

The negative effect of drought on composition of waterfowls community in Al- saffia sanctuary

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Abstract

During the survey period from January to November 2009, sixty one species were recorded, and the number of individuals are reached 15742 .

Nine species formed 66% of the numerical abundance in the sanctuary. The species (Greylag-Goose *Anser anser*, Little egret *Egretta garzetta*, Black tailed godwit *Limosa limosa*, Slender billed Gull *Larus genei*, Ruff *Philomachus pugnax*, Kentish plover *Charadrius alexandrinus*, Black – winged stilt *Himantopus himantopus*, Collared pratincole *Glareola pratincola* and Avocet *Recurvirostra avoseta*). The waders species were move dominant of others groups.

The drought have anegative effect on the status of waterfowls gradual decrease in number of species and individuals especially during the last six months were the water was limited to few shallow ponds also disappear of some endemic species.

1- Introduction

Marshes of Southern Iraq is considered to be one of the few worlds most important areas for birds migrating. Due to its crucial geographical position where outward migratory flyways from Siberia to Africa converg. The region also acts as the most important rest and refuelling stop during the emigration

before final dispersal to the breeding grounds Al-(Robaae, 2006) . In particular , the extensive wetlands Ahwar of lower Mesopotamia are the most favoured by waterbirds. Most of the early ornithological research in Iraq was carried out by knowledgeable amateur naturalists such as Sharp (1886); Meinertzhagen (1914); Cumming (1918) ; Cheesman,

(1921-1922), Maxwell(1957); Johnson, (1958); Kainady(1976) and Kainady *et al.*(1977), The most comprehensive studies of the birds of Iraq were made by Allouse (1953, 1956 and 1957). More recently , there were waterbirds studies by Scott and Carp (1982) who had surveyed the birds of southern Iraq from 1976 to 1979. Subsequently.

Al-Robaae(1986, 1994, 1998, 1999, 2001 and 2006) published several accounts on waterbirds in southern Iraq these concentrated mainly on shorebirds and ducks, especially diving ducks, in the context of bird counts and bird migration.

Desiccation of southern marshes during 1990s make the ornithological studies very difficult due to absence of water and birds. After restoration in 2003 several surveys carried out on waterbirds in some southern marshes such as Abed(2007, 2008a and 2008b) and (Habeeb, 2008).

2- Study area

AL-saffia sanctuary was initiated in 2006, located on the Iraqi - Iranian border, it represents the southern part of AL-Huwaza marsh in Basrah Governorate. The sanctuary connects with Iranian AL-adeem marsh on the opposite side of the border. The total area of AL-saffia sanctuary is 44 km² shown in fig(1). The sanctuary as a water body represents an encouraging factor to waterbirds besides offering plant cover by emergent plants which represent refuge and nesting sites for spawning birds, the emergent plants were *Phragmites australis*, *Typha domingensis* and *Schoenoplectus litoralis*, the submerged plants like *Myriophyllum spicatum* and *Potamogeton spp.* several fish species present like *Aspius vorax*, *Liza abu*, *Cyprinus carpio* and *Barbus luteus* these fish species represent a source of food for most of these waterbirds (Habeeb, 2008).

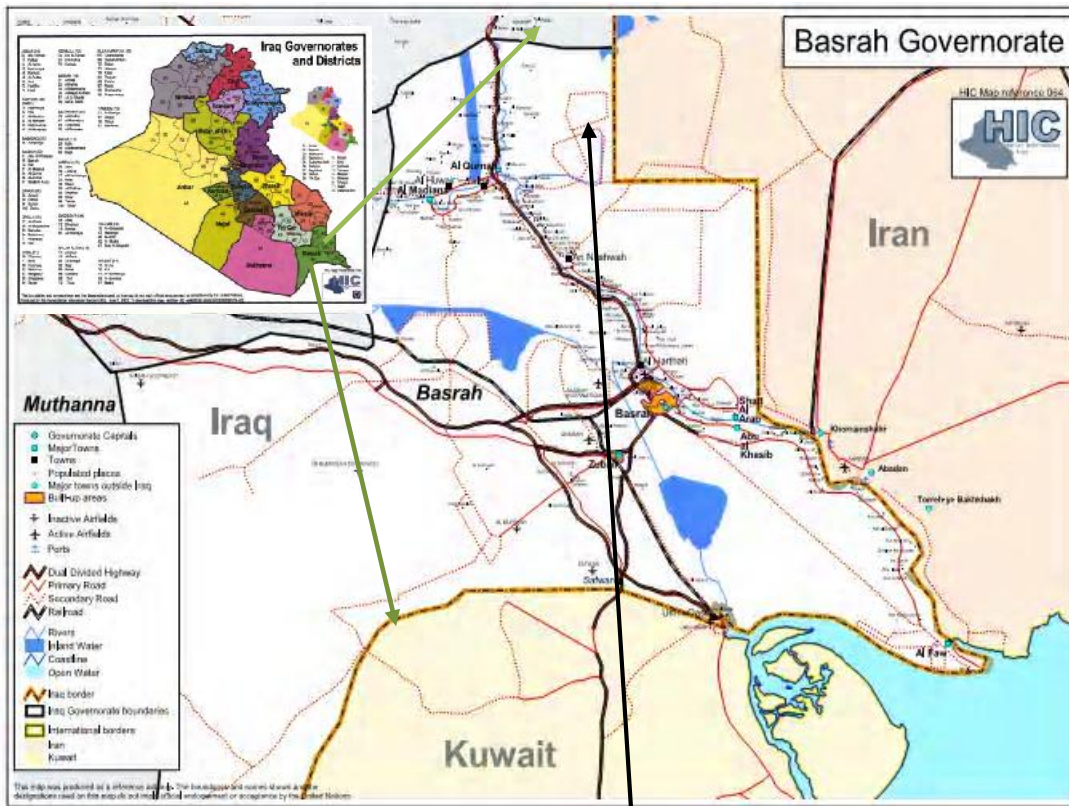


Fig (1) : Map of the southern Iraqi marshes showing the site of Al – saffia sanctuary.



3- Materials and methods

Field sampling to the sanctuary was once in a month started in January 2009 and ended in November 2009.

The watching started at 9.00 a.m to the sunset and continue from dawn to 9.00 a.m.

The survey was made by binocular with magnifying power of 80*90 -10 to identification of waterfowls.

The birds were identified according to characteristic characters by (Porter *et al.* 1996).

4-Results

During the survey to AL-saffia sanctuary for 11 months from January 2009 to November 2009.

Sixty one species of waterbirds were recorded and number of individuals were 15742 as showed in Table(1) , thirty five other birds species (non- aquatic) were also recorded during the survey showed in Table (2).

Numerical Abundance

Nine species represented 66% of numerical abundance recorded in sanctuary, these species were Grey Lag- Goose *Anser anser* 17.8% with number of individuals 2805 birds followed by little egret *Egretta garzetta* 9.2% with number of individuals of 1459 birds in third rank was Black tailed Godwit *Limosa limosa* 1095 individuals with 6.9%, and in fourth rank Slender billed gull *Larus genei* of 1016 individuals with 6.46%, and Ruff

Philomachus pugnax of 1015 birds with 6.44% and then Kentish plover *Charadrius alexandrinus* of 828 birds with numerical abundance of 5.2%. In the sixth rank Black winged – stilt *Himantopus himantopus* with 780 individuals with 4.9%, followed by Collared pratincole *Glareola pratincola* with 742 individuals with 4.7% and ninth rank was Avocet *Recurvirostra avosetta* with 691 birds with 4.3%. Table (1). Twelve species Recorded low numerical abundance in sanctuary, Table (1).

The highest monthly numerical abundance for GreyLag- Goose *Anser anser* was recorded in January, February with percentage (40.5%,13.6%) respectively. The higher numerical abundance of Little Egret *Egretta garzetta* was in March with 48.6% while the Ruff *Philomachus pugnax* was at the peak in April 65.8%, Black- winged stilt *Himantopus himantopus* with higher numerical abundance in may with 21.4%. Collared pratincole *Glareola pratincola* with higher numerical abundance in June and July with 60% and 48% respectively.

Slender billed gull *Larus genei* with higher numerical abundance in August, September, October and November with 36%, 36.4%, 38.4 and 22.5% respectively.

Tab.(1): Number of species and individuals recorded in Al-saffia sanctuary during the monitoring period.

English name	Scientific name	Jan.09	Feb.09	Mar.09	Apr.09	May 09	Jun. 2009	Jul.09	Aug.09	Sep.09	Oct.09	Nov.09	Total	Num. Abund. %
Little Grebe	<i>Tachybaptus ruficollis</i>	121	80	6	10	15	9	15	30	14	25	23	366	2.32
Great crested Grebe	<i>Podiceps cristatus</i>	2	-	-	-	-	-	-	-	-	-	-	2	0.01
Pygmy Cormorant	<i>Phalacrocorax pygmaeus</i>	23	22	37	22	55	1	1	4	1	1	4	170	1.07
Greater Cormorant	<i>P. carbo</i>	62	-	-	-	-	-	-	-	-	1	-	63	0.40
White pelican	<i>Pelecanus onocrotalus</i>	-	-	6	-	-	-	-	-	15	-	-	21	0.13
Grey Heron	<i>Ardea cinerea</i>	20	3	170	-	1	-	-	3	87	10	7	301	1.91
Purple Heron	<i>A. purpurea</i>	-	-	2	-	50	-	-	-	-	-	-	52	0.33
Great white Egret	<i>Egretta alba</i>	13	6	50	6	22	-	-	-	-	-	-	97	0.61
Little Egret	<i>E. garzetta</i>	43	30	1125	35	200	6	3	7	2	5	3	1450	9.21
Squacco Heron	<i>Ardeola ralloides</i>	4	8	11	5	45	12	2	3	3	1	-	94	0.59
Cattle Egret	<i>Bubulcus ibis</i>	3	-	-	-	-	-	-	-	-	-	-	3	0.01
Little Bittern	<i>Ixobrychus minutus</i>	-	-	1	1	5	1	1	-	-	-	-	9	0.05
Night Heron	<i>Nycticorax nycticorax</i>	-	-	-	-	1	1	-	-	-	-	-	2	0.01
White stork	<i>Ciconia ciconia</i>	3	-	18	-	30	-	-	20	-	-	-	71	0.45
Glossy ibis	<i>Plegadis falcinellus</i>	-	-	183	5	158	-	1	-	-	-	10	357	2.26
Spoon bill	<i>Platalea leucorodia</i>	-	-	-	-	3	-	-	-	-	-	-	3	0.01
Greater flamingo	<i>Phoenicopterus ruber</i>	2	-	-	-	-	-	-	-	-	-	-	2	0.01
Grey Lag-Goose	<i>Anser anser</i>	2475	300	-	-	-	-	-	-	-	-	30	2805	17.8
Shelduck	<i>Tadorna tadorna</i>	4	4	-	-	-	-	-	-	-	-	-	8	0.05

Wigeon)	<i>Anas penelope</i>	15	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47	0.29
Teal	<i>A. crecca</i>	105	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	1.23
Gadwall	<i>A. strepera</i>	335	130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	465	2.95
Shoveler	<i>A. clypeata</i>	140	38	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	183	1.16
Marbled Teal	<i>Marmaronetta angustirostris</i>	30	25	21	12	4	-	-	-	-	-	-	-	-	-	-	-	-	-	93	0.59
Moorhen	<i>Gallinula chloropus</i>	118	120	67	7	18	3	-	-	-	-	-	-	-	-	-	-	-	-	333	2.11
Coot	<i>Fulica atra</i>	25	35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60	0.38
Purple Gallinule	<i>Porphyrio porphyrio</i>	15	2	1	1	8	-	-	-	-	-	-	-	-	-	-	-	-	-	28	0.17
Black-winged stilt	<i>Imantopus himantopus</i>	96	5	132	40	350	16	22	26	40	18	35	780	4.95	-	-	-	-	-	-	-
Avocet	<i>Recurvirostra avosetta</i>	465	220	-	-	-	-	-	-	-	6	-	-	4.38	-	-	-	-	-	691	4.38
White-tailed plover	<i>Chettusia leucura</i>	4	15	35	17	80	13	4	10	3	3	-	1.16	-	-	-	-	-	-	184	1.16
Red-wattled plover	<i>Hoplopterus indicus</i>	2	2	4	2	20	18	6	16	2	1	73	0.46	-	-	-	-	-	-	-	-
Spur-winged plover	<i>Hoplopterus spinosus</i>	-	-	-	-	3	14	-	4	-	-	-	0.13	-	-	-	-	-	-	21	0.13
Caspian plover	<i>Charadrius asiaticus</i>	-	-	-	-	-	-	-	12	-	-	-	0.07	-	-	-	-	-	-	12	0.07
Kentish plover	<i>C. alexandrinus</i>	220	150	55	200	35	20	60	32	27	16	13	828	5.25	-	-	-	-	-	8	0.05
Ringed plover	<i>C. hiaticula</i>	-	-	-	8	-	-	-	-	-	-	-	0.05	-	-	-	-	-	-	8	0.05
Little-ringed Plover	<i>C. dubius</i>	-	-	-	13	-	-	-	7	2	6	-	0.17	-	-	-	-	-	-	28	0.17
Dunlin	<i>Calidris alpina</i>	450	125	75	30	-	-	-	15	3	6	-	4.41	-	-	-	-	-	-	695	4.41
Little stint	<i>C. minuta</i>	250	275	60	-	-	-	-	15	3	6	1	3.87	-	-	-	-	-	-	610	3.87
Redshank	<i>Tringa totanus</i>	-	7	12	-	-	-	-	-	-	4	3	0.16	-	-	-	-	-	-	26	0.16
Greenshank	<i>T. nebularia</i>	-	-	-	-	-	-	-	2	-	2	1	0.03	-	-	-	-	-	-	5	0.03
Wood sandpiper	<i>T. glareola</i>	-	-	-	20	-	-	-	6	8	-	-	0.21	-	-	-	-	-	-	34	0.21

Common sandpiper	<i>Actitis hypoleucos</i>	-	-	-	1	-	2	4	1	-	-	-	8	0.05
Curllew sandpiper	<i>Cathartes ferruginea</i>	-	-	-	-	-	-	-	1	-	-	-	1	0.006
Ruff	<i>Philomachus pugnax</i>	4	45	950	15	1	-	-	-	-	-	-	1015	6.44
Black – tailed Godwit	<i>Limosa limosa</i>	880	200	3	-	-	-	-	-	-	-	12	1095	6.95
Common snipe	<i>Gallinago gallinago</i>	-	-	6	-	-	-	-	-	-	-	-	6	0.03
Collared pratincole	<i>Glareola pratincola</i>	-	-	23	250	275	173	21	-	-	-	-	742	4.71
Common gull	<i>Larus canus</i>	1	-	-	-	-	-	-	-	-	-	-	1	0.006
Little gull	<i>L. minutus</i>	1	-	-	-	-	-	-	-	-	-	-	1	0.006
Great black headed gull	<i>L. ichthyæetus</i>	-	1	-	-	-	-	-	-	-	-	-	1	0.006
Black headed gull	<i>L. ridibundus</i>	-	-	-	2	-	-	-	-	-	-	-	2	0.01
Armenian gull	<i>L. armenicus</i>	-	-	-	-	-	-	-	8	8	2	-	18	0.11
Slender – billed gull	<i>L. genei</i>	88	180	110	12	140	26	33	162	135	85	45	1018	6.16
Common Tern	<i>Sterna hirundo</i>	-	15	3	-	2	-	3	-	-	-	-	23	0.14
Little Tern	<i>S. albifrons</i>	-	-	1	2	65	4	5	3	-	-	-	80	0.50
Caspian Tern	<i>S. caspia</i>	-	-	-	-	-	-	-	-	3	-	-	3	0.01
Whiskered Tern	<i>Chlidonias hybridus</i>	36	23	48	15	60	22	12	26	5	7	8	262	1.66
White – winged black Tern	<i>C. leucopterus</i>	-	-	2	1	1	7	8	8	-	-	-	27	0.17
Common kingfisher	<i>Alcedo atthis</i>	1	-	-	-	-	-	-	-	-	-	-	1	0.006
White breasted kingfisher	<i>Halcyon smyrnenis</i>	2	3	2	-	-	-	-	-	1	-	-	9	0.05
Pied kingfisher	<i>Ceryle rudis</i>	45	45	16	5	12	8	7	9	2	3	17	124	
Total		6099	2195	2312	1442	1633	459	360	451	370	221	200	15742	

Tab.(2):Number of species of other birds (non aquatic) species recorded in Al-saffia sanctuary.

English name	Scientific name
Marsh Harrier	<i>Circus aeruginosus</i>
Greater spotted eagle	<i>Aquila clanga</i>
Kestrel	<i>Falco tinnunculus</i>
Lesser kestrel	<i>F. naumanni</i>
Black francolin	<i>Francolinus francolinus</i>
Houbara Bustard	<i>Chlamydotis undulata</i>
Collared Dove	<i>Streptopelia decaocto</i>
Palm Dove	<i>S. senegalensis</i>
Blue-cheeked Bee-eater	<i>Merops superciliosus</i>
Indian Roller	<i>Coraccias benghalensis</i>
Hoopoe	<i>Upupa epops</i>
Crested Lark	<i>Galerida cristata</i>
Sand Martin	<i>Riparia riparia</i>
Barn swallow	<i>Hirundo rustica</i>
White Wagtail	<i>Motacilla alba</i>
Yellow Wagtail	<i>M. flava</i>
Grey Wagtail	<i>M. cinerea</i>
White-Cheeked Bulbul	<i>Pycnonotus leucogenys</i>
Bush Robin	<i>Cercotrichas galactotes</i>
Robin	<i>Erithacus rubecula</i>
Stonechat	<i>Saxicola torquata</i>
Isabelline Wheatear	<i>Oenanthe isabellina</i>
Desert Wheatear	<i>O. deserti</i>
Graceful prinia	<i>Prinia gracilis</i>
Basra Reed warbler	<i>Acrocephalus griseldis</i>
Great Reed warbler	<i>A. arundinaceus</i>
Iraq Babbler	<i>Turdoides altirostris</i>
Red-backed Shrike	<i>Lanius collurio</i>
Isabelline Shrike	<i>L. isabellinus</i>
Great Grey Shrike	<i>L. excubitor</i>
Woodchat Shrike	<i>Lanius senator</i>
Hooded Crow	<i>Corvus corone cornix</i>
Starling	<i>Sturnus vulgaris</i>
House Sparrow	<i>Passer domesticus</i>
Rock Thrush	<i>Monticola saxatilis</i>

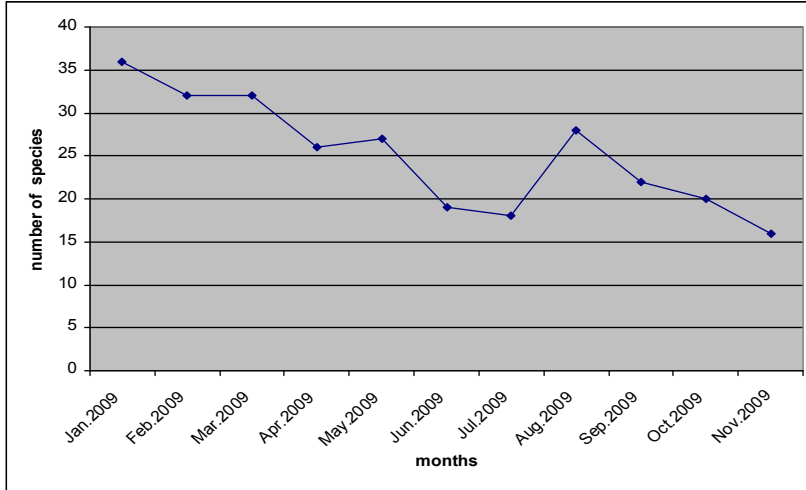


Fig.(2) Monthly changes in number of species recorded in Al- Saffia sanctuary during monitoring period.

Fig (2) showed the monthly changes in number of species recorded in AL- saffia sanctuary, the highest number of species (36) were recorded in January 2009, the lowest number of species (16) were recorded in November 2009.

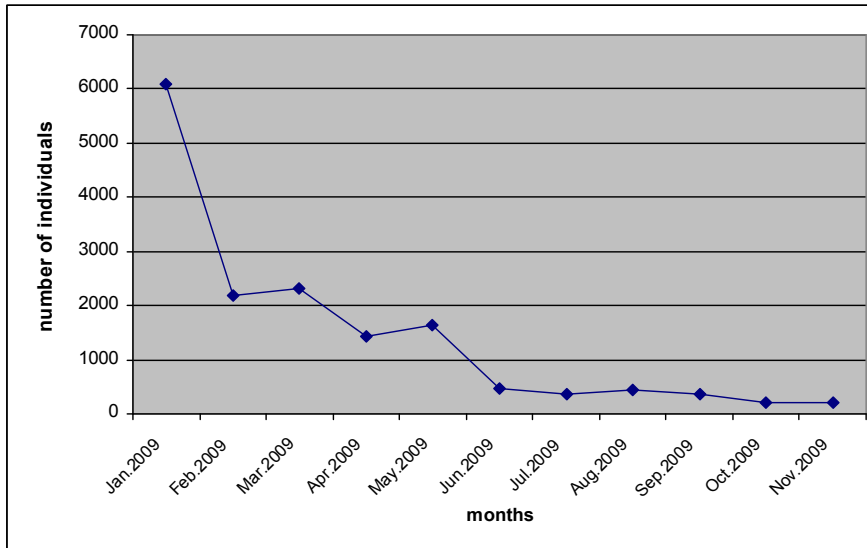


Fig.(3) Monthly changes in number of individuals recorded in Al-Saffia sanctuary during monitoring period.

Fig (3) illustrated the monthly changes in number of individuals in sanctuary, the highest number (6099) was recorded in January 2009 while the lowest number (200) was recorded in November 2009.



Plate(1) Al-saffia sanctuary before drought



Plate (2) Al-saffia sanctuary in begning drought



Plate (3) Al-saffia sanctuary during the drought



Plate (4) flock of Grey Lag-Goose *Anser anser*

5- Discussion

Iraqi southern marshes extended to vast area with mild weather during winter season on top of that occupied strategic geographical situation where it is the flying route for several migrating species consequents the Iraqi marshland was the resting area for these migrating species especially at spring and autumn migration season (Al-Robaae, 1998).

The drought effect marshes of Al-saffia sanctuary especially aquatic plants and fishes were represent the main food resources for migratory and passing waterbirds, beside the effect of illegal fishing.

Out of 278 birds species recorded in lower mesopotamia only 134 species were depend on marshes habitat and occur their in significant number (Scott, 1995).

The water level during 2006 – 2008 season was reached 3 meters then started to decrease sharply due to the cut of Al-Karkah river from Iran.

The number of species reach the peak in January 2009 and then decrease gradually to November 2009 except in August 2009 due to increase in numbers of waders species, since several species move to this area in late July and early August (Allouse, 1961).

The decrease of numbers of species during autumn could be due to the drought and reduce of water level which led several

species to departure to the other marshes which contain water especially those prefer open water like (ducks, cormorants and coots) on the other hand increase in numbers of waders species (20 species) in comparison with Habeeb, (2008) recorded eleven species only, because the waders prefer shallow waters and muddy flats more than deep waters (Allouse, 1961). However Abed, (2007) recorded thirteen waders species in Al- Huwaza marsh.

The reduction of water level was followed by decrease in number of species of Anseriformes seven species were recorded in comparison with 14 previous recorded by Abed, (2008a) in Al- Huwaza and Al- Hammar marshes.

The number of individuals of pygmy cormorant *Phalacrocorax pygmaeus* were decrease sharply during the period of the survey were only 170 individuals recorded while it was much lower than previously recorded during (2007 – 2008) were 6826 individuals (Habeeb, 2008). During that period Al- saffia sanctuary consider as the one of best place for pygmy Cormorant. this reduction in numbers could be due to the reduction of water level, in addition this species prefer marshes with freshwater or oligosalin, thick growth of common reeds beside open water (Crivelli *et al.* 2008). Such this conditions were disappeared from sanctuary.

The low water level abolished the ability of Al-saffia sanctuary to attract waterbirds, were noticed through the reduction in numbers of some residents species like (Marbled Teal, Moorhen, Little Grebe, Squacco heron and Little Egrete) during the last six months of the survey could be due to the migration to the other marshes with better food resources. Thirty five other birds (non aquatic) species recorded by accident on the vegetation cover of sanctuary, Table (2) .

6- Acknowledgements

Our deep thanks goes to Basrah Agriculture directorate / Dept. of Marshlands development and the staff of Al- saffia sanctuary for this collaboration to execute this study . Our especial thanks goes to Mr. Ali Hadi for his field assistant to the team.

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التأثير السلبي للجفاف على تركيب مجتمع الطيور المائية في محمية الصابية

خلف حنون الربيعي و مهنا قاسم حبيب

قسم علوم الحياة - كلية العلوم - جامعة البصرة - البصرة - العراق

الخلاصة

سجل واحد وستون نوعاً من الطيور المائية في محمية الصافية خلال فترة المسح من كانون الثاني ٢٠٠٩ إلى تشرين الثاني ٢٠٠٩ في حين بلغت أعداد الطيور ١٥٧٤٢ طائر. أظهرت النتائج أن هناك تسعة أنواع من الطيور المائية قد شكلت نسبة (٦٦%) من الوفرة العددية للطيور المسجلة في محمية الصافية وهي على التوالي (الوزالارد، البيوضي الصغير، البقويقة سوداء الذيل، النورس مستدق المنقار، الحجولة، الزقزاق الاسكندراني، ابوالمغازل، أبو اليسر المطوق والنكات). إذ لوحظ سيادة الطيور الخواضة على بقية المجاميع خلال هذه الدراسة. من الواضح أن انحسار المياه (الجفاف) في محمية الصافية أثر سلباً على وضع الطيور المائية فيها إذ أظهرت النتائج أن هناك انخفاض تدريجي في أنواع واعداد الطيور وخاصة في السنة الأخيرة من فترة المراقبة بعد اقتصار المحمية على بعض البرك المائية المحدودة اثر تعرضها للجفاف مما أدى الى اختفاء بعض الانواع المستوطنة.