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MARSH BULLETIN

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Restoration rate of waterfowl population in the restored marshes, southern Iraq

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Abstract

Three marshes in southern Iraq (Huwayzah, Suq Shuyukh and East Hammar) were monitored for more than two years (June 04 till August 06). Seventy-eight species were recorded in the three marshes, 69, 60, 59 species were recorded in Huwayzah, Suq Shuyukh and East Hammar respectively, during the first year 64 species was recorded, 58, 46, 30 species in the three marshes respectively, while in the second year 74 species were recorded, 62 species were recorded in Huwayzah marsh and 53 species were recorded in Suq Shuyukh and East Hammar.

There was increment in number of birds count between the two year in the three marshes, percentage of increment where 3.51, 3.01, 4.25 respectively, Comparison of total number of waterfowls surveyed between the three marshes, Huwayzah marsh came first followed by East Hammar and Suq Shuyukh, number of birds in Huwayzah marsh was 5.30 time the number of birds in Suq Shuyukh marsh and 3.47 time the number of birds in East Hammar marsh. The restoration index for number of species was 59.5% which means there were more than 40% of water birds that did not return, and for number of individuals was 19%.

1-Introduction

The marshes of southern Iraqi were the largest wetlands of Middle East. These marshes were considered as feeding, resting and nesting area for many residents and migratory water birds (Allouse, 1960 and 1961; Scott and Carp, 1982). Birdlife International has also identified the Mesopotamia marshes of Iraq as an "Endemic Bird Area" i.e. an important concentration of bird biodiversity where habitat destruction would cause disproportionately large number of species extinctions (ICBP, 1992). Birdlife International identified Huwayzah and Hammar marshes as "Important

Bird Areas" and as sites 36 and 39 respectively (Evans, 1994).

Several surveys were done on water birds in some marshes of Mesopotamia. During the seventies of the last century Georg and Vielliard (1970); Koning and Dijksen (1973); Carp (1975); Scott and Carp (1982), Scott (1995) surveyed extensively the middle and southern marshes. Al-Robaae (1986 and 1994) showed the occurrence and abundance of water birds in the vicinity of Basrah. After desiccation of the marshes during the early nineties Salem (1995) and Al-Robaae and Salem (1996) were surveyed three swamps in Basrah and Razzaza lake in middle of Iraq for ducks during 1993-1994 migratory season. Abed (2005) was surveyed water birds in three fish farms in Basrah and Babylon.

Study Area

Huwayzah marsh is situated to the east of Tigris river, this marsh and its associated marshes extended for about 80 Km from north to south and 30 Km from east to west. A small portion of the marsh extended over the border in Iranian territory, where it is known as haur Al Azim. The wetland is fed by floodwater from the river Tigris in the west; it is bordered in the north by the Musharra canal and in the south by Shatt AL Arab river.

Hammar marsh; its surrounding marshes and neighboring marshes and areas of temporary inundation comprise some 3500 sq Km of almost contiguous wetland habitat south of the lower Euphrates river and west of Shatt Al Arab. The marsh itself is the largest in the lower Euphrates, approximately 120 Km long by up to 25 Km wide. It is bordered in the north by Euphrates, in the west by the southern desert and in the east by Shatt Al Arab.

Two sites in each monitored marsh were chosen to survey the water birds. in Huwayzah marsh were Um Alnaaj, GPS reading (N: 31 38 30, E: 47 35 21) and Taraba, GPS reading (N: 31 29 48, E: 47 31 48), Suq Shuyukh were Amia, GPS reading (N: 30 51 41, E: 46 38 13)) and Al wineas, GPS reading (N: 30 51 50, E: 46 40 42), and in East-Hammar Burkah, GPS reading GPS reading (N: 30 40 22, E: 47 33 03) and Saddah GPS reading (N: 30 40 04, E: 47 38 06). Water birds were surveyed along the two site of each marsh (map).

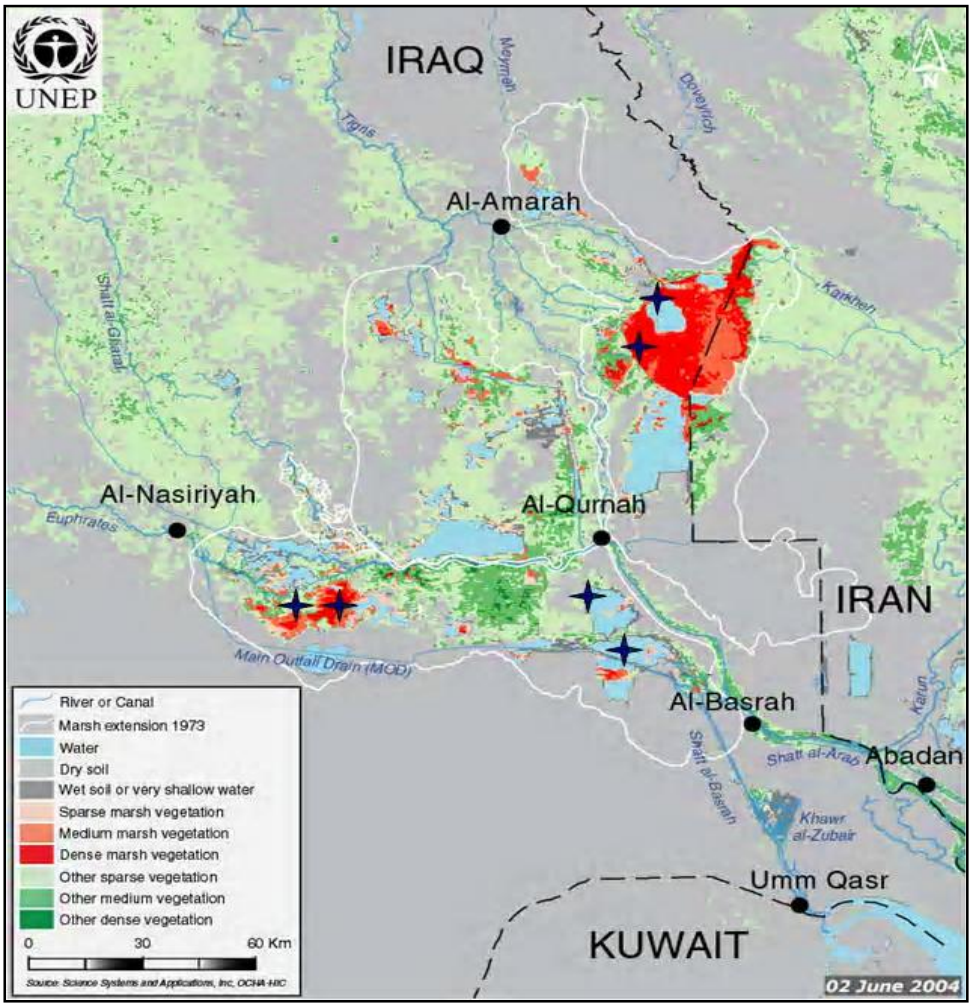
2-Materials and Methods

Field Observation

Survey and identification of different species were recorded monthly by using binocular. Count was made for number of individual of each species. Visiting nesting sites was made during spawning season.

Laboratory working

Classified list was made monthly for each monitored marsh consist the scientific name, number and numerical abundance of the observed birds. Identification of waterfowls was made according to Allouse (1960, 1961) and Porter *et al.*(1996).



Map showing the sites in Iraqi southern marshes which have been monitored.

3-Results

The results obtained of waterfowls survey in Huwayzah, Suq Shuyukh and East Hammar marshes from June 2004 till August 2006, Fig. (1) showed number of species recorded in Huwayzah marsh, peak (37) was seen in February 06. Number of species recorded in Suq Shuyukh marsh appeared in fig.(2) peak was (25) recorded in December 05.

Fig. (3) showed number of species was seen in East Hammar marsh, there was a fluctuation in number of birds species recorded, peak (25) was seen in September 05.

Fig.(4) exhibits a number of individuals recorded in Huwayzah marsh, this was highly increased in 2006 year and peak (6890) was recorded in December 05, there was no sampling in February and June 05.

Fig.(5) showed number of individuals recorded in Suq Shuyukh marsh, 2006 year showed an increase in number of birds individuals and reached the peak 875 individuals in September 06, there was no sampling in June 05.

Fig.(6) illustrated a number of individuals recorded in East Hammar marsh, there was a fluctuation in number of birds mainly at second period and peak was 2222 individuals was recorded in March 06.

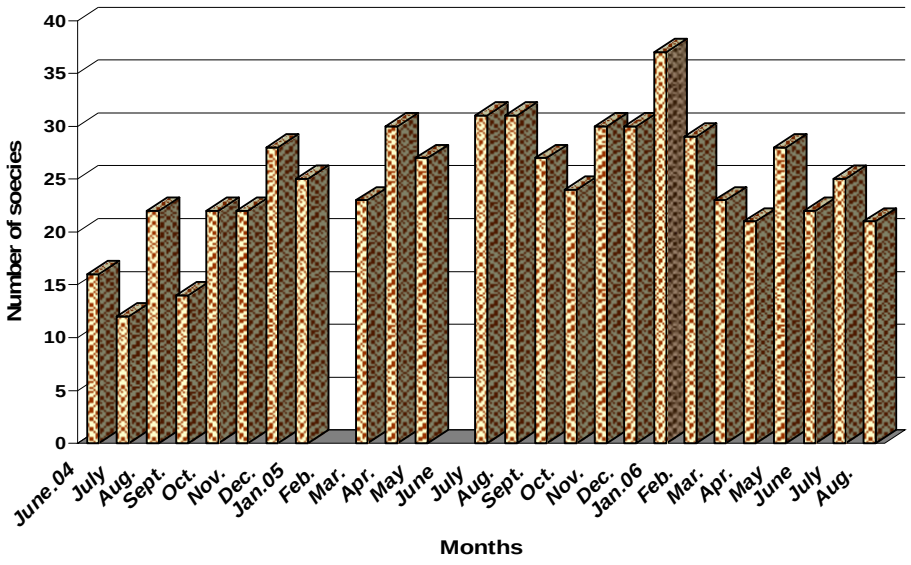


Fig.(1): Number of species recorded in Huwayzah marsh.

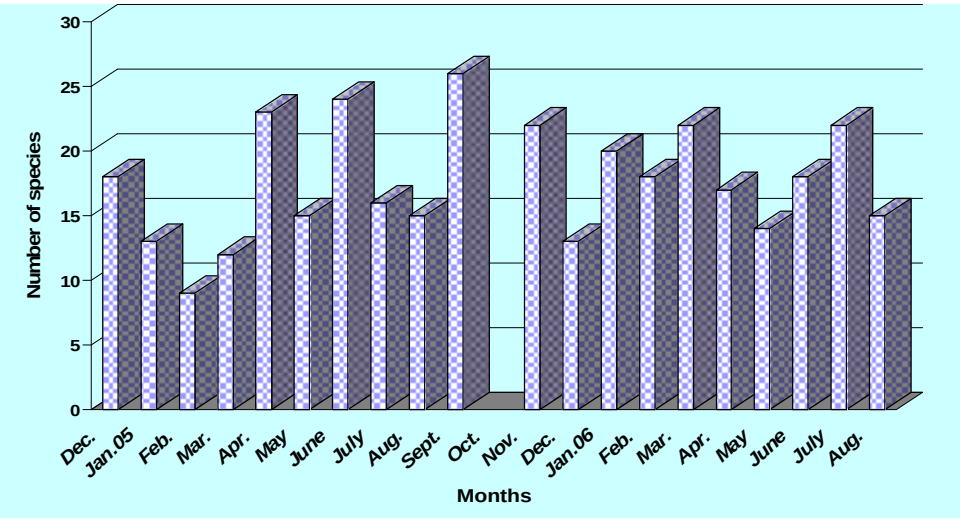


Fig.(3): number of species recorded in East Hammar marsh.

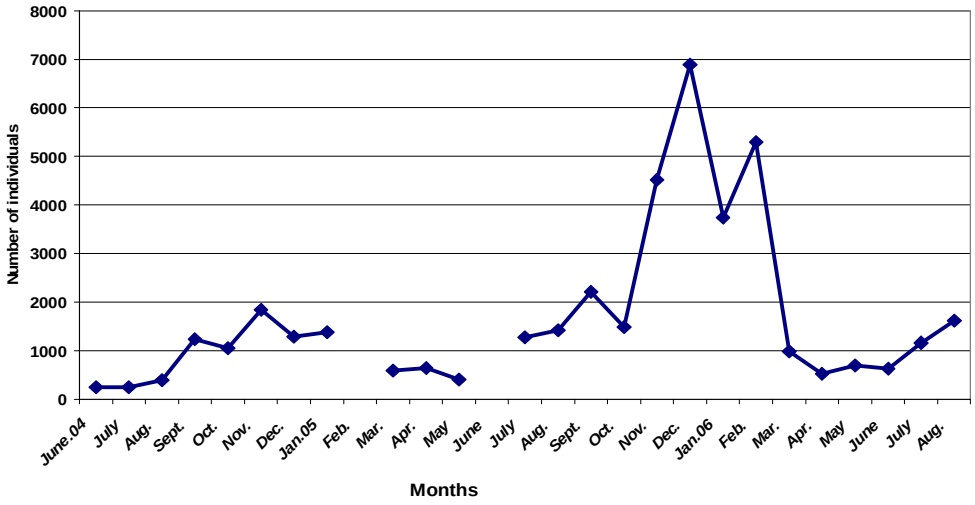


Fig.(4): Number of individuals recorded in Huwayzah marsh.

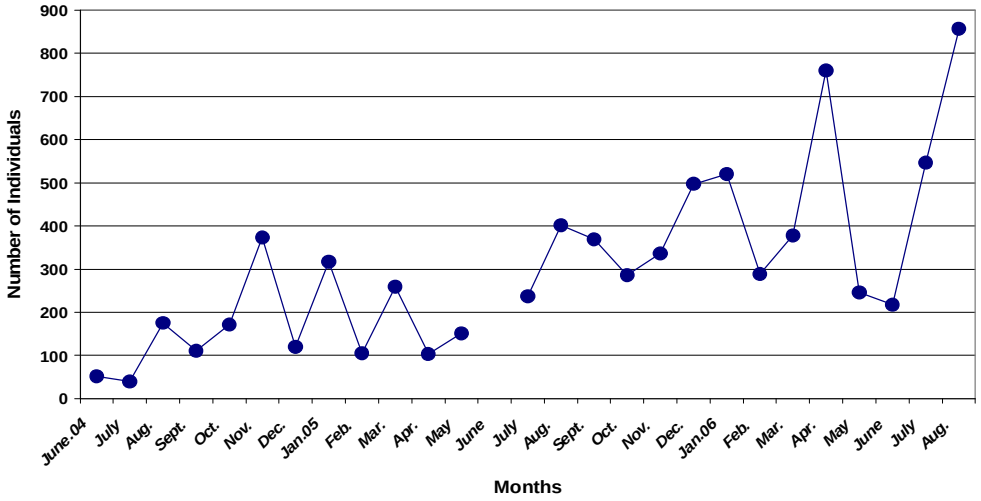


Fig.(5): Number of individuals recorded in Suq-shuyukh marsh.

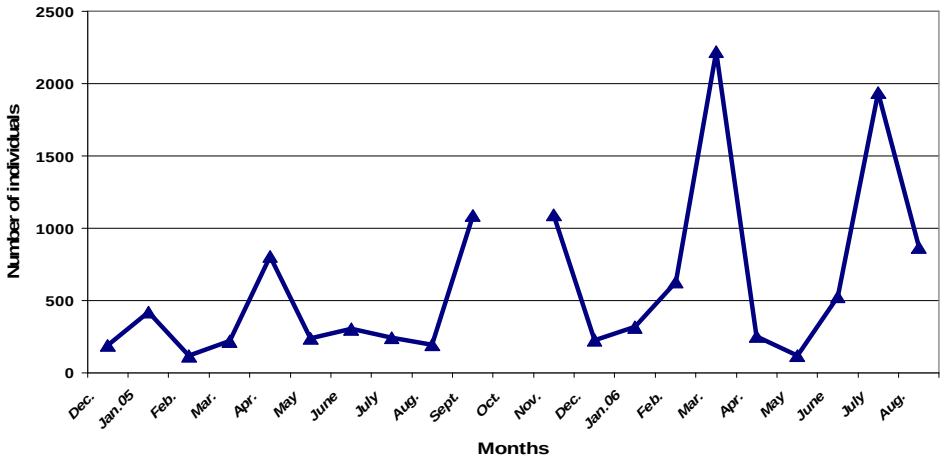


Fig.(6): Number of individuals recorded in East Hammar marsh.

Fig.(7 and 8) showed avifauna percentage individuals in each order in Huwayzah marsh in first and second year respectively. In first year Pelecaniformes occupied the first rank followed by Ciconiiformes and Charadriiformes, while in second year Ralliformes came first and followed by Pelecaniformes and Anseriformes.

Fig.(9 and 10) appeared avifauna percentage individuals in each order in Suq Shuyukh marsh in first and second year respectively. Ciconiiformes occupied first rank, and followed by Charadriiformes and Coraciiformes in the first year, while in second year Charadriiformes came first, and followed by Ciconiiformes and Coraciiformes.

Fig. (11 and 12) showed avifauna percentage individuals in each order in East Hammar marsh in first and second year respectively. Charadriiformes occupied first rank followed by Ciconiiformes and which contain more than 90% of birds individuals population in this marsh in the two period.

Similarity and dissimilarity of species in the three marshes

Seventy eight species were recorded in the surveyed marshes during the two periods of survey, forty seven species were seen in all marshes: grey heron, purple heron, squacco heron, little egret, great white heron, cattle egret, bittern, little bittern, glossy ibis, night heron, pied kingfisher, common kingfisher, white breasted kingfisher, pygmy cormorant, little grebe, black neck grebe, moorhen, coot, purple gallinule, spotted crake, mallard, marbled teal, teal, shoveler, gargany, wigeon, gadwall, tufted duck, common gull, black headed gull, little gull, slender billed gull, little tern, common tern, whiskered tern, white check tern, white winged black tern, redshank, black winged stilt, whit tailed plover, redwattled plover, black tern, armenian gull, marsh sandpiper, kentish plover, common snipe and little stint.

Nine species were common in Huwayzah and Suq Shuyukh marshes: spoon bill, sacred ibis, greylag goose, pochard, black tailed godwit, ruff, dunlin, avocet and green sandpiper, five species were observed in both Huwayzah and East Hammar: white stork, herring gull, caspian tern, great black headed gull and greenshank, gull billed tern and collared pratincole were seen in Suq Shuyukh and East Hammar marshes.

Other species of birds were appeared in one marsh only, eight species were occurred in Huwayzah marsh: black cormorant, darter, goliath heron, pintail, ferruginous duck, scup, flamingo and spur winged plover, five species were observed East Hammar dalmatian pelican, little ringed plover, wood sandpiper, timmincks stint and swift tern, while crested grebe and red crested pochard were seen in Suq Shuyukh marsh.

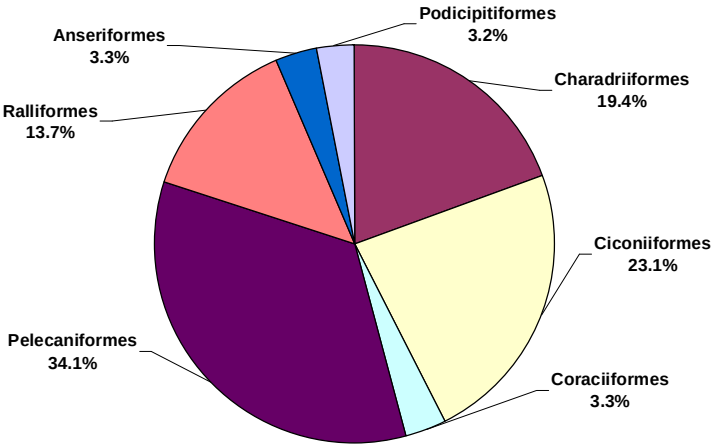


Fig.(7): Avifauna as percentage of individuals in each order in Huwayzah marsh in first year.

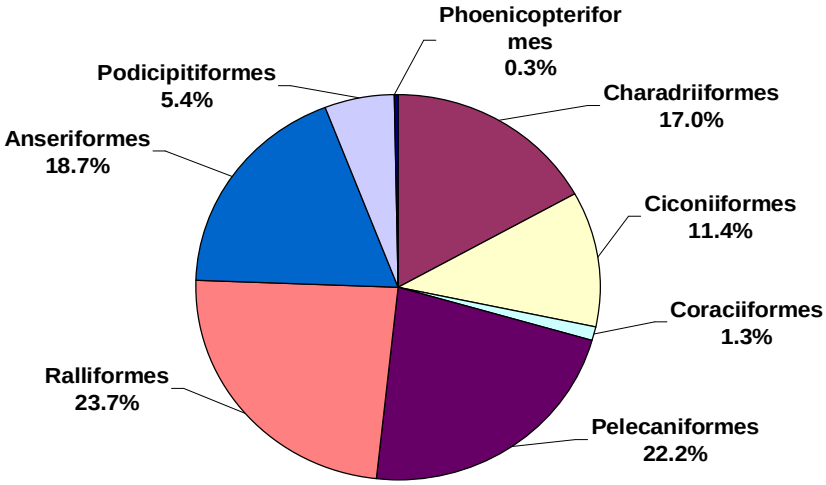


FIg.(8): Avifauna as percentage of individuals in each order in Huwayzah marsh in second year.

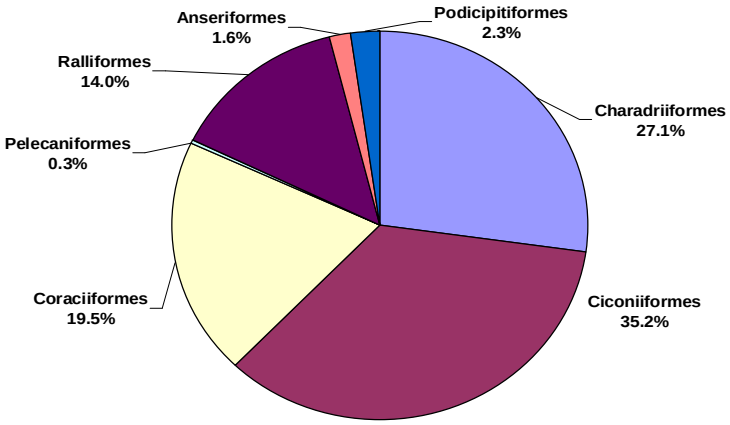


Fig.(9): Avifauna as percentage of individuals in each order in Suq Shuyukh marsh in first year.

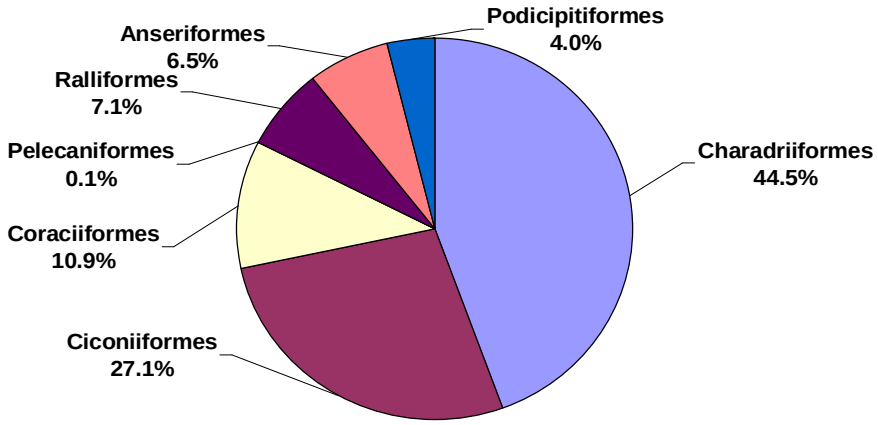


Fig.(10): Avifauna as percentage of individuals in each order in Suq Shuyukh marsh in second year.

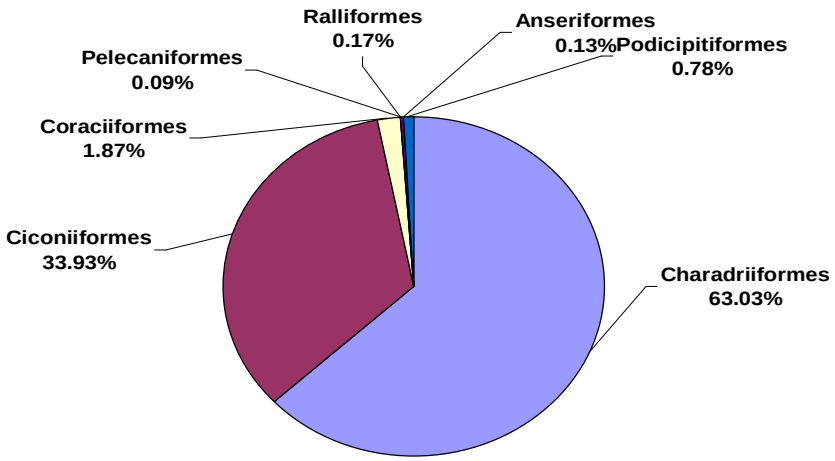


Fig.(11): Avifauna as percentage of individuals in each order in East Hammar marsh in first year.

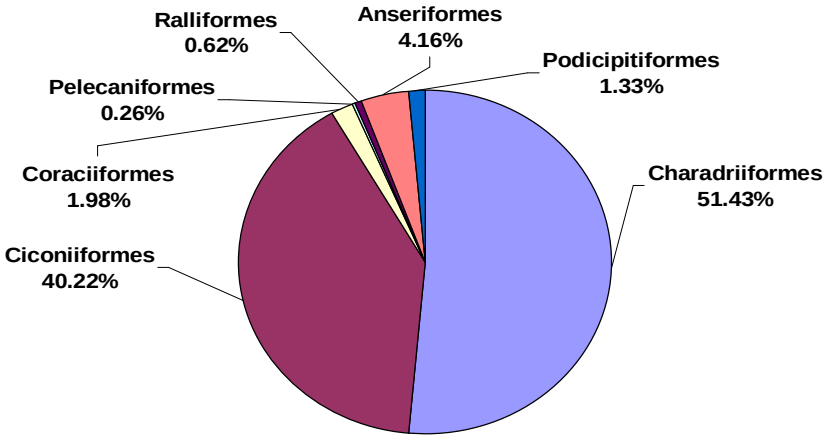


Fig.(12): Avifauna as percentage of individuals in each order in East Hammar marsh in second year.

4-Discussion

The recent survey recorded 78 species occurred in the three monitored marshes during the two years (2004-2006) of survey, there was a list of waterfowls after being restored the marshes by Abed (2007), previous surveys in the marshes of lower Mesopotamia during the fifties and seventies of the last century (table1), Allouse (1960,1961) published a book about birds of Iraq; 131 of them are water birds species, Georg and Vielliard (1970) recorded 55 species, Koning and Dijksen (1973) in December 1972 observed 58 species. in January/ February 1975 Carp (1975) recorded 45 species. The most extensive survey in January 1979, Scott and Carp (1982) 79 species were recorded, therefore our survey agreed with the last survey although, some of species did not appear in the monitored marshes.

Table (1): Number of species(S) and individuals (N) recorded in previous surveys.

Order	Allouse 1960, 1961	Georg and Vielliard ,1970		Koning and Dijksen.1973		Carp ,1975		Scott and Carp ,1982	
	S	S	N	S	N	S	N	S	N
Podicipitiformes	3	1	19	2	17	1	16	3	49
Pelecaniformes	6	3	560	4	1360	4	1739	4	3406
Ciconiiformes	16	8	850	7	803	7	429	13	3241
Phenicopteriformes	1	1	735	1	874	-	-	1	1857
Anseriformes	26	11	26693	15	131609	8	49389	17	157749
Ralliformes	10	4	3648	3	14096	2	37527	6	128253
Charadriiformes	66	27	26873	26	4130	22	1784	35	30047
Coraciiformes	3	-		-		-		-	
Total	131	55	59378	58	152889	44	88700	79	324602

In general, number of individual's birds which was seen in Huwayzah, Suq Shuyukh and East Hammar in the first year were (9287, 1979 and 2302) and second year (32620, 5939 and 9780) respectively, were less than the previous surveys, Georg and Vielliard (1970) saw 59378 waterfowl. Koning and Dijksen (1973) recorded 152889 waterfowl. Carp (1975) saw 88700 waterfowl, and Scott and Carp (1982) recorded 324602 waterfowl

Table (2) showed water birds listed by Allouse (1960, 1961) and did not appear in the present survey; some of these (22 species) occurred in previous surveys

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Table(2):Comparison of species listed by Allouse(1960, 1961) and previous surveys did not appeared in the present survey. (G and V)Georg and Vielliard, 1970 ;(K and D) Koning and Dijksen.1973 ;(C) Carp ,1975;(SandC) Scott and Carp, 1982; (S) Scotts 1995

English name	Scientific name	G and V	K and D	C	S and C	S
White pelican	*Pelecanus onocrotalus*	+	+	+	+	+
Shag	*Phalcrocorax aristotelis*	-	-	-	-	-
Reef heron	*Egretta gularis*	-	-	-	-	-
Black stork	*Ciconia nigra*	-	-	-	-	-
Falcated teal	*Anas falcate*	-	-	-	-	-
Goldeneye	*Bucephala clangula*	-	-	-	-	-
White-headed duck	*Oxyura leucocephala*	-	+	-	-	+
Red-breasted merganser	*Mergus serrator*	-	-	-	-	-
Goosander	*Mergus merganser*	-	-	-	-	-
Smew	*Mergus albellus*	-	+	-	+	+
Shelduck	*Tadorna tadorna*	+	+	-	+	+
Ruddy shelduck	*Tadorna ferruginea*	+	+	+	+	+
White-fronted goose	*Anser albifrons*	+	+	-	+	-
Lesser white-fronted goose	*Anser erythropus*	-	+	-	-	-
Red-breasted goose	*Branta ruficollis*	-	-	-	-	-
Mute swan	*Cygnus olor*	-	-	-	-	-
Common crane	*Grus grus*	+	+	+	+	+
Demoiselle crane	*Anthropoides virgo*	-	-	-	-	-
Water rail	*Rallus aquaticus*	+	-	-	+	+
Corncrake	*Crex crex*	-	-	-	-	-
Little spotted crake	*Porzana pusilla*	-	-	-	+	+
Little crake	*Porzana parva*	-	-	-	-	-
Oyster-catcher	*Haemantopus ostralegus*	-	-	-	-	-
Sociable plover	*Chettusia gregaria*	-	-	-	-	-
Lapwing	*Vanillus vanillus*	+	+	+	+	+
Ring plover	*Charadrius hiaticula*	+	+	-	+	+
Large sand plover	*Charadrius leschenaultii*	-	-	-	+	+
Caspian plover	*Charadrius asiaticus*	-	-	-	-	-
Dotterel	*Charadrius morinellus*	-	+	-	-	-
Golden plover	*Charadrius apricaria*	-	-	-	-	-

English name	Scientific name	G and V	K and D	C	S and C	S
Asiatic golden plover	*Pluvialis dominica*	-	-	-	-	-
Grey plover	*Pluvialis squatarola*	-	-	-	+	+
Turnstone	*Arenaria interpres*	-	-	-	-	-
Woodcock	*Scolopax rusticola*	-	-	-	-	-
Great snipe	*Gallinago media*	-	-	-	-	-
Jack snipe	*Lymnocryptes minimus*	+	-	+	+	+
Common curlew	*Nnmenius arquata*	-	-	-	+	-
Whimbrel	*Nnmenius phaeopus*	-	-	-	-	-
Slender-billed curlew	*Nnmenius tenuirostris*	-	-	-	+	+
Bar-tailed godwit	*Limosa lapponica*	-	-	-	-	-
Common sandpiper	*Tringa hypoleucos*	+	+	-	+	+
Spotted redshank	*Tringa erythropus*	+	+	+	+	+
Terek sandpiper	*Tringa cinerea*	-	+	-	-	+
Curlew sandpiper	*Calidris ferruginea*	-	-	-	+	-
Broad-billed sandpiper	*Linicola falcinellus*	-	-	-	-	-
Sanderling	*Calidris alba*	-	-	-	-	-
Red-necked phalarope	*Phalaropus lobatus*	-	-	-	-	-
Grey phalarope	*Phalaropus fulicarius*	-	-	-	-	-
Crab plover	*Dromas ardeola*	-	-	-	-	-
Black-wnnged pratincole	*Glareola nordmanni*	-	-	-	-	--
Lesser black backed gull	*Larus fuscus*	-	-	-	-	-
Bridled tern	*Sterna anaethetus*	-	-	-	-	-
Lesser crested tern	*Sterna bengalensis*	-	-	-	-	-

The pygmy cormorant *Phalacrocorax pygmeus* was formerly a common resident, breeding in some of the marshes mainly in Huwayzah marsh, numbers of individuals observed were 3020 and 7114 individuals in the first and second year of survey respectively, showing a doubling in the number of individuals and indicating that restoration was take place. For this species prefer Huwayzah marsh to the other monitored marshes, showing a territorial preference.

The Dalmatian pelican *Pelecanus crispus* is a common winter visitor, and probably also a resident breeding species. Pelicans are known to have bred in the marshes(Scott,1995), but it is not known which of two species is involved,

although *Pelecanus crispus* is the more likely, but during our survey a flock of 25 birds of this species was noticed in East Hammar in November 05, while Scott and Carp (1982) were recorded 3300 pelicans, therefore this species did not retain its previous abundance in the marshes.

The lake and marshes of the lower Mesopotamia are one of the most important wintering areas for migratory waterfowl in western Eurasia. Georg and savage (1970) believed that Huwayzah and Hammar marshes probably provide habitat for 2/3 of the wintering waterfowl of the Middle East.

Avifauna as percentage of individuals in each order in the surveyed marshes had appeared in fig.(7-12), in Huwayzah marsh Pelecaniformes occupied the first rank followed by Ciconiiformes in first year while Ralliformes came first followed by Pelecaniformes in the second year, in Suq Shuyukh Ciconiiformes occupied first rank, followed by Charadriiformes, in first year and vise verse in second year, while in East Hammar marsh Charadriiformes occupied first rank, followed by Ciconiiformes in the two years.

Georg and Vielliard (1970) found Charadriiformes occupying first rank followed by Anseriformes, Koning and Dijksen (1973); Scott (1995) found Anseriformes occupying first rank, followed by Ralliformes while carp (1975) was found Ralliformes occupying first rank, followed by Anseriformes. From previous surveys Anseriformes and Ralliformes comprised more than 94% of birds' populations in individuals, Ciconiiformes in all previous surveys did not exceed 2% of birds' populations in individuals.

Threatened species were goliath heron, darter, sacred ibis and these species were seen in very few numbers during period of survey, mainly goliath heron.

The restoration index for number of species according to list of Allouse (1960, 1961) was 59.5% which means there were more than 40% of water birds that did not return, and for number of individuals according to Scott and Carp (1982) was 19%, and in the first year was 4.8 % and in second year was 14.9 %, which means there was a development in marshes after restoration, but in general the southern marshes do not maintain their functions to attract waterfowls as species and individuals during the period from Jun 2004 to August 2006.

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معدل استرجاع مجتمع الطيور المائية في الأهوار المعاد تـــأهيلها، جنوب العراق

جاسم محسن عبد
قسم الأسماك والثروة البحرية/ كلية الزراعة/ جامعة البصرة

الملخص

لقد مسحت كل من أهوار الحويزة وسوق الشيوخ وشرق الحمار ولمدة أكثر من سنتين من حزيران 2004 ولغاية آب 2006، وشملت الدراسة التعرف على واقع الطيور المائية ومسحها في الأهوار الثلاثة بعد إعادة تأهيلها.

كان عدد الأنواع الكلي للطيور المائية (78) نوعاً سجل تواجد 69 و60 و59 نوعاً في هور الحويزة وسوق الشيوخ وشرق الحمار على التوالي، سجل في الفترة الأولى 64 نوعاً ظهر منها 58 و46 و30 نوعاً في الأهوار الثلاثة على التوالي، وسجل في الفتـــرة الثانيـــة 74 نوعاً، سجل 62 نوعاً في هور الحويزة و53 نوعاً في كل من سوق الشيوخ وشرق الحمار.

هناك زيادة في أعداد الطيور المائية المسجلة إذ بلغت نسبة الزيادة بين الفترتين 3.51 و3.01 و4.25 على التوالي، كما ظهـــرت زيادة أعلى في هور شرق الحمار، وبالمقارنة بين الأهوار ظهر هور الحويزة أولا يليه شرق الحمار ثم سوق الشيوخ إذ كانت أعداد الطيـــور المائية في هور الحويزة 5.30 و3.47 مرة عدد الطيور في هور سوق الشيوخ وشرق الحمار على التوالي. وان معدل الاسترجاع للأنواع هو 58.2 % وهذا يدل على آن أكثر من 40% من الطيور المائية لم تعد، ولعدد الأفراد 19%.