the participation of the Wali's office and a number of governmental and private bodies in the Sultanate. During the initiative, in which included more than 150 participants, 700 seedlings of acacia, Alaorti and rak trees were planted in al-Qour and Shajat al-Hawra. The initiative included an awareness lecture by Said Al Rashdi, senior Wildlife researcher at the NFRCEC, on the Alaorti tree, in which he explained the importance of this tree, its geographical distribution in the Sultanate, the way it is planted, the human and natural threats it faces, and the ways to preserve and multiply it. A field visit was also conducted to the Park of Al Khamael Land in the Wilayat, where participants were briefed on the environmental arboretum of acacia trees, and the ways in which these trees are grown and multiplied in the Sultanate.



## ➤ The Sultanate Hosts the 21st Meeting of GCC Environment Ministers



The 21st Meeting of the Ministers Responsible for Environmental Affairs in the GCC was held in the Sultanate at the headquarters of the Commission Advisory Council of the Gulf Cooperation Council. The meeting was chaired by HE Mohammed bin Salem Al Toobi, Minister of Environment and Climate Affairs, who started the meeting with a speech in which he thanked the Member GCC countries and the General Secretariat for participating and responding effectively in the implementation of the decisions and recommendations related to cooperation in the field of joint environmental work in the GCC countries. He praised the studied steps in the field of joint environmental cooperation because of its importance and its close relationship to human health and safety, stressing that this cooperation will contribute to the achievement of comprehensive economic and social development among all GCC countries, so as to increase economic efficiency in a sustainable manner and create

livable environments to enhance productivity and stimulate innovation and diversify the sources of the economy and growth. His Excellency Sheikh Abdullah Al Ahmad Al Sabah, Director General of the Public Authority for Environment in Kuwait, delivered a speech in which he stressed that the decisions issued by the Supreme Council related to the environment are fundamental milestones, a major shift in enhancing the process of joint environmental work, achieving the desired goals for the well-being of the peoples of the Gulf countries, and promote economic and social progress and stability.

HE Dr. Adil Khalifa Al Zayani, Head of Human and Environmental Affairs Sector at the General Secretariat of the Gulf Cooperation Council, delivered a speech in which he thanked His Majesty Sultan Qaboos bin Said, Chairman of the current session of the Supreme Council of the Gulf Cooperation Council, for the Sultanate hosting of the 21st Meeting of Ministers

### Approval of the Strategic Plan of the Committee of Ministers Responsible for the Environment for the years (2020 - 2024)

### Working out a concept for the unification of lists of chemical materials and the proposal of the integration of the GCC countries in waste treatment

Responsible for Environmental Affairs. He also thanked the Minister of Environment and Climate Affairs, Mohammed bin Salim Al-Tobi, and all the team working in the ministry for the generous hosting and for the continuous support for the blessed march of joint Gulf action in various fields, including the environment, natural resources and wildlife. He also thanked the Kingdom of Saudi Arabia for successfully chairing the previous session of this Committee. At the end of the meeting, the ministers responsible for environmental affairs issued the following decisions:

To Approve the Strategic Plans of the Committee of Ministers Responsible for the Environment for the years (2020 - 2024); Approval of the operational plans of the strategy of the Committee of Ministers Responsible for the Environment for the years (2020 - 2024), commencement of the work of the operational committees for the implementation of the plan, each committee shall set the detailed terms of reference for the committee at its first meeting, and submit an

annual report to the committee of the Undersecretaries. The Kingdom of Bahrain shall prepare a concept for the unification of chemical lists and the proposal of the integration of the GCC countries in the treatment of wastes and shall send it to the General Secretariat for circulation to Member countries for their comments and views, as a prelude to its inclusion in the executive plan of the strategy. The coordination between the Ministry of Climate Change and the Environment of the United Arab Emirates and the General Secretariat to hold a workshop on Artificial Intelligence in the Environmental Fields. The meeting approved the launch the second phase of the Gulf environmental portal during the month of March 2020. Work shall continue on the preparation of the unified environmental law for the GCC countries, taking into account the national laws in the member states, and the preparation of a general framework for the unified environmental law, and presented it at the next meeting.



## ➤ The «NFRCEC» Participates in an Environmental Exhibition of the GCC

By: Fatima Al Zadjali

Photo by: Abdullah Al Sabie

The National Field Research Centre for Environmental Conservation at the Diwan of Royal Court has participated in the awareness exhibition "Conservation of Nature as a Base for Achieving Sustainable Development", organized by the Ministry of Environment and Climate Affairs in cooperation with the General Secretariat of the Gulf Cooperation Council with the participation of a number of government agencies, universities and civil society institutions in the Sultanate. This event comes as part of the Days of the Gulf Cooperation Council, which is currently hosted by the Sultanate.

The Centre presented several field research instruments used in environmental research to monitor wildlife in the Sultanate, in addition to a number of environmental books such as "The Arabian Tahr", "The Field Research", "The Fresh Water Systems", "The Biodiversity in Jabal Samhan", "Vegetation in the Jebel Akhdar", as well as various editions of the environmental monthly newsletter "Lynx". Various environmental films on birds, marine environment in Oman and environmental education were presented.

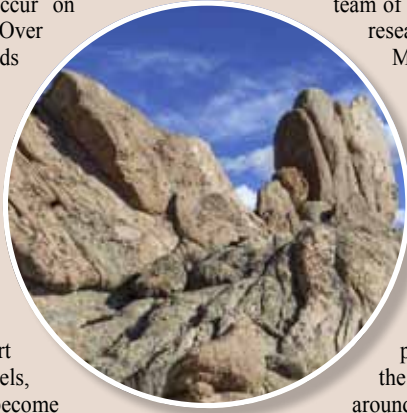
The opening ceremony was sponsored by Najib bin Ali Al Rawas, Undersecretary of the Ministry of Environment and Climate Affairs, in the presence of a number of government and private sector officials. The ceremony also included the launch

of the new book on the Declared Reserves in the Sultanate, produced by the Ministry of Environment and Climate Affairs in cooperation with Occidental Oman. The book showcases the natural and environmental characteristics of the Sultanate's natural reserves, and the resources contained in such reserves, as well it highlights their role in preserving the Sultanate's biodiversity against degradation and extinction. The exhibition aims at highlighting the interest of the Gulf Cooperation Council (GCC) countries in preserving the environment and preserving its natural resources, developing and preserving them from degradation and pollution. It also highlights the GCC countries efforts in the environmental field. Wildlife, focusing on highlighting the GCC Wildlife Convention

## Human Activity Enhances Soil Erosion Since 4,000 Years



Soil is the foundation of all vital processes that occur on the surface of the earth. Over the course of thousands of years, changes in the composition of the earth's crust (tectonic changes) as well as climate changes, have played a significant role in the erosion and corrosion processes that have occurred to the soil. As in the short term and small local levels, human activity has become the main driver of soil erosion. To



study this change, an international team of European and Canadian researchers from the Max Planck Institute in Germany and the National Institute for Scientific Research in Canada, have recorded the changing caused by time on soil erosion. Researchers have studied soil erosion that has occurred in past times, by analyzing the deposits of 632 lakes around the world collected over the past decades.

## A Study Reveals The Existence of Unique Species of Fungi in Deep Seas

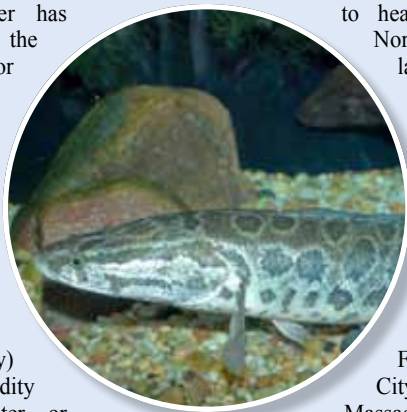
For a long time, marine fungi have not received the attention of the research community, despite their contributions to the health of ocean ecosystems. This matter drew the attention of researchers from several bodies interested in studying marine life such as the Marine Life Institute of the University of Chicago, the Department of Biology at the University of North Carolina and the Department of Pharmacy at Duke University in Durham. The results of the first research conducted by these researchers



on the diversity of marine fungi and their cell division cycles were published in "Current Biology Periodical" on October 21, 2019. As the first of its kind, this paper received much attention from the biosphere research community. In collaboration with the University of Chicago's Marine Life Laboratory, the researchers cultivated fungi taken from coastal waters, swamps, beaches and other marine environments - near Woods Hole in the United States - including fungi taken from plankton, sponges and corals.

## Water Pollution causes the Snakehead to Invade the Land

The Georgia State Wildlife Resource Center has issued warnings that the amphibian predator snakehead should be killed when it is seen, after receiving a report it has been seen in a pond in Gwinnett County. A recent study published in the journal of (Integrative Organismal Biology) showed that high acidity or highly saline water, or those with high levels of carbon



dioxide, propel the snakehead to head towards the land. Northern snakehead is the largest amphibian fish. Its original home is Asia. In 2002, the Northern Snakehead was first found in the United States in the Maryland pond. Since then, they have been discovered in the Potomac River in Florida, New York City, Philadelphia, Massachusetts, California and North Carolina.



Environmental Vocabulary

### The Genuine

Eng. Khalifa Badawi Al Higgi  
almitc@yahoo.com

A small creature opens the doors of its composition and the good of its qualities. It swims vertically unlike other fish, not only because it is not skilled in swimming, but its physical composition does not enable it to swim horizontally, perhaps because it has no fins except from an orphan one on its backbone characterized by fast vibration. Its tiny body ends up with a snake-like tail that helps it move vertically. Has a tail like a snake, eyes are like those of reptiles, a body like a genuine strong animal while it is a small bony fish only 12 centimeters long on average. This is a strange similarity between creatures separated by different spaces and environments.

It is not surprising to be described as the slowest swimmer in the world where its speed does not exceed 1.5 meters per hour. Is not this speed can make it a big meal for other predators!, it is may be, but it possesses its own tools for protection. It always lives close to coral reefs and seaweed and change its colour like a chameleon to camouflage enemies. Its eyes also help it track the risks. Its eyesight ability is very high, so it can see with its eyes in two different directions, each eye in one direction at once. Scientists point out that its eyes are advanced in evolution. This beautiful animal's body is covered with bone plates in the form of rings that protect it from enemies. Fish eggs, water plankton, crustaceans, worms and small invertebrates are its favorite meals, which it absorbs through its long toothless tubular mouth by suction. Its high nutritional taste prevents it from eating meals from dead creatures.

The wonders of this beautiful animal still reveal its secrets and tell us how it reproduces. As it had a good taste in the selection of food, also has a good taste in choosing its eternal partner (wife), as it is not associated with another or change it whole their live, and may die in grief after her death. The process of marriage takes several days before vaccination is carried out through a ritual of spinning. Scientific research has shown that marriage ceremonies take place at full moon. The female then places between 200 - 600 eggs in the male pod similar to the female kangaroo bag, where the male fertilizes the eggs inside the bag until hatching after about 21 days. They come out in length of one centimeter and complete growth after about six months and then exercise the normal life until the end of their life cycle up to about four years.

Man is one of the enemies of this beautiful animal where it feeds after drying. Its meal is believed to have medical benefits which increase its demand. This leads us to an endangered indicator for extinction. There are five species of this genuine animal in Omani waters. This small beautiful sea animal is really genuine in its characteristics and similarity to other wild animals, especially the horse that bears its name. This is the Sea Horse.

# Plant a tree get a fruit

Marwa Al Mukhaini



Here is my Sidra which I planted, It has grown.

I will surprise my friends by planting Sidra.

What a beautiful green Sidra, we preserve our Omani environment

Not only you Saeed who initiated the planting, I also brought Sidra to plant, and Abrar is watering it.

Well, Faisal this is the water to grow your seedlings.

Come on Hoor, help me watering my seedlings.