

Occurrence of wild mammals at the restored East Hammar marsh - Basrah - Iraq

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Abstract

The study was conducted at East Hammar marsh during the period May 2012 until May 2013. Several methods were used for the collection of specimens (live traps, camera trap, direct observations and other sings. Sixteen species were occurred including *Canis aureus* , *Canis lupus*, *Felis chaus* ,*Herpestes javanicus*, *Hyaena hyaena*, *Lutra lutra*, *Mellivora capensis*, *Vulpes vulpes*, *Mus musculus*, *Nesokia indica*, *Rattus norvegicus*, *Suncus etruscus*, *Suncus murinus*, *Sus scrofa*, *Hemiechinus auritus*, *Lepus capensis*. Observed species belong to six orders, eleven families and 14 genus. Species were distributed on the following orders as follow ratios; Carnivores (50%), Rodentia (18.75%), Soricomorpha (12.5%), Artiodactyla (6.25%), Arinaceomorpha (6.25%), Lagomorpha (6.25%).

1-Introduction:

Few published studies on the mammals of Iraq were traced. The most comprehensive study was that of Hatt (1959), who survey several habitats and regions of the country. During the last 30 years only few articles were published especially that of Al-Robaae(1977) and Kadhim (1981) on the distribution of *Nesokia indica* and *Tatera indica*. These two species were associated with marshes and river banks. Kadhim *et al.* (1979) studied the occurrence of Egyptian jerboa (*Jaculus jaculus*) . Kadhim(1997&1998) studied the distribution of *Hystrix indica*, *Tatera indica* and *Allactaga euphratica* .Recently Haba (2009) survey the restored marshes as part

of KBA project (Key Biological Areas) of Nature Iraq, few species were recorded including *Sus scrofa*, *Canis aureus*, *Lepus europaeus*, *Ratus norvegicus* and *Felis sp.* Al-Sheikhly and Nader (2013) and Al-Sheikhly and Malon (2013) studied the occurrence and geographical distribution of *Lutrogale perspicillata maxewilli* and *Lutra lutra* & *Herpestes javanicus* and *H.edwardsi* in Iraq. Garstecki &Amr (2011)reviewed the fauna of Iraqi marshes. Mohammad *et al* (2013) and Mohommad (2014) surveyed the vertebrate species occurrence at Bahr Al-Najaf depression and at Al-Dalmaj marshes respectively. Again Hussain (2014) review the

status of mammals in restored southern marshes .

The study aims to survey the occurrence of wild mammals existed in restored East Hammar marsh.

2-Material and methods:

2-1: Study area: The study area was situated at south east of East Hammar marsh with following co-ordinations (N: 30° 39' 1.3" , E: 47° 40' 25.6")(fig.1).The area is permanent marsh covered by

macrophytes canopies including *Phragmites australis* , *Typha domingensis* , *Shoenoplectus litoralis*, and *Vallisneria spiralis* . The eastern part was a desert with thick Halophytes (*Alhage spp.* , *Suaeda sp.* and *Tamarix spp.*) .The sampling area represent several habitats marshland ,desert terrain, agriculture field beside several fish ,chicken farms and several herds of sheep, cows and buffalos .Few active artisanal fishermen at the area.

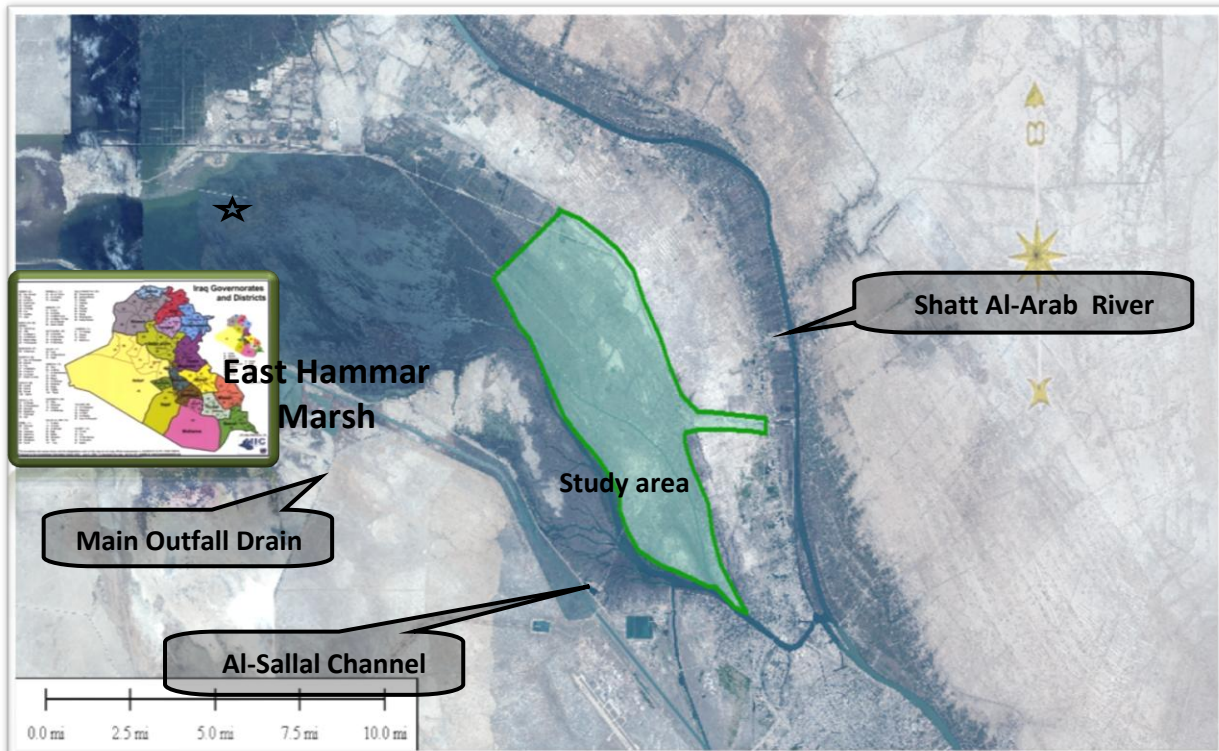


Fig.1: East Hammar marsh (study area and neighboring sites).

2-2:

Several methods were used to collect the data depend on the size of the animal , activity, time of activity and kind of bait as in bellow:

1- Live traps: used three sizes, large(100cm×40cm×40cm),

medium(60cm×30cm×30cm)

, small(30cm×12cm×12cm).these traps used to catch small and medium mammals.

2- Camera trap: used camera trap module Moultrie I – 40XT Game Spy with camera resolution 5.0

- megapixel. It used to record medium and big mammals.
- 3- Direct observation: used line transect method to record the mammals during night and day activity and to determine dispersing sites.
- 4- Signs: used foot prints, feces, voices to determine mammals species especially the voice of gray wolf and red fox during the night.

Results :

The observed species belong to six orders, eleven families and 14 genus. Species were distributed on the following orders as follow ratios; Carnivores (50.%), Rodentia (18.75%), Soricomorpha (12.5%), Artiodactyla (6.25%), Arinaceomorpha (6.25%), Lagomorpha (6.25%).

The classification of species collected from the study area were after Hatt,(1959) ,Harrison and Bates (1991) as follow :

Kingdom : Animalia

Phylum : Chordata

Class : Mammalia

Order I : Carnivora

Family I : Canidae

Species I : *Canis lupus arab*
Pocock, 1934 (fig.2)

Species II : *Canis aureus*
Linnaeus, 1758 (fig.3)

Species III : *Vulpes vulpes*
Linnaeus, 1758 (fig.4)

Family II : Mustelidae

Subfamily I : Mellivorinae

Species : *Mellivora capensis*
Storr, 1780 (fig.5)

Subfamily II: Lutrinae

Species : *Lutra lutra*
Linnaeus, 1758 (fig.6)

Family III : Hyaenidae

Species : *Hyaena hyaena*
Linnaeus, 1758 (fig.7)

Family IV : Felidae

Species : *Felis chaus*
Schreber, 1777 (fig.8)

Family V : Herpestidae

Species : *Herpestes javanicus*
Geoffroy , 1818 (fig.9)

Order I: Artiodactyla

Family : Suidae

Species : *Sus scrofa*
Linnaeus, 1758 (fig.10)

Order III : Erinaceomorpha

Family : Erinaceidae

Species : *Hemiechinus auritus*
S. G. Gmelin, 1770 (fig.11)

Order IV: Lagomorpha

Family : Leporidae

Species : *Lepus capensis*
Linnaeus, 1758 (fig.12)

Order V : Rodentia

Family : Muridae

Species I : *Rattus norvegicus*
Berkenhout, 1769 (fig.13)

Species II: *Mus musculus*
Linnaeus, 1758 (fig.14)

Species III: *Nesokia indica*
Gray, 1830 (fig.15)

Order VI : Soricomorpha

Family :soricidae

Species I: *suncus etruscus*
Savi, 1822 (fig.16)

Species II: *suncus murinus*
Linnaeus, 1766 (fig.17)



Fig.(4) *Vulpes vulpes*



Fig.(5) *Mellivora capensis*



Fig.(6) *Lutra lutra*



Fig.(7) *Hyaena hyaena*



Fig.(8) *Felis chaus*



Fig.(9) *Herpestes javanicus*



Fig.(12) *Lepus capensis*



Fig.(13) *Rattus norvegicus*



Fig.(14) *Mus musculus*



Fig.(15) *Nesokia indica*



Fig(16) *Suncus etruscus*



Fig(17) *Suncus murinus*

Species data collection depended on the method used. Generally most of the small mammal species was collected by live traps while the

medium and the large species were collected by camera trap and direct observation(table,1).

Table 1 : distribution of collected data on the methods:

Species	No. of individual	Live trap	Camera trap	Direct observation	Voice
<i>Canis aureus</i>	54	1	47	6	Not counted
<i>Canis lupus</i>	3	-	-	2	1
<i>Felis chaus</i>	11	1	2	8	-
<i>Herpestes javanicus</i>	53	43	3	7	-
<i>Hyaena hyaena</i>	7	-	-	7	-
<i>Lutra lutra</i>	3	-	-	3	-
<i>Mellivora capensis</i>	3	-	2	1	-
<i>Vulpes vulpes</i>	2	-	-	1	1
<i>Mus musculus</i>	26	25	-	1	-
<i>Nesokis indica</i>	1	1	-	-	-
<i>Rattus norvegicus</i>	26	26	-	-	-
<i>Suncus etruscus</i>	1	1	-	-	-
<i>Suncus murinus</i>	5	5	-	-	-
<i>Sus scrofa</i>	15		12	3	
<i>Hemiechinus auritus</i>	14	13	-	1	-
<i>Lepus capensis</i>	11	-	1	10	-
Total	235	116	67	50	2

Discussion:

The number of species recorded (Sixteen species) from the restored East Hammar marsh represent a good recovery of wild mammalian species after more than a decay of desiccation in which only 4% of original marshes remain (Richardson & Hussain, 2006). Most of the species recorded from the study area belong to the

Paleoarctic species distributed in North & Middle Europe ,North Asia and North Africa. Asian - Indian species came in second and the third the Africans species .These results agreed with previous studies of Hatt (1959) ,Harrison (1981), Harrison & Bates(1991) and Aulagnier *et al.*(2009). Paleoarctic (Eurasian) species include *C. lupus* , *L. lutra* ,*S. scrofa* ,*M. musculus* ,*V. vulpes* and *S.*

etruscus .Asian species were represented by *C. aureus* , *H. auritus*, *H. javanicus* , *N. indica* , *F. chaus* and *S. murinus* .African species represented by *H. hyaena* , *M. capensis* and *L.capensis* .European species represented by *R. norvegicus* .

Recent survey of Dalmaj marsh 400 km to north of East Hammar marsh by Nature Iraq (2005-2011) on mammal species reveal the existence of similar species including Honey Badger *M. capensis*, Striped Hyena *H. hyaena*, Gray Wolf *C. lupus*, River otter *L. lutra*, Wild Boar *S. scrofa* , and jungle cat *F. chaus*.

Previous studies from 1959 to 2013 (Table, 2) reveals that the average number of species recorded in marshes was 16 and the difference from that could be due to the habitats overlapping with other associated like semi- desert or thick bushes . Our present record fit more with species occurred in proper marsh than that of the riparian marsh according to Hatt (1959) species categorization.

The present study failed to register three rare species (*Lutrogale perspicillata maxewilli*, *Tatera indica* and *Nesokia bunnii*) occurred in the region before desiccation as postulated by Harrison & Bates (1991) ,however the first species was recently recorded from the same marsh area by Al- Sheikhly and Nader (2013).The results of this study

reveal that no alien or invader species were noticed in the study area.

Both studies before desiccation and the present study confirmed the dominance of order Carnivora formed 50. 0% of total species recorded in East Hammar marsh, consisted mainly of *C.lupus* ,*C.aureus* ,*L.lutra*, *Lutrogale perspicillata maxewilli* and to less extent *M.capensis* ,*H.hyenea* and *F.chaus*,beside few other record of *V. rueppellii*.

Al-Sheikhly & Mallon (2013) pointed out that the species *Herpestes javanicus* distributed in middle and south of Iraq including the marshes , while *H.edwardsi* found only in the north . Harrison & Bates(1991) recorded *H.javanicus* from the river banks of Basrah province and *H.edwardsi* from areas near Kuwaiti and Iranian borders, with exception of Haba (2009) recorded *H.edwardsi* from the restored marshes.

Availability of trash food materials in the sampling area due to the establishment of several commercial livestock and fish farms ,could attracted many carnivorous species to occurred and wandering in area mainly for feeding. Ruin of abundant muddy huts form a good shelter for small mammals especially rodents .

Scott & Evans(1993) postulated that desiccation of marshes during

the nineties wiped out several indigenous species (eg. *Gerbillus*

Table 2: Previous and recent records of mammal species at restored East Hammar marsh during the period (1959 to 2013).

Scientific name	Common English name	Hatt ,1959	Harrison1 981	Harrison & Bates 1991	Haba 2009	Aulagnier ,et al 2009	Abbas 2013
<i>Hemiechinus auritus</i>	Long eared Hedgehog	+	+	+	+	+	+
<i>Suncus murinus</i>	Asian house			+		+	+
<i>Suncus etruscus</i>	White-Toothed Pygmy			+		+	+
<i>Canis aureus</i>	Golden jackal	+	+	+	+	+	+
<i>Canis lupus</i>	Gray wolf	+	+	+		+	+
<i>Vulpes vulpes</i>	Red fox		+	+		+	+
<i>Lutra lutra</i>	Eurasian Otter	+	+	+		+	+
<i>Herpestes javanicus</i>	Javanicus Mongoose	+	+	+	+	+	+
<i>Mellivora capensis</i>	Honey Badger		+	+	+	+	+
<i>Hyaena hyaena</i>	Stripped hyena		+	+		+	+
<i>Felis chaus</i>	Jungle Cat	+		+		+	+
<i>Sus scrofa</i>	Wild boar	+	+	+	+	+	+
<i>Lepus capensis</i>	Capensis Hare		+	+			+
<i>L.europaeus</i>	European Hare	+			+	+	
<i>Nesokia indica</i>	Short-Tailed Bandicot Rat	+	+	+		+	+
<i>Rattus norvegicus</i>	Norvegicus Rat		+	+	+	+	+
<i>Mus musculus</i>	House Mouse	+	+	+	+	+	+
Total number of species	17	10	13	16	8	16	16

mesopotamia , *Lutrogale perspicillata maxewilli* and *Nesokia bunnii*.).After inundation only five species (*Sus scrofa*, *Canis aureus*, *Lepus europaeus*, *Ratus norvegicus* and *Felis spp*)were acquired by Haba (2009) during the survey of the restored marshes in 2006. Al-Sheikhly and Nader (2013) recorded *Lutrogale perspicillata maxewilli* ,*Lutra lutra* from the restored marshes. Again Al-Sheikhly and Mallon (2013) recorded the occurrence and distribution of *Herpestes javanicus* and *H. edwardsi* in Iraq including

the southern marshes. All these recent species record indicated that the southern marshes habitats were gradually recovered of long desiccation during the nineties.

Number of species in order Carnivores (50. %) were higher than species in other orders obtained especially in comparison Rodentia (18.75%), Soricomorpha (12.5%), Artiodactyla (6.25%), Arinaceomorpha (6.25%), Lagomorpha (6.25%).

Fewer species of order Rodentia were collected, lower than we expected this could be due to the

methods of sampling were applied or due to effect of long desiccation period, since several species of this order were highly associated with water. On contrary trap camera method seem to be more efficient especially with recording of medium and large species.

It seemed that record of European wild rabbit *L.europaeus* from the restored marshes by Haba

(2009) need more confirmation since this species considered to be rare or absent from the Middle East according to Harrision and Bates (1991); Aulagnier *et al.*(2009). and the marshes were dominated by another species *Lepus capensis*. The same could be true for the record of European badger *Meles meles* by Mohammad (2014) from Al-Dalmaj marsh.

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اللبائن البرية المتواجدة في هور شرق الحمار المسترجع

البصرة – العراق

عادل فاضل عباس و نجاح عبود حسين

قسم علم البيئة – كلية العلوم – جامعة البصرة

أجريت الدراسة في هور شرق الحمار خلال الفترة من آيار 2012 إلى آيار 2013. استخدمت عدة طرق في تجميع النماذج والبيانات (المصائد الحية، مصائد الكاميرات، المشاهدة المباشرة، العلامات). تم تسجيل ستة عشر نوع من اللبائن البرية تضمنت *Herpestes* ، *Hyaena hyaena*، *Canis lupus* ، *Canis aureus* ، *Nesokia* ، *Lutra lutra*، *Mellivora capensis* ، *Vulpes vulpes* ، *Felis chaus* ، *javanicus* ، *Hemiechinus* ، *Rattus norvegicus* ، *Mus musculus* ، *indica* الأنواع *Lepus capensis* ، *Suncus etruscus* ، *Suncus murinus* ، *Sus scrofa* ، *Auritu* المسجلة تعود إلى ستة رتب وأحد عشر عائلة وأربعة عشر جنس. وزعت الأنواع على الرتب حسب النسب التالية: Soricomorpha (12.5%)، Artiodactyla Rodentia (18.75%)، Carnivores (50.%) ، (6.25%) ، Arinaceomorpha (6.25%)، Lagomorpha (6.25%) .