
The birds diversity of the wetland habitats in the Fifa Nature Reserve, Jordan

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ABSTRACT

The diversity of the bird communities of wetland habitats in the Fifa Nature Reserve was studied during August 2017 to March 2018. The methods used were direct observation and spot counts. A total of 81 species of 31 families was recorded, including 52 Species of migrants. The largest number of birds was recorded in January and the lowest in March. Little Egret, Cattle Egret, Gray Heron, Spur-winged Lapwing, Black winged-Stilt, Moorhen, Teal and Garganey were the most abundant migrant species. Dead Sea Sparrow, Laughing Dove, Crested Lark, Reed Warbler, and White Wagtail were the most common resident species.

INTRODUCTION

Fifa Nature Reserve is a biodiversity-rich ecosystem that is one of the most important sites for migratory bird species in the Middle East (Ellis, 2017). The reserve was designated as the world's lowest elevation Ramsar Site, lying at 426 meters below sea level. It is considered an important habitat for several rare and endangered birds at the local and regional level, including Nubian Nightjar *Caprimulgus nubicus* and Dead Sea Sparrow *Passer moabiticus* (Fig. 1). Very large numbers of migrant birds pass through the area in the spring and autumn.

Wetland is widely recognized as a highly important ecosystem with diverse attributes including a distinctive avifauna (Burger, 1985). Birds are considered to be a good indicator of the degree of human disturbance in various ecosystems worldwide, as populations can vary considerably due to anthropogenic activities (Askins et al., 1990; Bock et al., 2001).

The aim of this study was to gather further baseline data on the diversity of birds in the wetland habitats of the reserve, including rare species, in order to update the relevant criteria for the Ramsar designation and inform habitat management. Such information has been difficult to gather in the past because the reserve lies on the Border between Jordan and Palestine.



Figure 1. Nubian Nightjar (A), and (B) the Dead Sea Sparrow both in Fifa Nature Reserve.

Materials and Methods

Site description

The Fifa Nature Reserve is located in the southwestern part of Jordan, about 33.5 km S-SE of the Dead Sea and 157 km north of the city of Aqaba [Coordinates for the centre of the reserve East 731366.653, North 3427479,77] (Fig. 2). The Fifa Nature Reserve is located within the Sudanian (Tropical) Bio-Geographical Zone, which is characterized by high temperatures with warm winters and hot summers, combined with low annual rainfall of about 50-100mm /year.

Two major vegetation types were recorded in the Fifa Protected Area, saline vegetation (19.9 km²) and tropical vegetation (6.56 km² including 0.56 km² on the included farms). The area is intersected by wadis and dominated by sparse vegetation of perennial grasses and woody plant such as: *Acasiatortilis*, *Phoenix dactylifera*, *Nitrariaretusa*, *Tamarix* spp and *Salvadorapersica* (RSCN 2011).

Methods

The survey was carried out from August 2017 to March 2018. Fourteen spot counts in the wetland habitats including the Sabkhat area and water channels within the Fifa Nature Reserve were chosen (Fig. 3). Bird counts were carried out between 06:30 and 10:00. Binoculars (8 x 42) and a telescope (72 x) were used for bird identification.

A total of 15 minutes was spent recording birds at each spot count to ensure that all birds present were observed and recorded. Each site was visited twice each week and the maximum number of each bird species recorded on each visit.

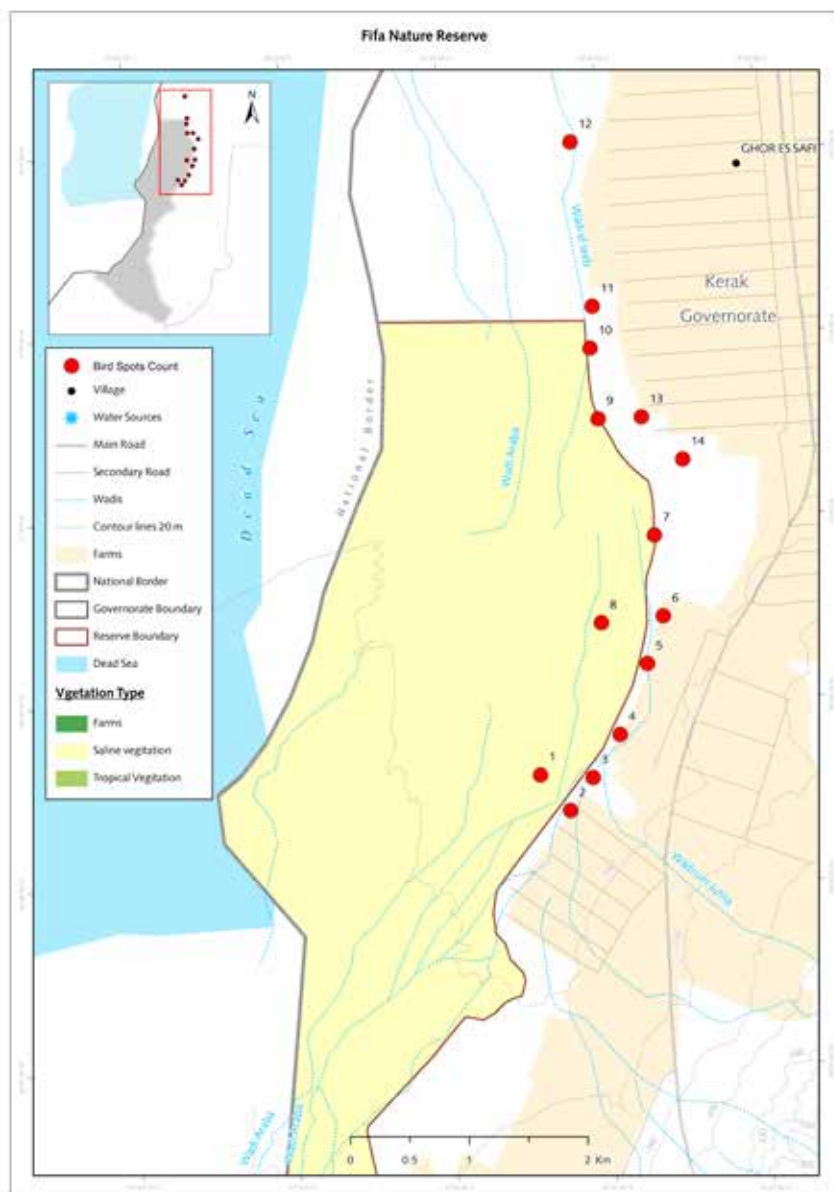


Figure (2): Sites of spot counts in the Fifa Nature Reserve

RESULTS

During the survey a total of 83 species of birds of 32 Families was recorded in the wetland habitats of the Fifa Nature Reserve (Table 1). A total of 52 species of migrants were recorded. Black-winged Stilt *Himantopus himantopus*, Spur-winged Plover *Vanellus spinosus*, Moorhen *Gallinula chloropus*, Stone Curlew *Burhinus oedicephalus*, and Dead Sea Sparrow *Passer moabiticus* were common breeding species in the wetland areas of the reserve. Two species Hooded Crow and Glossy Ibis were recorded for the first time on the reserve.

The reserve also supports a considerable number of raptors and owls, including Bonelli's Eagle *Aquila fasciata*, Steppe Eagle *Aquila nipalensis*, Short-toed Eagle *Circaetus gallicus*, Booted Eagle *Hieraaetus pennatus*, Black Kite *Milvus migrans*, Black-shouldered Kite *Elanus caeruleus* Short-eared Owl *Asio flammeus*, Long-eared Owl *Asio otus*, Scops Owl *Otus scops* and Little Owl *Athene noctua*. The Fifa Nature Reserve is particularly important both nationally and internationally for its breeding populations of Nubian Nightjars and Dead Sea Sparrows, which are both endangered species at the local level.

DISCUSSION

In the present study 83 species of birds were observed, which indicates the richness of the avifauna of the Fifa Nature Reserve, especially during the migration season in the autumn. In addition, Spur-winged Lapwing and Stone Curlew were proved to breed on the reserve for the first time. The results of this study confirm that the Fifa Nature Reserve is an important habitat for several species, as well as large numbers of waders. Reed Warblers are considered to be a threatened species in Jordan and were recorded nesting in nationally and regionally important numbers on the reserve for the first time.

CONCLUSION

This study confirmed that the Fifa Nature Reserve is one of the most important sites in Jordan for migrant birds, especially during December to March, when water levels in the Sabkhat area were high. The protection of birds using the reserve can be greatly helped by the people of the village of Fifa. In order to achieve this, a programme is planned to raise awareness of the importance of the reserve in the local community.

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Table 1: List of bird species and numbers observed from August 2017 to March 2018, Fifa Nature Reserve, Jordan

Family	Common name	Scientific name	Breed
Podicipedidae	Little Grebe	<i>Tachybaptus ruficollis</i>	NBr
Anatidae	Egyptian Goose	<i>Alopochen aegyptiaca</i>	NBr
	Mallard	<i>Anas platyrhynchos</i>	NBr
	Teal	<i>Anas crecca</i>	NBr
	Garganey	<i>Anas querquedula</i>	NBr
Ardeidae	Great White Egret	<i>Casmerodius albus</i>	NBr
	Grey Heron	<i>Ardea cinerea</i>	NBr
	Purple Heron	<i>Ardea purpurea</i>	NBr
	Squacco Heron	<i>Ardea laraloides</i>	NBr
	Cattle Egret	<i>Bubulcus ibis</i>	BR
	Bittern	<i>Botaurus lentiginosus</i>	NBr
	Little Egret	<i>Egretta garzetta</i>	BR
Ciconiidae	White Stork	<i>Ciconia aciconia</i>	NBr
	Black Stork	<i>Ciconia nigra</i>	NBr
Phasianidae	Sand Partridge	<i>Ammoperdix heyi</i>	BR
Rallidae	Little Crake	<i>Porzana parva</i>	NBr
	Common Moorhen	<i>Gallinula chloropus</i>	BR
Accipitridae	Bonelli's Eagle	<i>Aquila fasciata</i>	NBr
	Steppe Eagle	<i>Aquila nipalensis</i>	NBr
	Short-toed Eagle	<i>Circaetus gallicus</i>	NBr
	Booted Eagle	<i>Hieraetus pennatus</i>	NBr
	Black Kite	<i>Milvus migrans</i>	NBr
	Black-shouldered Kite	<i>Elanus caeruleus</i>	BR
Burhinidae	Stone Curlew	<i>Burhinus oediconemus</i>	
Recurvirostridae	Black-winged Stilt	<i>Himantopus himantopus</i>	BR
Glareolidae	Collared Pratincole	<i>Glareola pratincola</i>	NBr
Charadriidae	Little Ringed Plover	<i>Charadrius dubius</i>	NBr
	Kentish Plover	<i>Charadrius alexandrinus</i>	NBr
	White-tailed Lapwing	<i>Vanellus leucurus</i>	NBr
	Spur-winged Lapwing	<i>Vanellus spinosus</i>	BR
	Lapwing	<i>Vanellus vanellus</i>	BR

Scolopacidae	Little Stint	<i>Calidris minuta</i>	NBr
	Common Sandpiper	<i>Actitis hypoleucos</i>	BR
	Wood Sandpiper	<i>Tringa glareola</i>	NBr
	Green Sandpiper	<i>Tringa ochropus</i>	BR
	Marsh Sandpiper	<i>Tringa stagnatilis</i>	NBr
	Common Snipe	<i>Gallinago gallinago</i>	BR
	Redshank	<i>Tringa totanus</i>	NBr
	Spotted Redshank	<i>Tringa erythropus</i>	NBr
Laridae	Common Tern	<i>Sterna hirundo</i>	NBr
Columbidae	Rock Dove	<i>Columba livia</i>	BR
	Laughing Dove	<i>Streptopelia senegalensis</i>	BR
	Namaqua Dove	<i>Oena capensis</i>	BR
	Collared Dove	<i>Streptopelia decaocto</i>	BR
Strigidae	Short-eared Owl	<i>Asio flammeus</i>	NBr
	Little Owl	<i>Athene noctua</i>	BR
	Long-eared owl	<i>Asio otus</i>	NBr
	Scops owl	<i>Otus scops</i>	NBr
Caprimulgidae	Nubian Nightjar	<i>Caprimulgus nubicus</i>	BR
Apodidae	Common Swift	<i>Apus apus</i>	NBr
	Pallid Swift	<i>Apus pallidus</i>	NBr
Upupidae	Common Hoopoe	<i>Upupa epops</i>	BR
Alcedinidae	Common Kingfisher	<i>Alcedo atthis</i>	BR
	Pied Kingfisher	<i>Ceryle rudis</i>	BR
	White-throated Kingfisher	<i>Halcyon gularis</i>	BR
Meropidae	Bee-eater	<i>Merops apiaster</i>	BR
	Little Green Bee-eater	<i>Merops pusillus</i>	BR
	Blue-cheeked Bee-eater	<i>Merops persicus</i>	NBr
Coraciidae	European Roller	<i>Coracias garrulus</i>	BR
Picidae	Eurasian Wryneck	<i>Jynx torquilla</i>	NBr
Alaudidae	Crested Lark	<i>Galerida cristata</i>	BR
	Short-toed lark	<i>Calandrella brachydactyla</i>	NBr
	Hoopoe lark	<i>Alaemon alaudipes</i>	NBr
Motacillidae	Water Pipit	<i>Anthus spinoletta</i>	NBr
	Red-throated Pipit	<i>Anthus cervinus</i>	NBr

Hirundinidae	Sand Martin	<i>Riparia riparia</i>	NBr
	House Martin	<i>Delichon urbicum</i>	BR
	Barn Swallow	<i>Hirundo rustica</i>	NBr
	Red-rumped Swallow	<i>Cecropis daurica</i>	BR
Passeridae	House sparrow	<i>Passer domesticus</i>	BR
	Spanish Sparrow	<i>Passer hispaniolensis</i>	BR
	Dead Sea Sparrow	<i>Passer moabiticus</i>	BR
Acrocephalidae	Common Reed-warbler	<i>Acrocephalus scirpaceus</i>	BR
	Clamorous Reed-warbler	<i>Acrocephalus stentoreus</i>	BR
	olivaceous warbler	<i>Iduna pallida</i>	BR
	Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	BR
	Sardinian Warbler	<i>Sylvia melanocephala</i>	NBr
Sylviidae	common chiffchaff	<i>Phylloscopus collybita</i>	BR
Phylloscopidae	(Common Myna)	<i>Acridotheres tristis</i>	BR
Sturnidae	Tristarm's starling	<i>Onychognathus tristramii</i>	BR
Corvidae	House Crow	<i>Corvus splendens</i>	NBr
	Hooded Crow	<i>Corvus cornix</i>	NBr
Threskiornithidae	Glossy Ibis	<i>Plegadis falcinellus</i>	NBr

BR – Breeding record confirmed;

NBr- Non Breeding