



The National Field  
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About innovative Environmental Research



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Diwan of Royal Court

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A Scientific Research on

Snakes



in Oman

## It Rings Danger bells to Warn of «Extinction»...

# The Red List is The Guardian of Biodiversity

By: **Said Al Rashdi**

Wildlife specialists use several terms to describe the status of specific species (e.g., endangered or listed in the red list) to denote the importance of protecting this species from extinction. This list identifies the numbers and types of threatened animals and identifies the priorities in protecting risked areas. Many international conventions and treaties rely on the red list as a key reference for listing, priority and protection of areas, such as the Convention on International Trade in Endangered Species (CITES) which focuses on the protection of endangered wildlife from commercial exploitation.

### Definition

The Red List of Endangered Species constitutes classification and study of the conservation status of plant and animal species by the International Union for Conservation of Nature (IUCN), which is a global organization aimed to protect and promote the protection and safety of biodiversity of nature. It



was established in 1948 in France by the Director of UNESCO at the time Julian Huxley and is based in Switzerland.

### Standards

The first scientific paper to discuss the criteria for red listing (mace and land) was published in 1991, where large vertebrates were classified. This followed by another paper

in 1992, which classified all living organisms. Subsequent papers followed during the following years and discussed the criteria for non-threatened species, etc. In 2001, the final version was issued, which specifies the criteria, criteria branches, risk of species extinction and the re-evaluation every 5 - 10 years. There are two types of criteria, one is global and the other for the region or the state. Global standards are used for global environmental agreements, while regional standards are used internally for the region and the area. The regional standards exceed global standards in number. Statistics show that nearly 65,000 species (animal and plant) have been evaluated and most of them are species of birds. This number is still small, compared to the number of known species and kinds, which may reach up to one million species. As well, there is a segmentation of these criteria according to the available information per type. That is good information for evaluation, when there is no assessment information.



point of view

## Incident of Burning Juniper Tree

**Dawood Sulaiman Al Balushi**

Editor-in-Chief

A story was reported through the social media a few days ago, about some tourists who burned down a tree of Juniper in Jabal Al-Akhdar, is a sad incident, though, they were there to enjoy the beautiful atmosphere and the wonderful weather in this distinctive geographical area of the Sultanate. The incident raises self-regret over the behavior of some tourists, over their lack of interest in the ecosystem and their indifference to the preservation of such endangered environmental heritage.

The Juniper Trees are long-standing wild endangered trees in Oman. Some of them are thousands of years old. The Alalalan Tree is one of the rare natural treasures in the world. The competent authorities in the Sultanate are exerting diligent efforts to keep this tree safe from deterioration and extinction, after noticing that its numbers began to decline due to natural factors. That is why the burned tree represents one of the most important environmental parameters in the Sultanate.

The irresponsible behavior of some tourists embodied in the destruction of plant and animal life in natural places, cause a heavy burden on the authorities who work hard to preserve the remaining endangered environmental life in the Sultanate. It is a bad behavior that is not acceptable by Islamic law, by general norms or civilization perspective. It also shows a lack of self-discipline which resulted in such negative acts.

Each of us must have a national environmental responsibility. Each one of us must instill in his family, children and society, positive principles, such as the importance of preserving public property, tourist places, as well as the plant and animal life in the Sultanate. The establishment of sound and correct values leads to the building of a strong and cohesive society.

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## «Oman Challenge» ... A Camping Course that Gaves Students Environmental Skills and Human Values

National Field Research Centre for Environmental Conservation held a “Oman Challenge” camping course It was an introductory course for a number of students from Al-Sharqia and Nizwa Universities, as part of the “Environment Volunteer” Program, where young people were trained to use camping tools and to choose the right places for camping. The course lasted four consecutive days, during which the students learned about the most important environmental hazards, the extent of human impact on environmental, and an introduction on the ways to deal with the environment and its tools in the right way. The students were divided into three groups to discuss several topics on negative and positive aspects, such as criticism, success of others and facing the difficulties. There was also an activity with “Oman Challenge” coach where students know the Triangle of the Successful Team and the Learning Circle. The second day of Oman Challenge session witnessed a field workshop on field survey of birds, which included giving students some knowledge on birds, birds counting, and how to distinguish between different kinds of birds. The course also included a brief on some



translated reference books about birds, such as the book of “The Birds of Al-Jabal Al-Akhdar”. The participants also learned about the equipment and tools used in the environmental field survey, such as the GPS, direct transmitters and cables, sanitary wares, security and safety kits and how to deal with them. At the end of the day, after the students arrived at the camping site, they discussed the pros and cons of the march. On the third day, a field workshop was held on field survey of plants. It discussed the identification of the plant survey area, the different plant types, the ratio of rocks to the soil and the method of filling the survey form, through which the type of plant can be identified using a computer program. The workshop was concluded with a competition on the implementation of what was explained during the workshop, where great interaction by the students took place. Then, students were closely acquainted with how to organize a group activity, to apply the teamwork skills and to develop the skill of clear communication between the group. While walking in the camp, students learn about the ethics of teamwork, such as trust, reliability, integrity, credibility and responsibility.

## For the First Time in history...

### the United Nations Recognizes Health Ecosystems as a Human Right

The global environmental community welcomed the recent United Nations report on the environment and human rights, which highlights the importance of biodiversity and ecosystems for the human rights. This is the first ever report to the United Nations recognizes that the loss of biodiversity undermines human rights, by limiting agricultural and fishery outputs, which adversely affects health or the elimination of filters from the water cycle. By preserving biodiversity, countries also contribute to achieving sustainable development goals related to food security, health and water,



among others. Environmentalists believe that people have the right to benefit from nature in earning a living and in a rewarding and dignified life. This includes, for example, the right to food for all, for present and future generations, the right to water, the right to housing, the right to health and other social, economic and cultural rights. It all depends on ecosystems and biodiversity.

The International Union for the Conservation of Nature and Natural Resources (IUCN) has long been addressing the linkages between the conservation of biodiversity and the achievement of human rights. In 1994, the Union issued what was called «land care - a strategy for sustainable living», declaring that «we have the right to the benefits of nature, but this will not be available unless we care

about the systems provides them for us.» Through its work, such as the development of guidelines and policy frameworks for the participation of Governments with indigenous peoples and local communities, IUCN has continued to highlight threats from environmental change and the degradation of environmental systems that are directly dependent on ecosystems.

► Snakes have been on the Earth for more than 100 million years and have an average life span of 15 - 25 years

# A Scientific Research on Snakes in Oman

Environmental and Therapeutic Roles  
Their Characteristics and Their



**The Department of Animal Science Resources at the Research Centre for Chemistry, Medical and Life Sciences at the University of Nizwa, conducted a unique scientific research on Snakes and snakes in the Sultanate. The research aims to identify snakes, their types and their characteristics, as well as to identify poisonous and non-poisonous ones. The Department seeks to produce anti-poison for the snakes found in the Sultanate, to study the components of each poison and its properties and to study its role in the treatment of diseases, in addition to the effective role played by snakes in the food chain at their habitat.**

**The Research Mechanisms**  
The Department of Animal Science Resources has searched all Omani environments for snakes species. The department has collected more than ten types of poisonous and non-poisonous snakes. Tests and studies were carried out on these species to identify their biological and behavioral characteristics, in order to document their types and places of existence and discuss their important role in the food chain in their habitats. Researchers of the Centre, continue to track these creatures and count all such species across

the Sultanate.  
**Primary information**  
Studies have confirmed that snakes have been on the ground for more than 100 million years and their life expectancy is between 15 - 25 years. Snakes are Cold-Blooded (Herpetology) that belong to the Snakes' family. They have protruding bodies, covered with scales and they have skeletons as well. This combination helps the snake to move, to squeeze and to swim effectively without the need for limbs as other animals. Snakes have the ability to live in many places such as forests, deserts, lakes, oceans and spread

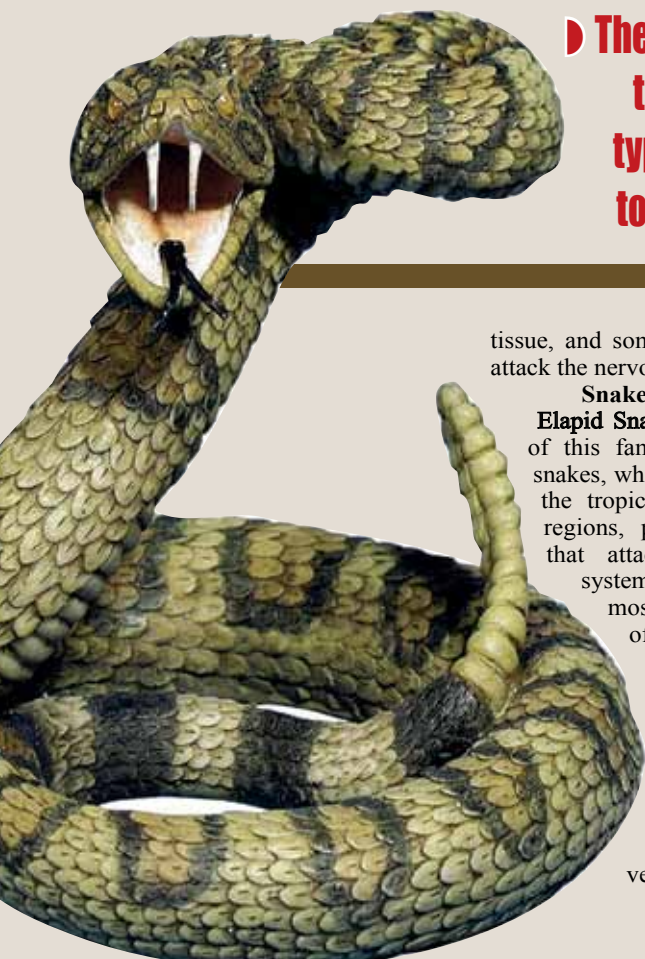
across all of the continents except Antarctica. They exist in different lengths, ranged from a few centimeters to several meters.  
**Correcting False Information**  
Despite the bad reputation of snake bites, most species are non-toxic, with less than 30% of snakes being toxic, and only 10% of them are dangerous to human life. Some types of venom affect blood and circulatory system, some types affect the muscle





► The Department of Animal Science Resources at the University of Nizwa seeks to produce an anti-toxin for the Snakes found in the Sultanate

► The department was able to collect more than 10 types of Snakes in order to document their types



tissue, and some types of toxins attack the nervous system.

#### Snakes Families

**Elapid Snakes:** All members of this family of poisonous snakes, which often spread in the tropics and subtropical regions, produce a poison that attacks the nervous system of the prey. The most famous species of this family is the Black Mamba, the Indian Cobra, the King Cobra, Cape Cobra, Mamba Green and Sea Snakes.

**Viperid Snakes:** They are venomous snakes

that spread in the Americas, Europe, Asia, and Africa. These snakes are characterized by two fangs that can rotate back and forth. Such fangs are folded back when not in use. There is a subspecies belonging to the Viperid called the Pit Viper because of the heat sensor holes on both sides of the head. One of the most popular types of Viperid Snakes is Russell's viper, Saw-Scaled Viper, Gaboon Viper, and Western Diamondback Rattlesnake.

**Colubrid Snakes:** It is the largest snake family, including two thirds of snakes' types in the world, poisonous and non-poisonous. They have non-hollow teeth located in the back of the

mouth. The most famous types of which are: Corn Snake, California Kingsnake, the boomslang and the Black Rat Snake.

**The Boa Family:** Known as (Boidae). All types of this family are non-toxic. They are characterized by their large size and their strength which they depend on to kill their prey by wrapping around them and strangled them. The most famous types of them are Emerald Tree Boa, Boa Constrictor and the Green Anaconda.

**Pythonidae Family:** All members of this family are small, and they kill their prey by squeezing. The most common kinds of them are the Reticulated Python, Burmese Python, and African Rock Python.

## Environmental Balance

Like other creatures, snakes play an essential role in the ecosystem. They feed on many prey, such as small and large mammals, birds, reptiles, frogs and insects. Thus they control the numbers of rodents and other animals. Nevertheless, there are some people who use snakes skin in traditional treatments and some of them use snakes to make medicines for diseases. We should not forget that, if we kill snakes randomly now, we will suffer later from the spread of the animals that are killed by snakes and thus, we will face the spread of diseases such as plague and others diseases.





◆ **As the world suffers from global warming, greenhouse gas emissions and the waste of non-renewable energy resources, a global trend towards environmentally friendly homes that produce no residue or damage to the surrounding environment has begun as the world is facing the risks of global warming and greenhouse gas emissions.**

**Green houses have become a global phenomenon that many countries have begun to implement. Many environmental researches and studies have confirmed that such houses will save a lot of the money that countries spend to reduce the risks of Greenhouse gases, as well as helping in the search for alternatives to non-renewable natural resources.**

### An Environmentally Friendly Omani House

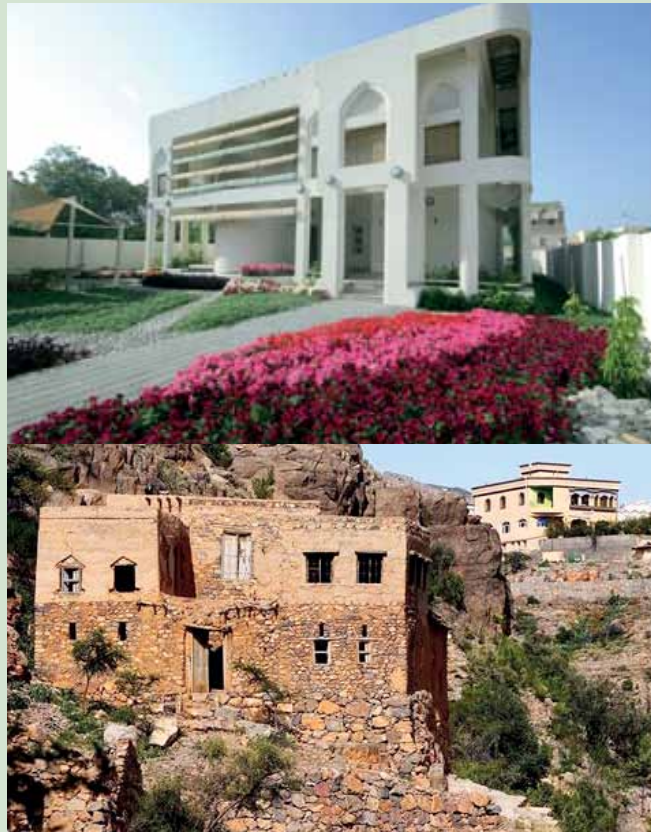
Alongside the Omani Harat and the revival of the heritage, there are Omani attempts to build green houses. There are five eco-friendly Omani homes that began as research projects. These houses are models of the future home that can meet the challenges of sustainability and will be, at the same time, in line with the well-being of the modern life. Sultan Qaboos University has launched the Omani Eco-Friendly House as one of the many projects being sought by many institutions in the Sultanate. That is because it is very important to preserve the environment and to reduce environmental costs by reducing spending on electricity. The house releases energy internally through its solar energy unit without relying on other energy sources. The house is designed in the shape of the latter "H" and has a northern and southern courtyard connected directly to the main living room. The interaction between the interior and exterior spaces has been enhanced. The eastern and western walls contain minimal sun-protected windows with flat vertical umbrellas parallel to the walls. The 20-kilowatt photovoltaic system has been created through 80 solar panels, which are leaning by 23.5 degrees to make maximum use of solar radiation. The solar panels were divided into groups with 14 panels for each group. The panels are connected to electrical transformers to converters DC to AC compatible with the local energy network (LE N). The surplus power of the house is exported to the local network during the day, while the house imports energy in the evening according to an agreement with the electricity company. The exported and imported quantities are calculated through a bidirectional meter which is tested for the first time in the Sultanate. Measurement meters indicate that the energy exported to the (LAN) during the day is greater than the energy imported in the evening. The means of rationalizing electrical energy are used in lighting and general appliances.

## Environmentally Friendly Homes

### An Omani Orientation towards Sustainability

#### The Omani Lane as Environment Friendly Model

The country has been on the line of building environmentally friendly homes, especially since Oman's architectural heritage used to depend, until recently, on environment friendly building materials. The Ministry of Heritage and Culture's has started a project that is dedicated to revive the old lanes and neighborhoods of Oman. The Ministry completed a series of renovations that took place in a number of lanes, which witnessed a social life that had flourished in the past among the ruins of green mud houses such as Harat Menah and Harat All Bo Said at Wilayat Adam, Harat Al Sibani in Birkat-el-Mouz at Wilayat Nizwa, which is characterized by its mountainous topography, being located in the vicinity of the Falaj Alkhatain which is listed as a World Heritage. Adding to that Harat Alyaman, which is characterized by its rectangular layout and its wide and cross roads. As for Harat Fanjaa or Fanjaa Hojorat, as being called, is still retains its general features, and its inhabitants still practice folk customs in the islami occasions. There is also Harat Assulaif at Wilayat Ibri. It has its own historical important. There is also Harat Al Aghar at Wilayat Balaa which is listed in the World Heritage list as a World Heritage within the units of Bahla Oasis.



## The Dangerous Effect of Plastic Bags on Nature and Man

**By: Mohammed Al Jahafi**

The use of plastic bags poses an environmental hazard that needs to be remedied, as it is not degradable in the foreseeable future, causing serious environmental consequences that affect both nature and human health. So they must be recycled and urgent measures should be taken to counter this widespread natural threat. According to the latest studies, the world uses between 500 and 1,000 billion plastic bags a year. This is a very large figure, especially as plastic is a non-biodegradable material. It needs more than 100 to 400 years to decompose completely. Due to harmful effects of plastic bags on animals and plants, on land or in water, and due



to their obvious contribution to environmental degradation and loss of biodiversity, plastic bags are one of the main causes of poor sanitation in some countries of the world. There is an urgent need to sensitize the community about this environmental hazard with dire consequences and to seek appropriate solutions. Environmental protection has become a challenge for all. So some countries have sought to take a tax on every plastic bag used by the citizens and encourage the use of biodegradable materials instead of plastic bags. These policies have been very successful in most European countries. For example, in 2001, Ireland consumed 1.2 billion plastic bags, meaning 316 bags per person. In 2002 a tax was introduced for consumers of plastic bags and this led to a 90% reduction in consumption. Some countries have required the use of biodegradable plastics, which are composed of bio-components and other elements that degrade rapidly.

## Coral Reefs at Risk

By: Ahmed Al Nadabi

Coral reefs are exposed to a range of risks, such as bleaching, which turns those beautiful colors into a white color. This damage will reflect on the biodiversity of coral reefs. Millions of aquatic animals will lose shelter, leading to disastrous declining of biodiversity in the seas.

The causes of coral reef bleaching are attributed to global warming, marine pollution, some fungal diseases, changing salinity, low oxygenation, and high sea acidity. The coral is a sensitive organism and needs a stable environment to live in peace.



Environmental Vocabulary

### The Holy Gold

Eng. Khalifa Badawi Al Higgi

almitc@yahoo.com

When its name circulates in our minds and expresses the sight on our ears, we smell its scent in our hearts before our noses. Every cell smells it without touching its nucleus. Its fragrance conveys to us the story of the past, and its smell draws us a painting about the sanctity of the places covered by its smoke in the present and past time. It is may be the only thing that united the religions on its Holiness, and shared in the inspiration of the spirituality from its smell. Not only that, crosses beyond the world of nature to metaphysics world. Is it a myth in itself, or its myth was born from its good fragrance!! Is it carries its secret from its smell, or smell is its permanent secret!?

It is not the product of magic, or mixture of herbs, or extracted from deep of rocks. It is not product of chemical labs or converted by chemistry, simply it is the simplest as we think, it is God gift creates its secret in the belly of a tree not more than three meters heights, grows in wild in the mountains of Dhofar. This tree covers nearly 4,000 square kilometres, and produces about 6,000 tons per year of frankincense. The frankincense tree begins to produce frankincense after eight years of growth.

The Omani frankincense tree is one of twenty-five species of frankincense and one of four species that produces frankincense. Omani frankincense is one of the best types of frankincense because it contains up to 15% of frankincense oil and a high percentage of gum.

One of the basics of the visitor to the province of Dhofar does leave without packages of Omani frankincense, he may not care if the frankincense is a Hogari or Najdi or Shaabi (popular) or Sathri as long as he holds this holy gold in his hands. Some may focus on the Hogari frankincense being the best quality because is suitable for special purposes such as spiritual or therapeutic uses. The four types come after locations, Hogari, for example, grows its trees in the eastern parts of Dhofar, while the Shaabi (Popular), the lowest quality, grows its trees near the coast of Dhofar.

There is no difference in the importance of frankincense, economically, socially and religiously, both ancient and modern time. Rarely find any house or places of worship free of frankincense, but rarely find a nose since the creation of man was not touched by the smoke of frankincense. In addition to that, its medicinal benefits that listed in old books and implemented by ancient great nations. Recently, many lab research working day and night to extract medicines from the components of frankincense. Franciscans is golden plant, great in value, holy in essence, owned by the rich and the poor, and used by large and small, and cannot be dispensed by all. This vegetative pearly tear is gold by its meaning, value, and availability. It is really the holy gold. We must protect and replant it.

## Awareness Campaign on Hygiene and Environmental Conservation at Jabal Al-akhdar

A campaign on hygiene awareness and environmental conservation was organized recently at Jabal Al-akhdar by the Nizwa Sports Stars Team in collaboration with the Deputy Governor's Office, the Royal Oman Police Station, The Nizwa Municipality (Jabal Akhdar branch), the Environment and Climate Affairs Department at the Interior and the National Field Research Centre for Environmental Conservation, with the support of Biah Company. The organizing team of the campaign, in cooperation with the police, has set up a traffic awareness point on the public street of Jabal Al-Akhdar since early morning, where the timing of the campaign coincided with the holiday of Eid, The Sports Stars Team, in cooperation with the supporting bodies, has carried out an integrated awareness kit containing awareness leaflets in the field of hygiene preservation, as well as awareness leaflets on environmental protection law and penalties for violators of the environment and wildlife. The bag also contained books and dictionaries for children and a certain toys serve to educate the younger generation about the need to maintain cleanliness and to create a conscious generation aware of the importance of environmental conservation. The

drivers were also instructed to guide families to maintain public spaces using the bags designated for this purpose and distributed by the organizing team. «This campaign comes within the awareness and education campaigns that the team organizes and implements within the framework of its annual plans. Through such campaign we always seek to convey the message entrusted to us in the field of preserving the environment and preserving public places. The Green Mountain is one of the tourist places frequented by visitors from inside and outside the country. This area is characterized by its mild weather in summer, which encourages people to visit it. As this area is characterized by its beautiful vegetation cover, we had to carry out this campaign and to educate visitors about the importance of preserving the environment and places of their seating to leave it better than it was and to enjoy it as visitors and residents. We will always deliver our important messages through this team, which is characterized by various activities. We thank all those who supported this campaign from government and private agencies. Such support is meant to be a continuous partnership between us in the field of environmental conservation and preservation.



# Lynx

This is a page for young people and adolescents interested in the environment of Oman and its unique natural elements. It aims to preserve the biodiversity in the Sultanate.



1 Issue

Hello my friends... Let me introduce myself to you... I am The Lynx. I live in my country, Oman. I am one of the endangered animals and have many friends in the Sultanate including animals, birds, insects and plants, which most of you do not know. We are going to know about all of them in the coming issues. My friends and I, live in beautiful Omani wildlife. My friends are more than 60 kinds of friends and you are going to know all of them. We, also are going to know about the Natural Reserves in our beloved country Oman. Such the Natural Reserves were set up to save our lives from different dangers and from extinction. We are enjoying great interest from our beloved country.

Today I will tell you more about myself. I am the Lynx. As you can see, I am from the cat family. I am medium in size with long legs, a round face, and high ears covered with hair. My color is red to yellowish brown and my ears are characterized by black color from the back. I live alone and appear at night and day.

I live in Dhofar, Jeddah Al Harasis, Musandam and Northern Mountains. I have several different names, some are logical and others are scientific.

I love hunting at night. I'm a very fast-moving animal. When I catch a bird, I catch it between my frontal fangs. I also, feed on rabbits, mice, small deer and little livestock. My speed during chasing is 80 to 120 kilometers per hour.

My wife's pregnancy period is about 75 days. She begets 1 to 2 little Lynxes. The weight of the large lynx is 14 to 22 kg.