
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.

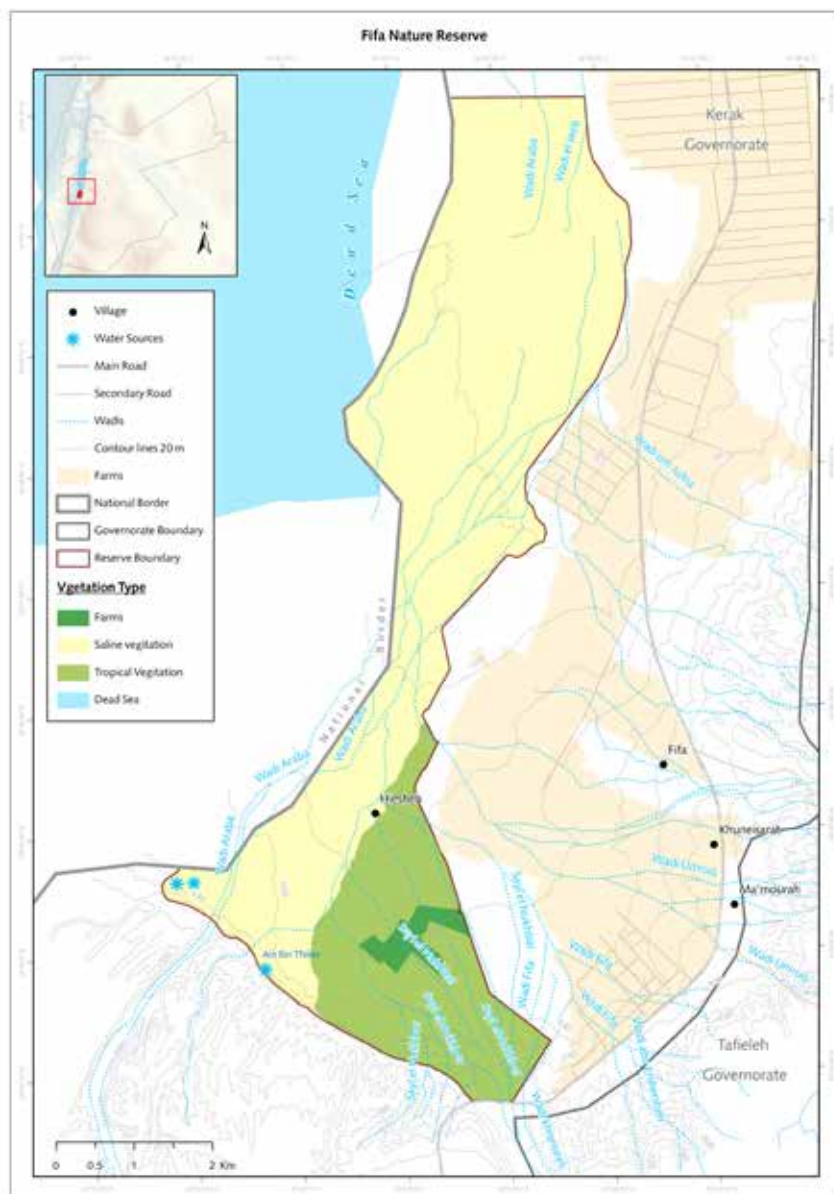


Figure 2: location and vegetation types of the Fifa Nature reserve

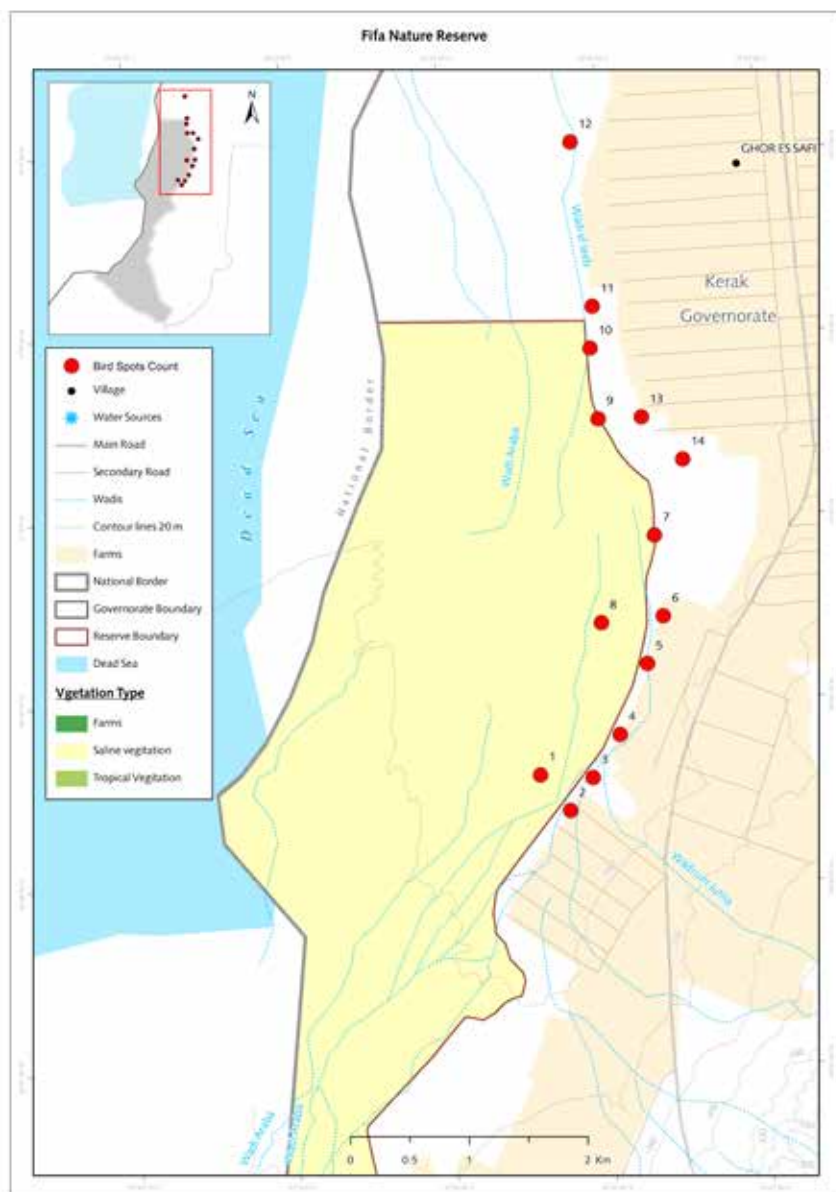


Figure (2): Sites of spot counts in the Fifa Nature Reserve

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 oedicnemus</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