

# NATURALAND CULTURAL HERITAGE OF PROTECTED AREAS IN EGYPT: An Overview

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## INTRODUCTION

The Arab Republic Of Egypt is located in the Northeastern corner of African Continent and extend behind the Gulf of Suez Canal into the Asian near east. Its width is about 1225 km and its length from Mediterranean to the Sudan border about 1075km.Egypt covers a land area of over one million sq.km. Geographically Egypt is divided into several geomorphic units; Eastern Desert extending between the river Nile and Read Sea Coast covers an area of some(223.000 km<sup>2</sup>),its main characteristics the rugged mountain range composed of Precambrian that parallels the coast of the Gulf and Read Sea ,sedimentary rocks cover the distance between the high read sea mountains and river Nile. Western Desert extending between the River Valley to Libyan borders (681.000 km<sup>2</sup>).its main characteristics the depressions and Oases bordered by sedimentary rocks and patches of volcanic rocks except Uweinat region. Sinai covers an area about (61.000 km<sup>2</sup>).mixed of sedimentary and basement rocks.

Egypt is endowed with a natural heritage as rich as its cultural heritage. The country's future is dependent on the wise and sustainable use of its natural resources. The Government of Egypt is committed to the conservation of the country's natural heritage for the benefit of present and future generations and has a stated objective of managing 15% of the country's territory within the framework of protected areas. Many areas in Egypt selected for protection under the umbrella of law 102 /1983 represent a wide variety of sites ranging from important coral reef , wet lands, geological features to coastal transition areas high altitude mountain ecosystems . Egypt has recognized these values in this decade. Egypt has passes laws and established institutions to protect its unique plants ,animals, ecosystems, and geological formations .

### CONSERVATION OF NATURAL RESOURCES :

#### Biological Diversity

Egypt's biological resources are as important as its cultural monuments .its deserts and oases contain rare and endangered plants and some of which are found nowhere else .its coral reefs on the red sea and Sinai coast have unsurpassed beauty and complexity .the lakes of the Nile Delta constitute one quarter of all Mediterranean wetlands and offer essential refuge for migratory birds. " (Baldwin et al. 1988 )"

Egypt is situated at the crossroads of three continents, and the junction of three biotic realms; Europe, Asia and Africa. The ecosystems found in Egypt with their associated flora and fauna reflect the influence of these distinct biotic regions. The biotic regions in the North are related to those of the Mediterranean basin. The Eastern part of the country reflects influences from the Levant and Arabian Peninsula. The biotic regions found in the South are influenced by Sundanian and Tropical Africa, and to the West, areas are related to the Saharan biotic regions found elsewhere in North Africa. Many of the biotic regions found in Egypt represent the extreme limits of their respective ranges, which make the diversity of species ( table 1) found in these areas of special scientific importance. The numbers provided in the table are estimates which are likely to be lower than the real number of species in Egypt. This is due to the fact that many species are not yet documented .

Taxa	NO. of species	NO. of endemic species	NO. of endangered species
<b>flora</b>			
Viruses	44	Not Known	Not Known
Bacteria	238	Not Known	Not Known
Fungi	1260	Not Known	Not Known
Algae	1148	Not Known	Not Known
Non-flowering vascular plants	337	Not Known	Not Known
Flowering plants	2094	61	4
<b>Fauna</b>			
Insects	10000	Not Known	Not Known
Other invertebrates	4701	Not Known	Not Known
Fresh water fishes	85	0	Not Known
Marine fishes	669	0	0
Amphibians	8	1	0
Terrestrial reptiles	99	6	1
Marine reptiles	5	0	5
Resident and breeding birds	150	0	4
Migratory and wintering birds	320	Not Known	15
Terrestrial mammals	73	6	20
Marine mammals	13	0	+2
Bats	22	0	3

Egypt's biodiversity and the quest for conservation(2002).

The Natural Conservation Sector ( NCS) was set up the objective of protecting ,promoting and maintaining the natural heritage of Egypt. the conservation efforts are being carried out within the framework of management of the protected areas and the various conservation projects that are currently underway and through the enforcement of laws and regulations.

The immediate objectives of the NCS are as follows :

- Establishment of a representatives protected area network
- Managing these areas to conserve biological diversity and protect natural value .
- Promoting the conservation and sustainable use of natural resources outside protected areas in cooperation with other stakeholders.

#### *Strategy and Action Plan*

A National Strategy and Action Plan for Biodiversity Conservation was prepared to meet Egypt's commitments under the Convention On Biological Diversity. The plan cover the period from 1997 to 2017 and sets goals for the protection of ecosystems and their sustainable management.

### **CONSERVATION OF GEOLOGICAL HERITAGE :**

Egypt has already declared 24 protected areas, covering about 9%of Egypt's area , including very important geological heritage site ( Petrified Forest , Hassana Dome , Wadi Sannur Cave, Wadi Degla White Desert , Lake Qarun and Whale valley) and 16 protected areas are proposed until 2017.The main significance of geological protectorates in Egypt are:

- Maintain unique geological features structural geology, Karst topography ,silicified wood 35 million year old fossils of primates , rodents ,whales , turtles , crocodile and birds in place from destruction during establishing a new city outside of Cairo .
- To improve the protection of geological heritage for example WADI EL HYTAN will declare a world heritage site in the next months
- Potential for economic development and increased ecotourism.
- To maintain some unique features for education programme and future generation.
- Maintain the Geological structure and minerals.
- As habitat for endangered species of flora and fauna .
- As important sites for study paleontology.
- Important sites both historic and prehistoric( old quarries).
- It provides us a unique geological record of the paleo-environmental and climatic conditions that prevailed during the geological time.
- Value for scientific research.
- Esthetic landscape value

#### **Geological structure :**

##### *Hassana Dome:*

In 1989 Hassana Dome was declared a natural monument through Decree no. 946. The area one of the classical regions of Egyptian geology, it has taken millions of years to form dates back to Upper Cretaceous ( 100 million years ago ) . it contains different important species of fossils exsample Durania Arnaudi ."(Castro et al. 1996)"

#### **Most complete Oligocene Faunal and flora record in Africa:**

##### *Wadi El Rayan:*

Desert springs, complex ecosystem consisting of plants species more than 100bird species reptiles; sand dunes ecosystem; marine mammals fossils; fossil mangroves; fossil sharks ;turtle ;over 400 skeletons have been found, comprising multiple species as well as sea cows the presence of a large number of fossil whales and other vertebrates makes this area a truly unique world heritage site worthy of conservation and much further research"( Dolson etal 2002)" of the whales. Egypt nominated last year this site for Natural World Heritage sites.

##### *Lake Qarun Protected Area*

Lake Qarun protected area was Declared by Prime Ministerial Decree 943 in 1989, adjusted by Prime Ministerial Decree 1186 for 1986 and Prime Ministerial Decree 642 for 1995. It is cover an area about 250 km<sup>2</sup>. Lake Qarun is the reminder of the ancient fresh water lake Moeris, the lake is fed by agricultural drainage of Fayum Governorate through a number of drains." (El Badry etal 1994)". Today the shallow lake is a wetland of international importance .large numbers of migratory birds visit the lake. The Northern shore of Lake contains some of the most unique collections of fossils fauna and flora . The North Lake Qarun is rich with all of the vertebrate classes include: fish ( teleost and lung fish )amphibians , reptiles crocodiles, tortoises ,and lizards ,birds and numerous mammals. Hycoids, rodents, primates ,anthracothers,creodents,." (Yousry,et al. 2001)". Miller 1997 has been recorded bird remain from north lake Qarun large stork the first appearance of a stork in the African fossil record and may also represent the earliest fossil stork known any where. The presence of these specimen in North Africa is consistent with pale environmental reconstructions of Northern Egypt during the Eocene to Miocene as an area of tropical to sub tropical wet coastal low land .( Miller etal 1997 ).The first evidence of primates in the Egyptian Oligocene deposits north of Lake Qarun was published by Henery Osbornhe1908.He described aspecimen Apidium phiomense. The another one called Markgraf, who lived in the Fayum continued to collect fossils. He sold further fossil primates found in 1907and 1908 both to the American Museum and the Natural kabinet in Stuttgart, Germany. Major periods of research on Fayum primates since 1960 The Duke University and The Geological Survey of Egypt collection have acquired a total of over 20.000specimens(Elwyn simons 1995). The Protected Area has several archaeological sites, outstanding structural formations ., which forms an important and integral part of the landscape.

##### *Cultural heritage at Qarun protected area.*

##### *Qasr El Sagha:*

The name refers to the Crocodile Temple the building is unusual made of sandy limestone with unique mortaring and jointing, the ruins at Qasr El Sagha dates to Middle Kingdom .

#### Oldest Paved Road :

The road is located west from Qasr El Sagha Temple and quarries of Widan El Faras, dates back to quarry activity of Old Kingdom and considered the oldest paved road in the World.

#### Ancient Basalt Quarries :

The eight ancient basalt quarries at widan El Faras from the third through sixth Dynastic , basalt was used for interior pavement and occasionally for walls and cause way in the pyramid temples of Kings Zoser

They are currently threatened by renewed quarrying of the basalt for modern road material.

#### Dimai ;

The ruins at Demai cover six centuries of habitation of both greek and roman people . this is a large complex is constructed on an older Neolithic site .Lake Qarun Protected Area is a unique and extremely rich part of Egypt by fossils and historical sites . The Protected Area needs to establish an integrated management approach for the region, promoting innovative and sensible development initiatives, maximizing benefits from the natural conditions and cultural systems that govern this sensitive and valuable ecosystem. The value of the region for eco-tourism and unconventional tourist activities is very high. The Protected Area should optimise conditions for a sustainable growth in these activity areas.

#### *Petrified Forest.*

The silicified tree trunks carried along with the Oligocene clastics become concentrated in certain areas where they are commonly referred to as petrified forests (Gabal El Khashab). The most famous of these is the one which occurs to the east of Maadi , Cairo. This location has attracted the attention of travellers , naturalists and scientists for a long period of time ."(SAID 1990)"

There are many broken stems of a fallen forest crossing each other at various angles and the majorities of trees take two directions namely northeast and northwest. The studied Petrified Forest site provides a unique geological record of the paleo-environmental and climatic conditions that prevailed during the Oligocene time, about 35 million years ago. It represents a part of the geological history of Egypt and it draws the attention of those interested in such scientific features and puzzles.

Potential for education and recreation:

Because of its extreme proximity to Cairo and its still remarkably intact state, Petrified Forest represents a very unique opportunity for introducing children to nature and Egyptian wilderness. Petrified Forest is an excellent one-day excursion for most schools in Cairo. A good place to educate and enlighten children about nature. The area also makes available site for universities in Cairo to conduct field research and education programs in paleo-botany, zoology, geology, environmental science, etc. The Petrified Forest sites can attract a good deal of the tourism budget to Egypt, due to their beauty and scientific importance, and being easily accessible by asphaltic roads. These sites can be developed from the geological point of view to meet the basic requirements of the geological tourists and to attract local community and tourists.

#### *Karst topography*

Caves are very common in area dominated by karst topography .Karst consists of limestones land forms which are the product of the dissolution process. The main objectives of establishing a protected area network in Egypt is to have comprehensive and proportional representation of all of the country's habitats within in it . Three protected areas in karst areas have been established in Egypt including:

Wadi Sannur Cave protected area the Cave is rich with many kind of speleotheme ( popcorn, crusts, flowstone, helictites, stalactites and soda straws, dog tooth and stalagmites )Gunay et al 1997. The isotopic data referred to initial formation of the speleothemes less than 200,000 years ago and this consistent with pluvial climates in the eastern desert .(Osmond et al 1997)

#### *WADI DEGLA*

Rich with flora , fauna , geological formations and caves habitant by bats

#### *White Desert*

The White Desert of Farafra Oasis is well known, both nationally and internationally, as an important natural area of immense beauty. The scenic and landscape values of the White Desert region are extremely high and diverse and have the potential of becoming an exceptional attraction. The White Desert is already a well known tourism destination and is highlighted in nearly every guide book for Egypt.. limestone erosional features formed by wind and sand, have created a spectacular landscape of outstanding natural beauty, and made the region a world famous spectacle. The White Desert is host of chalk pinnacles, towers and rounded blocks rising above the surface of blown sand. The isolated chalk pinnacles are karst features .They date from dissolution in late tertiary and early pleistocene phases of pluvial climates"(Waltham 2001)" The White desert Protected Area also includes a diversity of other impressive morphological and landscape features such as the cliffs forming the northern edge of the Farafra Depression, which form an integral part of the White Desert; dunes spilling over from the Great Sand Sea; the vegetated Wadi Hennis and Karawein Depression; and the small attractive uninhabited oases at Ain El Maqfi and Ain El Wadi. The landscape resources of the White Desert region are unique and invaluable treasures."(Baha El Din1998)"

## **HISTORICAL AND CULTURAL HERITAGE**

Needless to say , almost 80% of the World's relics and Monuments are to be found on the territory of the Arab Republic of Egypt, most of which date back to the Pharaonic , Greek , Roman,Christian ,and Islamic Civilizations.Egypt is an old country , actually one of the oldest inhabited territories on the surface of the earth as clearly demonstrated by the accumulated evidence of archaeological artifacts . The Egyptians were pioneers in cultivation, probably they started off around 8000 BC.The many prehistoric sites scattered throughout the protected areas and ranging in age from Paleolithic , Neolithic, Pharaonic Roman, Coptic and Islamic.The existing network of protected areas encompasses several important heritage sites including one major site

St;Katherine Monastery other cultural include Marina archeological site El Omyead protected area .

The link between natural and cultural heritage:

In order to conserve the natural resources and cultural heritage in protected area , an integrated management plan of area should be involving local communities, Without the involvement of local communities the conservation efforts are likely to be doomed to failure. For this reason the NCS has given priority to the participation of local communities in conservation efforts. The following programs seek to involve local people : construction, ownership and management of eco-lodge and other infrastructure ,provision of trained rangers and community Guards for protected areas.Guides for activity based tourism, the crafts for conservation programme, stone carving using local varieties of stone.

Crafts for conservation is particularly aimed at women and assists them in preserving developing and marketing their traditional skills, including their own special style of embroidered and beaded items the motifs of which reflect the local plants and animals .

The case of the St,Katherine protectorate is at least a bright success story that need to be repeated else where. effective integration between natural and cultural heritage.

### **MAIN THREATS OF NATURAL, CULTURAL HERITAGE IN EGYPT**

Egypt is suffering from problems affecting its value as a cultural and natural heritage sites .

- **Overpopulation**

Population growth with the consequent pressure for land for building and other development

- **Urbanization:**

Rapid development of suburban areas in close proximity to the protected area.

- **Lack of Public Awareness**

As a result of the progressive expansion of the urban activity that occurred during the last few decades, besides the lacking of necessary environmental awareness, the ecosystem of the area has been disturbed. The Gebel Ahmer, at Cairo environ, exhibits one of the rare main fictions of the action of Geysers, where vividly colored silicified tubes traverse the Oligocene sand and gravel sand. This site is the best developed in the stratigraphic section of the Oligocene time in North Africa. During the last half a century, and because of lacking public awareness by such natural environmental sites, Gebel Ahmer among other sites were destroyed. The Gebel Ahmer site (now known as Gebel Akhdar) is already covered now by hospital and stadium belonging to the Arab Contractors Company.

- **Dumping :**

Building materials, garbage and solid waste are dumped haphazardly in area leading to the protected area.

- **Quarries:**

Clays, sands and gravels are quarries at short distance from the park.

- **Agricultural expansion**

- **desertification.**

- **Road making.**

- **Harvesting animals and plants for commercial purposes.**

- **Drought of wetlands.**

- **Erosion.**

- **Sea level.**

- **Loss of Bedouin cultural.**

- **Collection of of prehistoric artifacts from desert sites, while most have not been studied till this moment.**

- **Weathering process**

- **Collection of fossils more than 20000 fossils collected from Fayoum during last 40th years.**

- **Unregulated tourism has lead to destruction of old trees for fuel consumption.**

- **Desert saferies has an effect on the ecosystem**

### **RECOMMENDATIONS**

from above mentioned I think all threats of natural and cultural is back to the lack of awareness about its value.So we need mutual cooperation all the country to achieve the following:

- Limited experience gained from internal cooperation.
- Cooperation in the international institutions.
- Contribution of scientists to be interested in this kind of work( vertebrate fossils and Karst topography)
- Will defined polices about the geological wealth specially ( vertebrates and invertebrates) fossils.
- Establishing open geological museum North Lake Qarun to attract tourists and local visitors .
- Prepare aprogrammes for training staff to identify the fossils.
- Development of skills for administrators of natural monument protected areas.
- The World Heritage Convention which is concerned with both cultural and natural heritage sites is less implemented in the Arab Republic Of Egypt. Although Egypt has signed the Convention at a very early stage, only St,Katherine protectorate figure on the World Heritage List.
- According to World Cultural heritage Convention ( UNSCO )we request to issued law prevent or transport of fossils and nature treasure represented by artifact of prehistoric man and precious minerals.
- Market the archaeological ,prehistoric and geological sites as tourist attraction.

### **Refernces**

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