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RESEARCH ARTICLE

STATUS AND CONSERVATION OF DUCKS IN DALMAJ WETLANDS, SOUTHERN IRAQ

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Abstract

Over the period, January to December (2013), a systematic study was conducted in Hor Al-Dalmaj wetlands in southern Iraq targeting studying the status of Duck species in this area. Dalmaj area is one of the most important, key wetlands in Iraq that is considered as one of the key wintering area for extremely large numbers of Waterbirds (including the waders, ducks, swans, geese, and other Waterfowl species). Large numbers of ducks use Dalmaj wetlands for breeding and wintering, and during their passage periods as well of which most of these ducks are facing serious threat of illegal hunting either by netting or shooting. The current paper shades the light on these facts and proposes set of measurements to be taken as part of the conservation program for these important Waterfowl species.

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Introduction

Dalmaj wetland is located between Al-Qadisiya and Wasit Governorates, about 130km southeast of Baghdad. It is considered as one of the key wetlands that are important on the national and regional levels (IMO & NI, 2014). The habitats in Dalmaj area are of various types even in the waterbody, and this gives the area remarkable richness in the landscape diversity, subsequently considerable diversity in floral and faunal diversity.

It is well-known that the Duck species (par of Anseriformes) is favorite gamebirds that being hunted everywhere in Iraq (Salim, 2014). In Dalmaj wetlands, ducks are hunted and netted in a very massive way that threatens the conservation status of this group of important Waterfowl economically.

The case of being Dalmaj provides good habitat for Waterfowls in general and ducks in particular, on the other hand, the serious situation of Duck species that is on-ground due to the massive illegal hunting actions, made it necessary to propose set of solutions that might contribute to the conservation of these species of which some of them are threatened Waterfowl (Salim, 2010).



Satellite image shows Al-Dalmaj wetlands and its location in Iraq

Materials and Methods

Five field observation sites have been chosen in Dalmaj wetland based on specific criteria of which mostly that they represent different wetlands habitat scenarios in order to have as through idea as possible about the status of the birds in Al-Dalmaj wetlands and the identification of the environmental parameters favored by the bird like water quality and vegetation cover.

These five observation sites were visited monthly over 12 months over the years 2013-2014, using the same observation methods (area-count) in each of these sites. A Garmin GPS device was used in spotting the locations with the aid of 1:100,000 maps. 12X45mm binoculars were used during the observations. A 4X4 field vehicle was used during the field transportations among the observation sites. A unified field form was designed and used during the counting of the Duck species and numbers with using the field guide to identify the birds (Salim, et al., 2006). Different meetings with locals and hunters were made in order to measure the hunting pressure on the Duck species in different places in Dalmaj.

Results and Discussion

Systematic field observations in Al-Dalmaj wetlands showed that ducks favor different kinds of habitats that include: the open water (especially in the southern and southeastern parts of Dalmaj), the areas of the open waters amid the reedbeds (common landscape in entire Dalmaj), and the shallow water ponds and even mudflats for feeding. Different studies over the world, like Green (2000, 1998), have indicated that such kind of wetlands types suit wide range of Waterfowl species and fit the feeding requirements during their foraging in different methods: dabbling or diving.

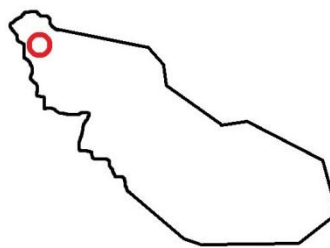
For these reasons, Dalmaj wetlands (with its wide range of habitats and large area) attracts large numbers of different species of Ducks of which the majority of them gets hunted either by shooting or by netting (personal communications with locals and hunters, 2013-2014).

Sites Overview:

DL-1:

Site Description:

This site is located at the northern part of Hor Al-Dalmaj. The main character of the habitat in this area is marsh habitat, while there is artificial embankment that runs through some part of the area inside the marsh. The water depth in this point was taken during the winter and the measurement was 80cm. The dominant plant cover is reedbeds of *Phragmites*, however the area includes different type of other plant cover such as *Typha*, Sedge and *Tamarix*. This part of Hor Al-Dalmaj is fed by two main sources, one canal feeds the northern part, and the second canal feeds the western part, and both of them bring the water from the Main Outfall Drain (MOD) to this marsh.



Map-1- shows the location of DL-1 sampling site

Duck species present in this area:

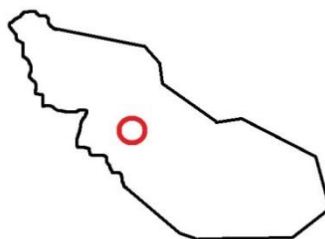
In order to better know the relationship between the different species of ducks, it was crucial to select and observe this particular point, as it would be necessary to list the duck-species that were found at the same site. The list below consists of the duck species that were found in DL-1. Based on the field observations, and due to the characteristics of this specific site, seven dabbling duck species were observed in DL-1 and two diving duck species were observed mainly over the relatively deep water-patches. This might be considered as clear indicator to the suitability of this kind of habitat to both kinds of ducks. It was described by Green (2000, 1998, 1996) that such kind of habitat might harbor up to five dabbling duck species to one diving duck species.

Table -1: The ducks that exist in DL-1

Duck spp.		Behavior	
		Dabbling	Diving
Eurasian Wigeon	<i>Anas Penelope</i>	Yes	
Mallard	<i>Anas platyrhynchos</i>	Yes	
Marbled Teal	<i>Marmaronitta angustirostris</i>	Yes	
Northern Shoveler	<i>Anas clypeata</i>	Yes	
Northern Pintail	<i>Anas acuta</i>	Yes	
Garganey	<i>Anas querquedula</i>	Yes	
Eurasian Teal	<i>Anas crecca</i>	Yes	
Red-crested Pochard	<i>Netta rufina</i>		Yes
Ferruginous Duck	<i>Aythya nyroca</i>		Yes

DL-2:**Site Description:**

This site lies at the middle part of Hor Al-Dalmaj at the western edge of the marsh. The area is mostly of marsh habitat with some area of terrestrial habitat. The site is dominated by *Phragmites* reedbeds and includes some areas of open water and mudflats as well. The terrestrial area is dominated by low area shrubs. The closest landmark to the site is Abo-Alama Archaeological site to the west, also there is an agricultural land that appears to be new farm during the surveys.



Map-2- shows the location of DL-2 sampling site

Duck species present in this area:

The list below consists of the duck species that were observed in DL-2. Based on field observations, and due to the characteristics of this specific site, eight dabbling duck species were observed in DL-2 and two diving duck species were observed mainly over the relatively deep water-patches. Like the case with DL-1, this can be considered as clear indicator of the suitability of this kind of habitat to both kinds of ducks. It was described by Green (1998) that such kind of habitat might harbor up to different kinds of dabbling and diving ducks.

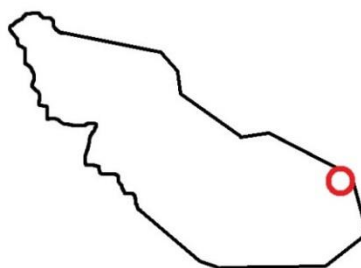
Table -2: Shows the ducks that exist in DL-2

Duck spp.		Behavior	
		Dabbling	Diving
Gadwall	<i>Anas strepera</i>	Yes	
Eurasian Wigeon	<i>Anas penelope</i>	Yes	
Mallard	<i>Anas platyrhynchos</i>	Yes	
Marbled Teal	<i>Marmaronitta</i>	Yes	

	<i>angustirostris</i>		
Northern Shoveler	<i>Ana sclypeata</i>	Yes	
Northern Pintail	<i>Anas acuta</i>	Yes	
Garganey	<i>Anas querquedula</i>	Yes	
Eurasian Teal	<i>Anas crecca</i>	Yes	
Red-crested Pochard	<i>Netta rufina</i>		Yes
Ferruginous Duck	<i>Aythya nyroca</i>		Yes

DL-3:**Site Description:**

This site is located at the eastern edge of Dalmaj lake (open water area), on the western side of the paved road (embankment). From the western and southern views, this site is facing the open lake that has only very thin strip of reedbeds growing long the old embankment that goes in parallel with the paved road. It seems that this area is more depressed in comparison with the other sampling sites. This feature attracts birds and other fauna species as well as plant species that are adapted to this environment. At the northern and eastern parts of the site, to the east and north of the paved embankment, the habitat is generally terrestrial with some small waterbodies that gather in the depression. The main habitat in the eastern parts of this site is Sabkha (salty) land with scattered terrestrial shrubs, like *Tammarix*, and the dominant plant cover in the water ponds is the *Phragmites* reedbed.



Map-3- shows the location of DL-3 sampling site

Duck species present in this area:

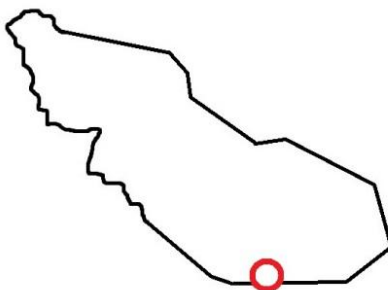
To better understand the relationship among the different duck species that use different types of habitats, it was crucial to observe this particular point. The list below contains duck species that were present in DL-3. According to field observations, and due to the features of this site, three diving duck species were observed in DL-3, and this is due to the presence of the open water (lake habitat). Only one dabbling Duck species was found in this area. This is a probable indicator of the appropriateness of the habitat to these ducks.

Table -3: Shows the ducks that exist in DL-3

Duck spp.		Behavior	
		Dabbling	Diving
Red-crested Pochard	<i>Netta rufina</i>		Yes
Marbled Teal	<i>Marmaronitta angustirostris</i>	Yes	
Common Pochard	<i>Aythya farina</i>		Yes
Ferruginous Duck	<i>Aythya nyroca</i>		Yes

DL-4:**Site Description:**

This site is located at the southern part of Al-Dalmaj and at the northern part of the paved road. Generally the habitat of this area is classified as wetland with *Phragmites* reedbeds, especially along the northern side of the road with some open areas of water. The depth of the water at sampling site is around 1.20m. At the southern part of road, the area is terrestrial, salty (Sabkha) with some salty ponds. Plant cover of the southern part is very scattered; concentrate at the depressions and trenches.



Map-4- shows the location of DL-4 sampling site

Duck species present in this area:

It was important to observe the presence of the ducks in this area due to the variety of habitats. The list below consists of the duck species that were observed in DL-4. From the field observations, and due to the characteristics of this site, three dabbling and two diving duck species were observed in DL-4. Obviously, This is related to the suitability and healthiness of the habitat in this site.

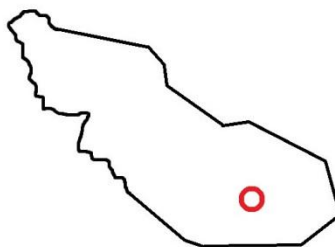
Table -4: Shows the ducks that exist in DL-4

Duck spp.		Behavior	
		Dabbling	Diving
Northern Shoveler	<i>Anas clypeata</i>	Yes	
Eurasian Teal	<i>Anas crecca</i>	Yes	
Marbled Teal	<i>Marmaronitta angustirostris</i>	Yes	
Red-crested Pochard	<i>Netta rufina</i>		Yes
Ferruginous Duck	<i>Aythya nyroca</i>		Yes

DL-5:

Site Description:

This site lies in the middle of the southern part of Dalmaj wetland, just to the west of the open water of Dalmaj lake. It is located within an area of dense reedbeds with other area of low vegetation and small open area of water. During the survey, no earth batches were found prominent over the water body in this area except the sides of the canal that was newly excavated to feed the southern part of Dalmaj wetland. In general, reed height in this area reaches up to 2.5 m. However, it does not form the dominant character of the reedbeds in the area as the average of reed height ranges in about 1.5 m. In addition to reedbeds and other submerged plants, there are also some *Tammarix* shrubs scattered over the shallow batches in the areas.



Map shows the location of DL-5 sampling site

Duck species present in this area:

We found it crucial to observe the existed duck species in order to grasp their relation to the habitats types in this area of Dalmaj. There were seven dabbling duck and two diving species observed in DL-5. This might be considered as clear indicator to the suitability of this kind of habitat to both kinds of ducks. It was described by Green that such kind of habitat might attract dabbling duck species and diving duck species (Green 2000).

Table -5: Shows the ducks that exist in DL-5

Duck spp.		Behavior	
		Dabbling	Diving
Gadwall	<i>Anas strepera</i>	Yes	
Eurasian Wigeon	<i>Anas penelope</i>	Yes	
Mallard	<i>Anas platyrhynchos</i>	Yes	
Northern Shoveler	<i>Anas clypeata</i>	Yes	
Marbled Teal	<i>Marmaronitta angustirostris</i>	Yes	
Northern Pintail	<i>Anas acuta</i>	Yes	
Eurasian Teal	<i>Anas crecca</i>	Yes	
Red-crested Pochard	<i>Netta rufina</i>		Yes
Ferruginous Duck	<i>Aythya anyroca</i>		Yes

Conservation Measurement

Due to the variety of landscape and habitat types in Dalmaj area, which is considered as key factor in attracting different species of dabbling and diving Ducks, the area is considered as very important wetlands for wide range of various Waterfowl species in general, and Duck species in particular, taken into consideration the vast areas of wetlands that Dalmaj includes.

The migrant and wintering Duck specie visit Dalmaj area in quite large numbers and spread out over the different kinds of habitats based on which habitat type does the species prefer as a shelter or foraging areas. The same point is true from the breeding ducks in Dalmaj. This makes Dalmaj wetlands good area for hunters for practicing the hunting and netting as well. Being Dalmaj large and remote area, large numbers of hunters and different visitors are using the area for hunting and recreation, and this would be real cause for reduction of the population of these Duck species in addition to the disturbance that such activities produce.

Better measurements in enforcing the law should be carried out on-ground and better monitoring scheme should be conducted and managed in order to observe the breaches and to monitor regularly the area and the threatened species over it. The "Dalmaj Protection Force" – local police, and the "Friends of Dalmaj" (a Local Conservation Group founded by the local NGO the Iraqi Organization for Conservation of Nature – IOCN) might be the best target to start with by raising their awareness, train them, and mobilize them in the monitoring process in future.

Conclusion

It is obvious that Dalmaj area considered as one of the key wetlands in Iraq that harbors considerable biological diversity. It is also rich area with Waterfowl and Duck species that are important species economically. These species face serious threat of hunting and netting in Dalmaj area and there should be on-ground conservation

measurements implemented by the government, NGOs, and the local community in order to harmonize the conservation efforts towards getting the better status of this important area.

Acknowledgment:

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