

Natural Reserves and Sustainable Development of AL- Tayeb Reserve / South Iraq: A Review Article

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Abstract: The ability of Iraq to develop its natural reserves and forests to protect natural diversity and save unique wild animals and plants from extinction is discussed in this article. Monitoring living things helps to ensure their sustainability and prevents extinction in the southern Iraq reserve. There are plant and animal species in reserves that are either endangered or invasive aliens, and their reaction to unfamiliar environments as it included, is very important. The management of living natural resources is considered by adopting practices that will integrate Biodiversity conservation needs and development priorities through diversity issues. The issue with a review essay following the Iraqi environment's various aggravating issues, As a result, environmental contamination that affected the majority of environmental factors began to emerge. This had a detrimental effect on biodiversity and sustainable development in the environment, particularly in natural reserves. The main goal was to clarify the idea of a system of natural reserves and biodiversity, as well as to promote sustainable management of living natural resources by implementing practices that would achieve integration between the demands of biodiversity conservation and development priorities in a methodical manner by reviewing sources, conducting research, and gathering pertinent data. Important recommendations and suggestions for the development of Al-Tayeb Natural Reserve in Maysan, southern Iraq, are provided by international assessments and officially sanctioned statistics.

Keywords: Natural reserves, Al-Tayeb reserves, Sustainable development

1-INTRODUCTION

A study prepared by the United Nations Environment Program stated that nature reserves are one of the important means of preserving the ecological balance and preserving the environment, including its flora and fauna whether on land or in the seas, and preventing the depletion and deterioration of natural resources in a way that guarantees survival and preservation. Biodiversity is necessary for the continuation of life. The study indicated that the nature reserves are based on the idea of reserving parts of different natural (terrestrial) and aquatic (marine) environments to serve as sites (Abdullatif and Al-Attar, 2013). A special nature in which human activity that leads to the depletion of its resources from living organisms is prohibited, damage or pollute it (Abdulrazzak, 2017).

The United Nations Environment Program (UNEP) established the Regional Seas Program UNESCO has several important programs such as the Man and the Biosphere Program, and the role of some organizations has emerged international organizations, such as the International Wildlife Fund and the International Union for Conservation of Nature and Resources Natural reserves, where the Union encouraged countries to establish natural reserves and provide (Ahmad, 2014). Technical assistance to it, which led to the declaration of many natural reserves. A nature reserve, whether terrestrial or aquatic, is defined as a protected environmental unit that operates on preserving plant and animal wildlife, according to a consistent framework, through conducting studies and field research, education and training for officials and local residents to take responsibility for their biological environment. It is an educational, training, rehabilitative school to achieve the aforementioned goals for a nature reserve (Ahmad, 2019). Nature reserves seek to achieve a set of goals, Foremost among them is supporting the balanced relationship with man and his biosphere through continuous work on changing the behaviors and attitudes of individuals towards this environment in the right direction, in a way that helps protect the environment Wildlife, whether plant or animal, for the continuity of indispensable biological diversity to maintain the pace of life, reserves also aim to achieve a degree of environmental monitoring continuity of wildlife, with the aim of avoiding harm to it and working to protect and preserve it through recording the impact of water and air pollution or any unjust exploitation of these neighborhoods to avoid their deterioration and its extinction (AL-Hadeethi, *et al.* 2017).

The natural environment has been created in balance, and the law of divine equilibrium does not obey any element of it the environment is on another element, and there is no doubt that continuity of ecological equilibrium is considered a pillar sustainable development future. To avoid any environmental problems immediately guarantee. And when a person intervenes, It abuses the resources of its environment, the characteristics of the elements of the environment substantially or change occurs (Al-Snafi, 2015). This leads to disturbance of the relations between the matrix of the elements of the system and its imbalance, and the transformation of the many from useful functions to harmful functions within the system, this is where the so-called imbalance occurs, the risks resulting from the ecological imbalance, which is the deterioration of the plant environment, as it follows from this deterioration, decreased productivity of wood and other forest products such as sap, tanning materials, and other products innate animal biology on the occurrence of deterioration (Andrade and Rhodes, 2012).

The study shows that the sites of natural reserves are selected according to many criteria and controls, including the necessity of for all vital ecosystems to ensure continued diversity to be the choice at the world level, representative biology and that the reserve contains all or most types of plant and animal wildlife to preserve biological diversity, which is the basis for the continuity of life and its balance (BirdLife International and Handbook of the Birds of the World, 2018).

1-1 Most Important Protected Animals are Tayeb

Seasonal marshes are formed in Al-Tayeb, which arise during the rainy season and disappear in the summer.”

Al-Tayeb region is located in two terrestrial environmental regions, namely the desert and semi-desert of the Nobu-Sandian in southern Iran (PA1328) and the alluvial salt marshes of the Tigris and Euphrates rivers (PA0906), both of which are classified as critical (Coetzee, *et al.* 2014). The aquatic environmental region (the fresh internal

water region at the bottom of the Tigris and Euphrates rivers). The location of the Al-Tayeb region in these regions contributed diversity of the environments of the region, where it varies and differs in the Iraqi-Iranian borders, as it is formed from the environment of grassy hills and sandy hills to reduce the highlands as we head towards the west, where the prevailing grassy plains are formed interspersed with seasonal wetlands and salt marshes (Coetzer, *et al.* 2014).

Al-Tayeb Reserve includes 14 villages and has a population of about 1,400 people, the majority of who work villagers engaged in agriculture and livestock breeding. The region lacks basic public services. As most of the internal roads are not paved, and the paved roads are limited to the external roads, It makes moving around the area difficult. In addition to the diversity of environments and species, Al-Tayyib has a diversity of social structure, as it includes sheep and cow breeders, farmers, and buffalo breeders (Al-Maadan), in addition to workers in industrial and border establishments in the region, and in various professions like grazing and gravel extraction (Corrigan, *et al.* 2018).

The geographical and hydrological diversity in the Al-Tayeb region contributes to the rich biodiversity of the region. The Tayeb region is famous for its great diversity in plants, as a result of the great difference in heights, which resulted in a great diversity in habitats, in which different types of plants grow different types of animals, especially birds, live there (Domínguez and Luoma, 2020).

Al-Tayeb region hosts a large number of animal species threatened with extinction, the most important of which are: [*Plains eagle (EN) Aquila nipalensis*

Royal eagle (VU) Aquila heliacal, endangered species

Plains eagle, Royal punishment]. Everyone migrates

The two types to an area, the good during my semester

Spring and autumn, and considered destroy environments and collide electric high pressure columns one of the most important threats they face during the migration period in addition to their exposure to households and local trade.

1-2 Most Important Protected animal Endangered species according (Dudley, 2008).

A-Chlamydotis macqueenii

This migratory bird is considered an endangered species visiting in the spring and autumn seasons to the area of good, and remain numbers of it overwinter in suitable environments where they hide from eyes of hunters. And every year, large numbers are hunted hombre bustards are live and sold to bird hobbyists and breeders, hawks, so hunters use night hunting methods to catch it alive. Asian does not breed in an area Al-Tayeb, where they migrate to their breeding grounds in Central Asia in spring. Hunting is one of the most important threats in addition to the inconvenience caused by the movement of the population.

B-Gazelle subgutturosa

This type of mammal is considered one of the most important animals that live in an area Al-Tayyib, as there are still groups of this deer living in the area. The distribution of Al-Reem gazelles is concentrated in the northern and eastern highlands of the region. The rough terrain and the presence of landmines and war remnants prevented them from disappearing and the extinction of this species as a result of the lack of overfishing. There is no confirmed information about its breeding in Iraqi lands, but it may breed in mountainous areas neighboring Iran, and then move to the Iraqi foothills to graze. Overfishing one of the most serious threats facing this species, in

addition to the destruction of its habitat as a result for unregulated agricultural expansion and minefields.

C-Uromastix aegyptia

This critically endangered lizard is found in the sandy desert environments of Iraq. As for the Al-Tayeb region, the presence of the daub is limited to regions hills and sandy lands, and it is not found in high and wet areas. It is possible to see this animal during the sunning period near its hole. It is not seen in the winter, when it resorts to hibernation in its holes. The lizard is not considered a prey, as it is not hunted for the purpose of eating in the Al-Tayeb area. The destruction of environments and nuisance are the main threats facing this species.

D- Lesser Anser erythropus

Few numbers of this kind visit endangered Wetlands seasonal in winter. Mingle individuals of this species with large numbers for geese (*Anser albifrons*) and some other waterfowl species. Tracking devices installed on individuals showed this kind of extent visits his repeated for the marshes of the good area. his species does not breed in the Tayeb area. Rather, it goes to its breeding grounds northern Europe and Asia in the spring, poaching is considered to be destroying environments the drying of wet lands one of the most important threats facing this type.

E-Neophron percnopterus

This type of eagle migrates to the southern region Iraq and Al-Tayeb region during the two seasons of spring migration and autumnal. It breeds in the mountains of the Kurdistan Region as well .In the lower elevation areas, he crosses the area as an immigrant and accompanying other soaring birds, heading south towards different destinations in Africa. Environments are destroyed collision with high pressure columns is one of the most important risks faced by this species during the migration period.

F-Capra aegagrus

Recently, small groups of these mammals have been recorded in the foothills of the heights of the Tayeb region, groups of people settle, this type is the northern and northern mountain highlands eastern part of Iraq and there are no historical records for him In Al-Tayeb, but the closest groups to him are located in Iran Ilam Province (which is adjacent to the site of Al-Tayeb, so it is possible .The movement of mountain goats from them to the area. It is considered poaching by the locals added to that habitat destruction and minefields are major threats to this type.

1-3 Important species in Al Tayeb Reserve

In addition to the presence of endangered species, the Al-Tayeb area is endemic and visited annually by large numbers of species and from, the most important of them:

A-Hyaena hyaena

There are few numbers of striped hyena in the Tayeb area, It is listed under threat in the red lists, where his footprints have been seen in addition to what is reported in the studies previous scientific and local population observations. Striped hyena on dead animals, rarely hunts his prey. Lives in uninhabited areas away from the population movement. Urban expansion is not the organizer is one of the most important threats facing this species, in addition hunting by the locals for fear of predation their livestock.

B-Francolinus francolinus

Important species in El Tayeb Reserve, this species lives in a wide range of semi-arid environments and around agricultural fields pheasants breed in dry environments suitable for hiding and feeding, especially near sources water and farms. It is

considered one of the hunting birds that suffer from excessive hunting pressure in the region. It is hunted by hunting rifles throughout the Tayeb area.

C-Hypocolius ampelinus

This bird is one of the species with limited spread, as its distribution extends from the Mesopotamian basin to southern Iran and the northern regions of the Arabian Gulf. Availability of good area ideal environments for this species as it breeds in shrubby thickets tamarisk and others, and migrates after the spawning season to other regions. Its spread in southern Iran and northern Persian Gulf. If destroy environments as well as disturbances during the breeding period are among the most important threats facing this species.

D- Limosa limosa

This species is listed under Endangered in the lists is a migratory species that visits Iraq in large numbers during the period Seasonal migration, and numbers of them remain during the winter period. Exist in Al-Tayeb Reserve, where shallow waters and flats are available mud, as well as spreading in large numbers in newly flooded fields with water. This species does not breed in Iraq, but it migrates to other regions reproduction during the spring migration period. This type of bird is not considered preferred to eat, but the destruction of environments is one of the most important threats that encountered in its breeding grounds.

E-Larus armenicus

This seagull is a common migratory species in Al-Tayeb area, It is found in open water bodies, and is often seen flying or perched on the banks of the salt lakes surrounding the marshes. visit this type Al-Tayeb area in the spring and autumn migration seasons, and remains prepare it to spend the winter period. This type of bird is not considered favorite to eat, longer competition for small fish which , Its food is mainly made up of c and fishermen in its habitats drying up of water bodies are the most important threats to face by this type.

F- Emberiza cineracea semenowi

This type is listed under heading below threat in red lists of specie in the Al-Tayeb area, where he resides. In the fall and spring seasons, in small numbers in suitable environments for feeding ,this species breeds in the Tayeb area, often is seen perched on the rocks or on trees during migration not considered gray hunting birds, only to destroy their environments are the biggest threats they face in hatching habitats as well as in the areas located in their migration paths.

1-4 Invasive Alien Species plant species in Al-Tayeb Reserve

There are no threatened plant species in Al-Tayeb area extinction, but it is characterized by great plant diversity recording 230 plant species in al-Tayeb belonging to 44 families each of the gymnosperms and covered as seeds. Iraqi flora included records of one species and one subspecies. The last two settlers in the Al-Tayeb region in Iraq (Dudley, 2010) and they are [*Eremurus rechingeri* and *Arnebia linearifolia* subsp. *Desertorum*].

There are several obstacles to biodiversity and habitat changes, and one of the biggest dangers is the introduction of alien species to the area. According to historical records, there are 250 endemic species in Iraq, and the number is continually growing as more are discovered and recorded. According to IUCN standards, numerous species that are novel to science are discovered in recent investigations. Since most of these species could go extinct in the near future as a result of alien plants encroaching on their environment, the majority of novelties are endangered or critically endangered species such as according (Kukkala and Moilanen, 2015):

- 1-*Ceratophyllum demersum* Coontail Aquatic plant Ceratophyllaceae
- 2- *Acacia saligna* Coojong Bushy shrub Fabaceae
- 3- *Aegilops triuncialis* Barbed goat grass Annual grass Poaceae
- 4- *Agrostis gigantea* Black bent Annual grass Poaceae
- 5 -*Brassica tournefortii* Mustard Annual herb Brassicaceae
- 6 -*Bromus rubens* Brome grass Perennial grass Poaceae
- 7 -*Cenchrus ciliaris* Buffel-grass Perennial grass Poaceae
- 8-*Centaurea solstitialis* Yellow star-thistle Annual herb Asteraceae
- 9-*Cyperus rotundus* Nutsedge (nutgrass) Perennial herb Cyperaceae
- 10- *Dalbergia sissoo* Indian rosewood Tree Fabaceae
- 11 *Poa pratensis* Blue grass Perennial grass Poaceae
- 12 *Rumex crispus* Curly dock Perennial herb Polygonaceae
- 13-*Salsola tragus* Windwitch Annual herb Amaranthaceae
- 14 *Trifolium repens* White clover Perennial herb Fabaceae

1-5 AL-Tayeb Protectorate in Al-Madain is the largest of the reserves.

The reserve, which is one of the most significant in Iraq and has an area of 157 acres, was previously announced by the Ministry of Agriculture. The Ministry noted that the reserve "works to protect rare and extinct birds and animals, as well as It will contribute to reducing desertification and resisting dust storms, and it is considered a natural landmark (Leberger, *et al.* 2020).

The creation of this reserve aims to safeguard wild vegetation and endangered bird species. The reserve helps prevent desertification and withstand dust storms (WHO, 2013). There are 30 ostriches in its ostrich breeding facility, and there are 50 gazelles in its Iraqi deer breeding facility, which is regarded as a launching pad for tourism. In addition to the establishment of a lake with a seven yoke area in the reserve, which has the purpose of attracting migratory birds and creating a suitable environment for them to breed because of its many benefits, including providing vegetation cover, fostering the cultivation of desert plants, preserving livestock, enhancing races, investing groundwater, and other benefits derived from the reserve's 16,000 species of trees and plants, the reserve also contains 16,000 different species of trees and plants (Reyam, 2018).

1-6 The Concept of Sustainable Development

There have been several definitions of sustainable development developed, such as meeting present needs without compromising meeting future needs of future generations and balanced and harmonious economic and social development concerned with enhancing quality of life while safeguarding vital systems with ongoing economic and social development without compromising the quality of the natural resources used in human activities and on which the process depends (Ati, 2022). Environmental, social, and economic principles must be followed in order to provide for the community's residents without endangering the stability of the natural order or jeopardizing the ability of future generations to meet their own needs. Natural resources for growth and development in the future A more inclusive definition of sustainable development is "the management, conservation, and direction of the resource base" (FAO) 6. The World Food and Agricultural Organization has given the biological and institutional change process guidelines in a way that guarantees the ongoing satisfaction of human requirements for both the current generation and future generations (Ati, *et al.* 2022). Under the constraints of the available resources and sustainable development, the standard of living of the society as a whole from all perspectives, including economically, socially, and globally, can be determined. It is

also the capacity to expand, transform, and evolve; these three aspects of development are integral to any analysis and management of the phenomena of development. Sustainable development is described as the process of meeting present-day needs and aspirations without jeopardizing the potential of future generations to do the same. In reality, sustainable development is a complex concept that can be viewed from a variety of perspectives. However, it is frequently determined in relation to the time frame in question (i.e., years, decades, centuries, or millennia), as well as the amount, nature, and composition of the ecosystem structure that should be preserve [20].

2- Conclusions and Recommendations

Diversity issues in nature reserves is very important, and there are plant and animal species in reserves that are either threatened with extinction or alien invasive aliens and their response to unfamiliar environments, achieving the sustainable development of nature reserves and aiding in their economic and social development while incorporating the national action to maintain biological variety in order to preserve the flora and fauna the world to achieve sustainable development goals through collaboration with donor countries and organizations, activating agreements international organizations, and benefiting from it, and using cutting-edge technology and modern capabilities to improve the communication

These are promoting environmental awareness and education to fulfill the demands of sustainable environmental development, including biodiversity protection and the creation of natural reserves within the framework of national strategies, as well as the cooperation of the various state sectors in National and international commitments to halt biodiversity loss. Conserving biodiversity and protecting reserves while achieving sustainable finance and promoting partnerships and collaboration among all interested sectors.

Hope we have the answer in this article, which shows the policies of countries in the field of sustainable development, if they are on the path, is it correct towards attaining sustainable development, or is it still slow and hesitant as it is in the majority of countries of the world.

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