Strengthened Protected Areas System and Integrated Ecosystem Management in Sudan

Preliminary Assessment of Avifaunal Diversity of Shubuk Islands, Southern Part of Sudan Red Sea Coast

Preliminary Draft Proposal

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1. Background Information

Marine resources of the Red Sea and Gulf of Aden have provided prosperity for the region many centuries by providing food, trade and livelihoods. However, in recent years, these resources are facing many threats, including over-exploitation of species, destruction of spawning, nursery and feeding grounds, pollution, improper resource management and weak fisheries governance.

Currently less than 1% of the world's seas are under any form of protected area designation, in stark contrast to the progress that has been made on land where protected areas cover 11% of the earth's land surface (Toropova *et al.,* 2010). Governments of the world, through the Convention on Biological Diversity, have pledged to increase the marine figure dramatically, with a target of designating 10% of the world's oceans as protected areas by 2020 (CBD, 2010).

Because the Red Sea lies amidst one of the driest ecosystems in the world, the significances of such a relatively small marine water body for birdlife is unique (Fauda and Gerges, 1994). One of the main characteristics of the Red Sea marine avifauna is the high number of population densities and diversity despite the low number of endemic taxa. Although the avifauna of the Red Sea and the Gulf of Aden have been relatively poorly studied, the region is recognized as important for its seabird population, with 17 species of true seabirds breeding regularly (PERSGA, 2004).What is remarkable about the Red Sea coast is that, it lies in one of the global migratory corridor where most of the migratory species utilize the region as stopover point. In this context, Vine (1985) have divided birds of the Red Sea into three groups: i.e. those residents which live and breed in the region, those which breed at more northerly locations but winter around the shores of The Red Sea, and finally those which range up into the Red Sea from their Indian Ocean and African breeding grounds.

2. Introduction

The Red Sea State (RSS) is located in the eastern part of the Sudan. The State is surrounded by the Red Sea Mountains to the northeast and southwest encompassing an area of about 212,416 km2 and lies between latitudes 150 52' and 230 15' North and between longitudes 330 15' and 380 45' East. The area lies within a hot desert climate zone modified by its proximity to the Red Sea water body (GNPOC draft Report 2005). The main physical factors influencing the climate in this area are the Red Sea water body, the hilly area and the coastal plain in between (El-Tom, 1991). The main synoptic features controlling the climate in this area are the location, intensity and movement of the permanent sub-tropical anticyclones over the Sahara desert and the Arabian Peninsula during the course of the year.

The State has a very low rainfall that ranges from 40mm in the north of the State to 200mm in the south. This situation has resulted in scarce and poor resource–base,

particularly water. The mean maximum temperature within the area varies from 35 0C to 41 0C during the period May-September. However the temperature may reach 48 0C in June, July, or August in some years. The soils of the Red Sea coast plain are generally coarse in texture, calcareous and saline. However, the coastal plain of the Red Sea is considered as an eco-region of the arid habitats of Sudan various ecological habitats with limited wildlife populations (UNEP, 2006). Due to lack of water in desert plains wildlife is extremely limited, which constitute of the species such like *Dorcas gazelle*, Oribi and other small reptile animals and birds. However, Marine wetlands on the RSS are considered as important habitats for resident and migratory birds. Furthermore, Sea coast is part of fly over for soaring and migratory birds from Eurasia to Africa. The coast includes various small uninhibited islands with low or no vegetation. These islands are important breeding sites for such birds; Gulls, Terns, Crab Plovers, Boobies, Ospreys, Sooty, Falcons and Spoonbills.

3. Problem Analysis/Challenges

- With increasing pressure on the oceans from environmental changes, there has been a global call for improved protection of marine ecosystems through the implementation of Marine Protected Areas (MPAs). However, Marine ecosystems of Sudan face numerous threats such as the adverse impacts of coastal infrastructure development, tourism related impacts, and fishers targeting higher-level predators such as groupers and sharks and climate change. Although MPAs have been established there has been limited investment and technical and management capacity remains low. However, much needs to be done to improve the management and conservation of these areas. In addition to this, the system needs to be further expanded to allow for representative protection of all key ecosystems.

4. Justification

- Site selection remains one of the key aspects for the selection of protected areas. However, the selection of Shubuk islands is attributed due to location between Suwakin Archipelago which is designated as Marine Protected Area and Toker Game Reserve which is declared since 1935.
- In spite of the varied topography of the northern part of Sudan Red Sea Coast, the avifaunal community of the north have been reported and systematically studied. While, the Southern coastal areas that attracts and supports different avian species. Apparently, there is a scarcity of detailed account of common birds inhabiting different habitats of southern parts of the coast throughout the different seasons of the year .
- To date, there is no updated information of the status of avifauna in Shubuk Islands and the earliest records of birds in the area was contributed by PERSGA during SAP(1) expedition at the coast in 2002 as mentioned by Shobrak *et al*., (2002b) thus,

- There is a need for systematic inventory of the region's biodiversity and in particular birds (Aves).
- Birds are well known bio-indicators and they have a significant role in ecosystem functioning and balancing. According to Sethy *et al.,(*2010) assessment of bird community is important tool in biodiversity conservation and identifications of conservation actions. Having knowledge on diversity and composition of bird communities is also crucial to determine the health status the local ecosystem or regional landscapes. Moreover, identifying the existing threats in a particular area is also essential for developing effective conservation efforts and management actions.

4.1. The proposed Survey Site

- Shubuk islands are group of off shore islets located at Latitude: N 18°49'59.99"
  Longitude: E 37°32'60". The islets are low, flat and sandy mainly consist of fossilized coral as and described by Felemban (1995). They also vary in their sizes from small to relatively large. The area lies on the southern coast of the Sudan Red Sea Coast. Some of the islands have halphoytic vegetation cover.
- In 2002, a baseline survey has been conducted for the purpose investigating the status of seabirds on the Sudan Red Sea Coast. The site have shown some diversity and richness in its faunal community.

5. Objectives

The objective of this Avifaunal Rapid Preliminary Assessment (ARPA) is to identify areas of avifaunal diversity and richness in the proposed area to contribute to the inventories of biodiversity of the area for conservation planning sites.

5.1. Specific Objectives:

To Maintain viable wild populations of birds and conserve habitats upon which they depend, by:

- Identify key locations, critical habitats and map areas of important seabird habitats.
- Determine the distribution and abundance of seabird populations to provide a base for future conservation efforts and actions.
- Assess threats and develop measures to mitigate against, the degradation of Waterbird habitats.
- Establish necessary measures to protect and conserve Waterbirds habitats.
- Increase awareness of the status of seabirds amongst national wildlife and local agencies, as well amongst the public and Donors.

6. Preliminary Assessment Out-comes

Out-come 1: The first attempt to map and Provide comprehensive information about avifaunal species distribution and breeding sites in the area.

Out-come 2: Comprehensive guidelines and tools for biotic monitoring in line with Climate Change will be established.

Out-come 3: Subsequent Field Surveys will provide baseline for projects and will enhance skill transfer for personnel or students associated with the survey.

7. Conservation impact

1. New protected areas of waterbirds sites and coverage of unprotected ecosystems will be recognized.
2. Strengthening of local capacity ability to manage bird habitats.

8. Methods

8.1. Major Targeted Ecosystems

The following are target habitats on the coastal region of the Sudan Red Sea Coast include:

1. Tidal Mudflats and Sand flats.
2. Coastal seasonal Estuaries.
3. Mangrove stands along the Sudanese Red Sea Coast
4. Inshore Coral Cays /islets /islands.
5. Salt Marshes.
6. Intertidal Habitats(Sand shore, coral ledges shore).

8.2. Methods Proposed:

The count methods shall vary depending on whether the sites are utilized for migrating, overwintering or breeding purposes by the birds (Terrestrial birds, Waterbirds, or Seabirds) population.

8.3. Field Survey Methods

- Survey methods will follow standardized methods adopted for Ground based
- Survey and Boat Surveys.
- Following lunar cycle, some surveys will be undertaken on rising tide, when birds are pushed closer and are easier to count (depending on the time of field).
- Locations of all survey points will be plotted on maps using GPS.
- Field data sheet will be used.
- Counts will be conducted on Roosting sites (Winter depending on weather) and nesting colonies (Summer).

- Following standardized survey methods there should be 3 surveys during the breeding season undertaken each of the months of May, June, July .
- Further surveys will be conducted in November, December and January and February.

Table 1. Avifaunal Rapid Assessment Survey Work Plan

WORKS	2022					2023										
	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Commencement of *waterbird and seabirds* summer Survey	√																
Preliminary Assessment Report			√														
Phase (2): Winter and Summer Surveys						√					√						
Phase (2) Report Submission								√									
Progress Report & FINAL REPORT														√			

Proposed and potential seasons for Survey

Report Submissions

Table 2. Planning Matrix Related to Preliminary Avifaunl Assessment

Objectives	Activities	Expected Outcomes
1. Identify key locations, critical habitats and map areas of important seabird habitats.	1. Conduct a pilot survey activity for site selection. 2. Map and recognize birds sites and their habitats 3. Generate a checklist on key sites.	1. Identification of key sites of birds habitats . 1. New protected areas and coverage of unprotected ecosystems will be recognized. 2. Trained personnel associated with the survey.
2. Determine the distribution and abundance of seabird populations to provide a base for future conservation efforts and actions.	1. Conduct Surveys on carnivore(species)occurrences; 2. Conduct Researches on their behavior and habitats.	1. Information on seabirds, waterbirds and terrestrial population and their trend; 2. More scientific information availability through research.
3. Assess threats and develop measures to mitigate against, the degradation of Waterbird habitats.	1. Conduct Surveys to assess threats to seabirds.	1. More data collected from field visits; 2. Development of better management Planning of seabirds habitats.

Table 3. Budget Estimates/Resource Requirements

Item	Amount Requested In SDG	TOTAL *SDG*
Field Equipment		
Optical Instruments		
Binoculars	10.000	
Digital Camera	50.000	
Subtotal	**60.000**	**60.000**
Measuring & Gauging Tools		
Vernier Caliper	5000	
Transect tape	3000	
Quadrate	1000	
Tally Counter	2000	
Digital Hygrometer, Thermometer	8000	
Subtotal	**19000**	**19000**
Capturing/Sampling Equipment and Preservation		
Specimen Preservation reagents : Ethanol 95%	7000	
Containers (Falcon Tubes)	4000	
Zip-Lock Plastic Bags	5000	
Subtotal	**16000**	**16000**
Expendables		
Info sheets + Stationary	5000	
Subtotal	**5000**	**5000**
Travel Costs		
Return BUS Tickets	50.000	
Subtotal	**50.000**	**50.000**
Personnel		
Researcher (Ornithology)	250.000	
Report Submission (Preliminary Assessment of Avifaunal Composition)	100.000	
Subtotal	**350.000**	**350.000**
GRAND TOTAL		**500.000**

Remarks

The above mentioned budget covers activities of this Phase (Preliminary Avifaunal Assessment of Shubuk Area- South of Sudan Coast).

References

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