

13.1. SPECIES COMPOSITION

Data on the mammals of Egypt in general, and Nile Delta in particular are few and include those of Anderson (1902), Flower (1932), Osborn & Helmy (1980) Wasif (1995) and Hoath (2003). Basuony (2003) dealt with the mammalian fauna in Burullus Protectorate during 2002. A total of 18 species were recorded from the area representing 11 families belonging to four orders (Table 13.1). Other species are expected to be found in the area with further research. Rodents form the largest mammalian group of the area, being represented by seven species (about one-third of the species in the area). Carnivores come next with five species. Each of insectivores and chiropterans were represented by only three species.

The long-eared hedgehog, *Hemiechinus auritus* was collected from Kawm El-Aaqula area, 15 km west of El-Burg. Two specimens were caught alive from their burrow under the vegetation. Flower (1932), Wassif (1953), Setzer (1957) and Osborn & Helmy (1980) collected this hedgehog from Baltim and El-Burg. The subspecific status of this hedgehog is *aegyptius*. By the analysis of stomach contents, insects formed the only food item.

Other insectivorous species were recorded in the area: two shrews *Crocidura flavescens* and *C. floweri* (Basuony 2003). The two species were collected from a site located 7 km west of El-Burg near fishermen's huts. The sandy soil in that area was water-saturated and covered with a dense growth of emergent water plants such as *Phragmites australis* and *Juncus rigidus*. Both species were caught in unbaited pitfall traps. Osborn and Helmy (1980) recorded the Giant Musk Shrew *Crocidura flavescens* from Baltim. Both species are reported to inhabit richly weeded canal margins in Nile Delta and Valley, where they were found in fields and gardens and dry wells in summer (Flower 1932, Hoogstraal 1962). Flower (1932) collected only

one specimen from the stomach of a cattle egret. These species were not recorded from sites west of 31°E longitude in the northern coastal region of Nile Delta.

Table 13.1. Systematic arrangement of the mammals recorded from Burullus Protectorate (Basuony 2003).

Order	Family	Species	English name	Arabic name
Insectivora	Erinaceidae	<i>Hemiechinus auritus</i>	Long eared hedgehog	
	Soricidae	<i>Crocidura flavescens</i>	Giant musk shrew	
		<i>Crocidura floweri</i>	Flower's shrew	
Chiroptera	Pteropodidae	<i>Rousettus aegyptiacus</i>	Egyptian fruit bat	
	Rhinopomatidae	<i>Rhinopoma macrophyllum</i>	Greater mouse-tailed bat	
		Vespertilionidae	<i>Pipistrellus kuhlii</i>	Kuhl's Pipistrelle
Rodentia	Cricetidae	<i>Gerbillus andersoni</i>	Anderson's Gerbil	
	Muridae	<i>Psammomys obesus</i>	Fat sand rat	
		<i>Arvicanthis niloticus</i>	Nile or field rat	
		<i>Rattus rattus</i>	Black rat	
		<i>Rattus norvegicus</i>	Brown rat	
		<i>Mus musculus</i>	House mouse	-
		<i>Acomys cahirinus</i>	Cairo spiny mouse	
Carnivora	Canidae	<i>Canis aureus</i>	Jackal	
	Mustelidae	<i>Vulpes vulpes</i>	Red fox	
		<i>Mustela nivalis</i>	Weasel	
	Viverridae	<i>Herpestes ichneumon</i>	Egyptian mongoose	
	Felidae	<i>Felis chaus</i>	Jungle cat	
4	11	18		

Records of bats from the study area are available in the literature and are herein cited. Bat species were recorded from Baltim (Anderson 1902; Madkour 1977; Qumsiyeh 1985). Many individuals of the large fruit bat *Rousettus aegyptiacus* were seen flying at the coastal area of Kawm Al-Aaqula (Basuony 2003). *Rhinopoma microphyllum* and *Pipistrellus kuhlii*, which were reported from the area (Qumsiyeh 1985) might have been among the many microchiropteran bats observed in the gardens around Baltim. Verification of the identification of these species requires the collection of different specimens.

The rodents of the area belong to two families. Cricetidae includes two species recorded for the first time in this area, namely *Gerbillus andersoni* and *Psammomys obesus*. The subspecific status of *Gerbillus andersoni* based on cranial characters was *andersoni*. It is a nocturnal species that inhabits sandy areas. The fat sand rat, *Psammomys obesus*, is recorded in the northern Sinai and the northern part of the Eastern Desert. This species has not been recorded from Nile Delta except for one specimen collected from Quweisna and recorded as subspecies *obesus*. In Basuony's study (2003), materials were collected from the sandy islets of the lake;

Mastroh and Al-Kawm Al-Akhdar. In this area it inhabits saline soils and salt marshes with stands of succulent halophytic plants such as *Anabasis articulata*. The fat sand rat is a colonial desert rodent and is strictly diurnal; however, Atallah (1967) reported its nocturnal activity in Jordan.

Muridae is the second largest rodent family in the study area and is represented by five common species. *Arvicanthis niloticus*, *Rattus rattus*, *R. norvegicus*, *Mus musculus* and *Acomys cahirinus* are diurnal, nocturnal and feed on vegetables and seeds. Burrows are shallow and usually under shrubs. The colour of *Mus musculus* specimens captured during this survey is darker when compared with the specimens from other Egyptian localities. Four individuals were captured from one burrow in Deshimi islet that contained insect remains.

Carnivores of Burullus area include only five species belonging to three families. Canidae is represented by two species *Canis aureus* and *Vulpes vulpes*. Basuony (2003) collected *Canis aureus* from the lower part of the drainage canal feeding the lake. The canal in that area is choked with dense marsh vegetation. Howling of this jackal was frequently heard throughout the study area. This species has not been previously recorded from the northern Nile Delta. Recent studies suggest that this form is in fact a wolf (Ferguson 1981).

The Red Fox *Vulpes vulpes* is very numerous in areas around the lake shores. Individuals and their tracks were seen throughout the area, where it seems to inhabit date and fruit groves, cultivated areas and suburban gardens, commonly seen during daylight hours. It feeds on birds, rodents and insects (Basuony 1998). This fox is belonging to subspecies *aegyptiaca* which is widespread in Nile Delta and Valley.

The weasel *Mustela nivalis* was recorded for the first time in Kafr El-Sheikh and the rest of Nile Delta (Basuony 2003). The collected specimen was from El-Hanafy village, 15 km west of El-Burg. This species has also been collected at the fringes of Nile Delta (Osborn and Helmy 1980).

The Egyptian Mongoose, *Herpestes ichneumon*, inhabits the cultivated areas of Nile Valley and Delta, near water. Basuony (2003) recorded only one specimen, jumping from the islet to the adjacent reedbed across a water canal. It is a terrestrial species, but readily enters water and swims well. It feeds on rodents, birds, poultry, reptiles, frogs and various aquatic and terrestrial invertebrates (Harrison and Bates 1991).

The jungle cat *Felis chaus* was observed in the *Phragmites australis* reed swamps in Al-Kawm Al-Akhdar islet (Basuony 2003). The previous record of this cat from Nile Delta comes from its southern and northwestern corners (Osborn & Helmy 1980). Basuony (2003) record adds the northern Delta to the national geographical range of this species.

13.2. ZOOGEOGRAPHICAL AFFINITY

Of the eighteen species recorded from Burullus and adjacent areas, seven are widely distributed in the world (*Pipistrillus kuhlii*, *Rattus rattus*, *Rattus norvegicus*, *Mus musculus*, *Canis aureus*, *Vulpes vulpes* and *Mustela nivalis*). Afrotropical species with wide distribution in Africa south of the Sahara include *Crocidura flavescens*, *Rousettus aegyptiacus*, *Arvicanthis niloticus*, *Acomys cahirinus* and *Herpestes ichneumon* (Table 13.2). The latter species occurs to the north through the eastern Mediterranean to Turkey. The same can be said for *Rousettus aegyptiacus*; the distribution of which reaches Cyprus and Iran.

Table 13.2. Mammals recorded from Burullus Wetland and their major zoogeographical subdivisions (Qumsiyeh 1985). AF=Afrotropical, SS= Saharo-Sindian, PL= Pluriregional, WD= Widespread and EN= Endemic species.

Species	Zoogeographical subdivision				
	AF	SS	PL	WD	EN
<i>Acomys cahirinus</i>	+				
<i>Arvicanthis niloticus</i>	+				
<i>Canis aureus</i>				+	
<i>Crocidura flavascens</i>	+				
<i>Crocidura floweri</i>					+
<i>Felis chaus</i>			+		
<i>Gerbillus andersoni</i>		+			
<i>Hemiechinus auritus</i>		+			
<i>Herpestes ichneumon</i>	+				
<i>Mus musculus</i>				+	
<i>Mustela nivalis</i>				+	
<i>Pipistrellus kuhlii</i>				+	
<i>Psammomys obesus</i>		+			
<i>Rattus norvegicus</i>				+	
<i>Rattus rattus</i>				+	
<i>Rhinopoma microphyllum</i>		+			
<i>Rousettus aegyptiacus</i>	+				
<i>Vulpes vulpes</i>				+	
18	5	4	1	7	1

Four species occurring in Burullus area are distributed in the intermediate zone between the Palearctic and the Ethiopian regions (i.e. North Africa, Africa and southwest Asia), with some reaching the Oriental region. These are: *Rhinopoma microphyllum*, *Hemiechinus auritus*, *Gerbillus andersoni* and *Psammomys obesus*. These species are adapted to semidesert habitats especially oases and wadi beds and may be termed Saharo-Sindian (Atallah 1977) or Saharo-Arabian (Zohary 1973).

The jungle cat *Felis chaus* represents the pluriregional species that are common to the Mediterranean and Saharo-Sindian regions. On the other hand, *Crocidura floweri* is the only endemic species of this collection that is restricted to Egyptian Nile Valley.

By virtue of the location of Egypt, it is surprising that the Mediterranean element is not pronounced even if one includes such species as *Pipistrellus kuhlii* and other species of possible Mediterranean origin. *Pipistrellus kuhlii* could not be clearly assigned to a given zoogeographic region because of their widespread distribution; however this species was considered by Gaisler *et al.* (1972) to be Mediterranean, while Qumsiyeh (1985) classified it as a widespread species.

Five mammalian species recorded from Lake Burullus are found also in Nile Delta and they seem to have never crossed into the Eastern Desert and/or Sinai Peninsula (*Crocidura flavescens*, *Crocidura floweri*, *Rhinopoma microphyllum*, *Herpestes ichneumon* and *Arvicanthis niloticus*).

13.3. MAMMALIAN HABITATS

Coastal sand dunes, sand and mud flats, salt marshes, islets, swamps, agricultural land and artificial landscapes represent the basic recognizable habitat types in Burullus area (Basuony 2003). Sand and mud flats, salt marshes, coastal sand dunes and islets include psammophytic and halophytic communities. Swamps include reeds and large plant communities along the margins of the lake. Agricultural land and artificial landscapes include cropland, towns, villages canals and industrial sites. The habitat of the coastal halophytic communities is inhabited by the largest number of the mammalian species (17 species representing 94% of the mammalian species collected). Agricultural land and artificial landscapes come next and are inhabited by thirteen species (72%), whereas only four species (22% of mammalian species) were recorded from bogs and salt marshes (Table 13.3).

Five species belonging to the genera *Rousettus*, *Rhinopoma*, *Pipistrillus*, *Gerbillus* and *Mustela* are restricted to only one habitat type. Ten species *Hemiechinus auritus*, *Crocidura flavescens*, *Crocidura floweri*, *Psammomys obesus*, *Arvicanthis niloticus*, *Rattus rattus*, *Rattus norvegicus*, *Mus musculus*, *Acomys cahirinus* and *Vulpes vulpes* were recorded in two habitat types. Only three species were found in three habitat types (*Canis aureus*, *Herpestes ichneumon* and *Fells chews*).

Table 13.3. Mammals recorded from Burullus Wetland and adjacent area. SF=mud and sand flats; SM= salt marshes; CS= coastal sand dunes; IS= islets, reefs and banks; CP= crop land; TV= towns, villages and industrial sites.

Species	Coastal habitats				Bogs and marshes	Agricultural and artificial lands		Total	
	SF	SM	CS	IS		CP	TV	No.	%
<i>Hemiechinus auritus</i>	+					+		2	28.6
<i>Crocidura flavescens</i>	+	+	+	+			+	5	71.4
<i>Crocidura floweri</i>		+	+			+		3	42.9
<i>Rousettus aegyptiacus</i>				+				1	14.3
<i>Rhinopoma microphyllum</i>			+					1	14.3
<i>Pipistrellus kuhlii</i>			+					1	14.3
<i>Gerbillus andersoni</i>	+		+	+				3	42.9
<i>Psammomys obesus</i>		+		+	+			3	42.9
<i>Arvicanthis niloticus</i>				+		+		2	28.6
<i>Rattus rattus</i>			+			+	+	3	42.9
<i>Rattus norvegicus</i>	+		+			+	+	4	57.1
<i>Mus musculus</i>			+	+		+	+	4	57.1
<i>Acomys cahirinus</i>				+			+	2	28.6
<i>Canis aureus</i>		+			+	+		3	42.9
<i>Vulpes vulpes</i>		+		+			+	3	42.9
<i>Mustela nivalis</i>							+	1	14.3
<i>Herpestes ichneumon</i>		+		+	+	+		4	57.1
<i>Felis chaus</i>	+	+	+	+	+	+	+	7	100
18	5	7	9	10	4	9	8	7	

A statistical comparison of the mammalian faunal assemblages of the habitat types of Burullus area was carried out using Morton and Davidson's similarity index (Basuony 2003). The similarity index between the mammalian faunal assemblages was relatively low. The highest value of similarity index (0.73) was recorded between the coastal habitats and agricultural and artificial lands. On the other hand, the lowest similarity index (0.35) was found between the mammalian assemblages of bogs and marshes on one hand, and agricultural and artificial lands on the other hand. A similarity index of 0.38 was calculated for the mammalian fauna of coastal habitats and bogs – marshes habitats.

13.4. SPECIES ACCOUNT

Order Insectivora

Family Erinaceidae

1- *Hemiechinus auritus* (Gmelin, 1770)

Common names: Long Eared Hedgehog; قنفذ

World distribution: Coast of Libya and Egypt to Asia Minor, northern Arabia, southern USSR, Iran, Pakistan, Chinese Turkistan and Mongolia.

National distribution: Mediterranean coast, Nile Delta, Nile Valley south to Samalut and El-Faiyum.

Burullus observation sites: Kawm El-Aaqula and Abu Slyman.

Description: A small hedgehog with long ears. Face is pale brown to buffy white; belly is white and base brownish. A foot is whitish to pale brown. Tips of dorsal spines white. Gap in spines of forehead lacking. Adult head and body length averages 181 mm, tail 24 mm, foot 35 mm, ear 41 mm and condyloincisive length 44.7 mm.

Comparison: *Hemiechinus auritus* is distinguishable from other Egyptian hedgehogs by smaller dimensions, paler colour and lack of gap in forehead spines.

Habitats and ecology: It inhabits gardens, olive gardens, cultivated areas and more densely vegetated areas of the coastal desert. Nocturnal species and feeds on insects (Osborn & Helmy 1980) as well as lizards (Saleh and Basuony 1998).

Status: Lower Risk (least concern).

Remarks: This hedgehog has been collected only from Baltim and El-Burg by Flower (1932), Wassif (1953), Setzer (1957) and Osborn & Helmy (1980). This study adds another locality of this species in the area. The subspecies occurring in Nile Delta is *aegyptius* (Osborn & Helmy 1980)

Family Soricidae

2- Crocidura flavescens deltae Haim de Balsac and Barloy, 1966

Common names: Giant Musk Shrew; عرسة

World distribution: Egypt, Sudan, Ethiopia and the rest of Africa south into South Africa; West Africa north to Sierra Leone.

National distribution: Nile Delta and Valley, as far south as Dahshour and El-Faiyum.

Burullus observation sites: West of El-Burg.

Description: Large white toothed shrews. Head and body length 70 mm or more. Fur short and dense. Ear scarcely protruding beyond fur. Tail with conspicuous and scattered bristle hairs on proximal two-thirds. Venter dark gray and hind foot length 18 mm or more. Condyloincisive length is 15 mm or more.

Comparison: *Crocidura flavescens* is distinguishable from other species of Egyptian shrews by its larger size.

Habitats and ecology: This species inhabited richly weeded canal margins in Nile Delta and Valley (Hoogstraal 1962) and dry wells in summer. It is nocturnal species. Nests are balls of grass and always moist and feeds on insects as well as snail shells (Hoogstraal 1962).

Status: Lower Risk (least concern).

Remarks: Osborn & Helmy (1980) recorded this species from Baltim only.

3- *Crocidura floweri* Dollman, 1915

Common name: Flower's shrew; زباب الزهور

World distribution: Endemic in Egypt.

National distribution: Nile Delta and Valley, Wadi El-Natroun and El-Faiyum.

Burullus observation sites: El-Hanafy.

Description: Small white toothed shrews. Head and body length 72 mm or less. Fur short and dense. Ear scarcely protruding beyond fur. Tail with inconspicuous and limited bristle hairs on proximal one-half. Dorsum brownish; cranium convex and hind foot length 12 mm or more. Condylolincisive length 20 mm or less.

Comparison: This species can be distinguished from any other Egyptian shrews by relatively small size but larger than *C. nana*.

Habitats and ecology: This shrew inhabits fields and gardens.

Status: Lower Risk (least concern).

Remarks: Flower (1932) collected only one specimen from the stomach of cattle egret.

Order Chiroptera

Family Pteropodidae

4- *Rousettus aegyptiacus* (Geoffroy, 1810)

Common names: Egyptian Fruit Bat; خفاش مصرى

World distribution: Baluchistan, south-east Iran, Kishim Island in the Persian Gulf through to Arabia, Turkey, Cyprus and Africa, from Egypt and Eritrea west to Ghana and south to Angola and the Cape.

National distribution: Most cultivated areas of Nile Valley and Delta.

Habitats: It roosts in large colonies in wells, old ruins, tombs and deserted houses.

Ecology: Nocturnal and become active shortly after dusk and have another peak of activity in the early morning hours. It feeds on sycamore, mulberries, dates and figs (Anderson 1902; Madkour 1977).

Status: Lower Risk (least concern).

Remarks: Anderson (1902) recorded this species from Baltim.

Family Rhinopomatidae

5- *Rhinopoma microphyllum* (Brunnich, 1782).

Common name: Greater Mouse-tailed Bat; خفاش ابو ديل صغير

World distribution: Morocco, Senegal and Nigeria to East Africa, Arabia, Iran, Afghanistan, Pakistan, India, Thailand and Sumatra.

National distribution: Nile Valley, particularly around Cairo, and Delta

region.

Habitats: Dry caverns, ruins ancient temples and old buildings.

Ecology: Nocturnal. Pellets of the owl, *Tyto alba*, is containing three skulls of this bat (Dor 1947).

Status: Lower Risk (least concern).

Remarks: Anderson (1902) recorded this species from Baltim.

Family Vespertilionidae

6- *Pipistrellus kuhlii* (Kuhl 1819)

Common name: Kuhl's Pipistrelle; خفاش كولى

World distribution: From southern Europe to Pakistan and most of Africa; from Morocco to Egypt and south to South Africa.

National distribution: Around human populated areas in northern Egypt.

Habitats: Crevices in the walls and roofs of buildings as well as underground tunnels.

Ecology: Colonial species.

Status: Widespread but not common.

Remarks: Anderson (1902) recorded this species from Baltim.

Order Rodentia

Family Cricetidae

7- *Gerbillus andersoni andersoni* De Winton, 1902

Common names: Anderson's Gerbil, بيوضى

World distribution: Jordan, Egypt, Libya and Tunisia.

National distribution: Northeastern Sinai.

Burullus observation sites: Kom El-Aakolla.

Description: Desert gerbil with brownish orange dorsal sides. Side is clear orange and its colour extends onto upper foreleg and heel. A whitish postorbital and postauricular area is small and inconspicuous. Ear and sole is pigmented.

Comparison: *Gerbillus andersoni* can be distinguished from other Egyptian *Gerbillus* by generally darker colour.

Habitats and ecology: Nocturnal species that inhabited sandy areas. However, it does not inhabit more rigorous desert areas (Hoogstraal 1963).

Status: Lower Risk (least concern).

Remarks: This subspecies is darker than subspecies *bonhote*.

8- *Psammomys obesus* Cretzschmar, 1828

Common names: Fat Sand Rat, جرد

World distribution: North Africa, Sudan, Arabia and Palestine.

National distribution: Northern part of Sinai and eastern desert

Burullus observation sites: Mastrouh and Al-Kawm Al-Akhdar.

Description: Stocky rodents. Dorsal surface is blackish to reddish orange while side and venter is yellowish. Short, rounded and densely haired ears. Tail is thick and shorter than head and body (less than 85%) with black prominent tip. The skull is angular and strongly ridged.

Habitats and ecology: Habitats of *Psammomys obesus* are saline soils and salt marshes with stands of succulent halophytic such as *Anabasis articulata* of the study area. This is a colonial desert rodent. Sand rats are strictly diurnal, but Atallah (1967) testified to its nocturnal activity in Jordan. Tunnels of a burrow system are seldom deeper than 0.5 m., but may be several meters in length. The number of openings is 6-21 with an average of 11 (Osborn and Helmy 1980).

Comparison: The only Egyptian rodent with which *Psammomys obesus* might be confused is *Meriones crassus*, however, slightly longer tail and ears, bicoloured tail tip, which belly in *Meriones* distinguish that species from *Psammomys obesus*.

Status: Lower Risk (least concern).

Remarks: This species has not been recorded from Delta region except one specimen collected from Quweisna and recorded as subspecies *obesus* (Osborn and Helmy 1980)

Family Muridae

9- *Arvicanthis niloticus* (Desmarest, 1822)

Common names: Nile or Field Rat; **فار الغيط**

World distribution: Northeastern Africa from Egypt and Sudan south to Kenya and Tanzania west to Uganda, Nigeria and Sengal. Also southwestern Arabia.

National distribution: Nile Delta and Valley as far south as Aswan. Also Kharga and Dakhla, Wadi Natrun and Fayoum.

Description: Large big-headed, rather slim rat. Upper parts rather grizzled-black and yellow. Flanks paler and coat coarse. Dark stripe down center of back may be distinct running from top of the head to the base of the tail. Underside whitish to greyish. Hairs on rump longer and more or less tinged yellow to orange. Feet buffish orange to blackish above. Head large, rather pointed. Whiskers sparse and short. Ears small and rounded, tinged orange. The tail is about 80% of the body length, slender, blackish above, pale below. Fur dense, concealing tail rings. No terminal tuft.

Habitats and ecology: Agricultural areas and margins, canal and railway embankments with good cover, olive groves and gardens. It is recorded around, but apparently never in, human settlements. Active by day and night.

Status: Lower Risk (least concern).

10- *Rattus rattus* (Linnaeus, 1758)

Common names: House or Black Rat; جرذ اسود

World distribution: Cosmopolitan species.

National distribution: Nile Valley and Delta, coastal towns and certain oases in western desert.

Burullus observation sites: El-Hanafy.

Description: Large murids with relatively harsh pelage that brownish dorsally. Tail is slender and bicoloured and length is more than 100% of head and body. Ear length is more than one-half hind foot length. Skull massive and strongly ridged.

Comparison: *Rattus rattus* differs externally from *R. norvegicus* in having head and body length averaging shorter, tail longer rather shorter than head and body length, and ear more than one-half hind foot length.

Habitats and ecology: It is commensal with man. Diurnal and nocturnal, and feeds on vegetables and seeds.

Status: Lower Risk (least concern).

Remarks: The specimens of the study of Basuony (2003) seem to be darker than that of Sinai.

11- *Rattus norvegicus* Berkenhout, 1769

Common names: Norway or Brown or Sewer Rat; جرذ المجارى

World distribution: Nearly cosmopolitan species due to accidental transportation by man.

National distribution: Coastal towns, Nile Delta and Valley.

Burullus observation sites: Baltim and El-Hanafy in addition to one specimen accidented by a car in El-Banayen village.

Description: Large murids (as twice as *Rattus rattus*) with relatively harsh pelage that brownish dorsally. Tail is thick and bicoloured and length is less than 100% of head and body. Ear length is less than one-half hind foot length. Skull massive and strongly ridged.

Habitats and ecology: Commensal with man. Mainly nocturnal species. Diet of *R. norvegicus* to be omnivorous.

Status: Lower Risk (least concern).

Remarks: Although this animal is widespread, Osborn and Helmy (1980) collected only one specimen from Baltim and another one from Al-Hamoul.

12- *Mus musculus praetextus* (Brants, 1827)

Common names: House Mouse; سيسى - فأر

World distribution: Cosmopolitan species.

National distribution: Mediterranean coastal areas, Nile Valley and Delta and oases of western desert.

Burullus observation sites: Al-Kawm Al-Akhdar and Deshimi islets.

Description: Small murids with soft pelage that grayish to brownish in dorsal surface. Tail is usually slightly longer than head and body length. Their annulations almost concealed by hairs. The skull is fragile and rounded.

Comparison: *Mus musculus* can be distinguished from most other Egyptian mice by small size; lack of contrasting head, side and rump markings; and tail lacking a brush.

Habitats and ecology: It inhabits houses, tents, grain stores, gardens and salty areas. Nocturnal species. Burrows is shallow and usually under shrubs.

Status: Lower Risk (least concern).

Remarks: The colour of the specimens captured during the survey of Basuony (2003) is black when compared with the same species in other localities. Four individuals are captured from one burrow in Deshimi islet with insect remaining.

Family Canidae

13- *Acomys cahirinus* (Desmarest, 1819)

Common names: Cairo spiny mouse; فار أبو شوك

World distribution: North Africa from Mauritana to Egypt south to Nigeria east to Tenzania. Middle East and north to Turkey, Cyprus and Crete. Also Arabia and east to Iran and Pakistan.

National distrbution: Nile Delta and Valley, Alexandria, Western and Eastern Deserts, Sinai, shores of Lake Nasser, Gebel Elba, Oases of Western Desert and Gebel Uweinat.

Description: Small to medium-sized mouse. Coulor very variable ranging from uniform dark grey with white feet in Nile Delta and Valley to pale brown above, tinged orange along flanks, white below with pale limbs and white feet in desert populations, with many variations in between. Fur from behind the shoulder along back to tail base spiny. Ears large, whitish and eyes prominent. Tail about length of body, brownish above, pale below, sparsely haired with scales distinct.

Habitats and ecology: It is found in a wide range of habitats. In Nile Delta and Valley often in human settlements, including towns, cities, villages, tombs and grain stores. In deserts, it found in rocky wadis, cliff sides and palm groves. Active by day and night, though probably predominantly nocturnal.

Status: Lower Risk (least concern).

Remarks: There are 6 subspecies occurring in Egypt: *Acomys cahirinus cahirinus*, *Acomys cahirinus dimidiatus*, *Acomys cahirinus megalodus*, *Acomys cahirinus hunteri*, *Acomys cahirinus helmyi* and *Acomys cahirinus viator*.

14- *Canis aureus* Linnaeus, 1758

Common names: Jackal; ديب – ابن أوى

World distribution: Southeastern Europe through Asia Minor and southern USSR to Iran, India, Burma, Thailand, Africa from Senegal to Egypt, south to Sudan, Ethiopia and Kenya.

National distribution: Sinai, northern part of eastern desert, Nile Delta and Valley and bordering deserts, western Mediterranean coastal desert and oases of western desert.

Burullus observation sites: El-Tolombat by verbal locals.

Description: Dog-like carnivore with broad dorsal mane. Agouti nature of hairs on hip gives an impression of broken stripes. Side is yellowish with scattering of black- and white-tipped hairs. There is black marking on anterior of forelimb. Tail is relatively short with black tip. Pupil of eye is rounded. Frontal region of skull is inflated and cranial ridges are high and prominent.

Comparison: *Canis aureus* is distinguishable from other Egyptian canids in having the dorsum blackish and maned, frontal region of skull elevated, a prominent postorbital swelling, cranium broadest at bases of zygomatic processes and larger dimensions.

Habitats and ecology: Along the rivers and cultivated lands. Frequently seen in isolated cliffs and rocky hillocks in semi-barren desert. Nocturnal scavenger. Their dens are found in tombs, natural caves and crevices.

Status: Threatened (Vulnerable species).

Remarks: This species has not been recorded from Nile Delta. Their scavenging habits frequently render them a nuisance in the vicinity of human settlements, and they are often killed with poisoned baits, a practice that is seriously threatening their survival. Attacks of humans are rare, but not unknown (Harrison and Bates 1991). There appears to be no evidence to support the view of Flower (1932) that the large Egyptian race *Canis aureus lupaster* occurs in Palestine and recent studies suggest that this form is in fact a wolf (Ferguson 1981)

15- *Vulpes vulpes* (Linnaeus, 1758)

Common names: Red Fox; ثعلب – ابو حصين

World distribution: Europe and continental Asia, northern India, peninsular Indo-China, Japan, Palearctic Africa and North America.

National distribution: Sinai, northern part of eastern desert, Nile Delta and Valley and western Mediterranean coastal desert.

Burullus observation sites: Coastal plain from El-Burg to Masstrooh and tracks seen in the islets of the lake.

Description: Large reddish fox. The dorsal surface is reddish to reddish brown; side is yellowish gray and venter is brownish or blackish. Tail is long, bushy and club-shaped with white tip. Ear is relatively large and

black posteriorly. Pupil of eye is elongate vertically. Skull is broadest on sides, narrower at base and frontal region is not inflated.

Comparison: *Vulpes vulpes* differs from other Egyptian foxes by darker colour, back of ear being black instead of pale brown in *V. rueppelli*, venter blackish and presence of black mark on foreleg.

Habitats and ecology: Inhabits date and fruit groves, cultivated areas and suburban gardens. Not strictly nocturnal. Commonly seen during daylight hours. Feeds on birds, rodents and insects (Basuony 1998).

Status: Lower Risk (least concern).

Remarks: According to Osborn and Helmy (1980) this fox is belonging to subspecies *aegyptiaca* that widespread in Nile Delta and Valley.

Family Mustelidae

16- *Mustela nivalis* Linnaeus, 1766

Common names: Weasel; عرسة - ابن عرس

World distribution: Europe, North America, northern Asia south to Asia Minor. In Africa, Morocco, Algeria and Egypt.

National distribution: It is restricted to Nile Delta from Port Said to Alexandria south to Cairo and also in Faiyum.

Description: A very small, slender carnivore, males consistently larger than females. Long-bodied and short-legged. Head relatively small, snout broad and ears small. Upper parts, legs, feet and tail chest-nut to dark brown. Under parts including chin and throat, white to cream, which may or may not clearly demarcated from the upper parts. Sometimes show brown spots or blotches on the underside. Tail around one-quarter of total length, slender, not bushy, brown above and below, slightly darker at tip.

Habitats and ecology: Largely a commensal of humans found in cities, towns, villages and agricultural land. Largely nocturnal, but can be seen during the day.

Status: Lower Risk (least concern).

Remarks: It has been suggested that the Weasel is introduced species. The fact that the lower Egyptian Weasel is considered sufficiently distinct to warrant subspecific status would suggest that the Weasel is native.

Family Viverridae

17- *Herpestes ichneumon ichneumon* (Linnaeus, 1758)

Common names: Egyptian Mongoose; نمس

World distribution: Africa, from Morocco and Egypt in the north to Cape Province in the south, Spain, Portugal and Turkey.

National distribution: Nile Delta, Nile Valley south to Assyut, El-Faiyum and Burg El-Arab.

Burullus observation sites: Al- Kawm Al-Akhdar Islet.

Description: Weasel-like carnivore. Body is elongated. Pelage is long, coarse with blackish brown grizzled. Tail is long and tapering with black tip and flattened base. Palm and sole are naked. Claws are noncontractile. Ear is short, broad and rounded. Skull is elongated and broadest at the base of zygomatic process.

Comparison: *Herpestes ichneumon* is distinguishable from all other Egyptian carnivores by its speckled colouring; long and tapering tail; short and broad ears; high and narrow skull.

Habitats and ecology: Cultivated areas of Nile Valley and Delta, near water. Terrestrial species, but readily enters water and swims well. Diurnal and crepuscular. Feeds on rodents, birds, poultry, reptiles, frogs and various aquatic and terrestrial invertebrates (Harrison and Bates 1991). It is hunt their prey by speculation and tend to take a variety of species (Cloudsley- Tompson 1996).

Status: Lower Risk (least concern).

Remarks: The only specimen was seen as jumping from the islet land to reedbed through water canal.

Family Felidae

18- *Felis chaus nilotica* De Winton, 1898

Common names: Jungle or Swamp Cat; قط بري

World distribution: Egypt through to Asia Minor, eastern Transcucasia, north along the west shore of the Caspian Sea to the Volga Delta, Iran, Afganistan, Chinese Turkestan, India, Sri Lanka, Burma and Vitnam.

National distrbution: Nile Delta, Nile Valley south to Aswan, El-Faiyum, Farafra and Dakhla oases and western Mediteranean coastal desert.

Burullus observation sites: Al-Kawm Al-Akhdar Islet.

Description: Large cat, colour is dark, and grizzled is buff. Lacrimal stripe is dark brown and prominent. Chick stripe is absent. Ear is reddish brown with black tip and small tuft. Tail is relatively short (one-third head and body length) with several black distal rings and black tip. Skull is large and condyloincisive length over 95 mm.

Comparison: *Felis chaus* can be distinguished from other Egyptian felids by less conspicuous body markings; cheek stripe lacking; black ear tufts; tail shorter and skull more elongate.

Habitats and ecology: Low cultivated or marshly ground, reed beds or any similar thick cover (Anderson 1902, Flower 1932, Osborn and Helmy 1980). Basuony (2003) saw an individual in reed swamp (*Phragmites australis*). It is primarily diurnal. Its diet consists principally of birds, small mammals, frogs and snakes of the genus *Coluber* and *Psammophis* (Harrison and Bates 1991).

Status: Vulnerable.

Remarks: The previous record of *Felis chaus* from Egyptian desert is from western desert, Nile Valley and southern corner of Nile Delta (Saleh 1993). The record of the study of Basuony (2003) added new geographical record of this species.

13.5. SUMMARY

A total of eighteen mammalian species, representing eleven families belonging to four orders, were recorded from Burullus Wetland. Rodents form the largest mammalian group of the area, being represented by seven species (about one-third of the total recorded species). Carnivores come next with five species. Insectivores and chiropterans were represented by only three species each.

Flower's Shrew *Crocidura floweri* is the only endemic mammal species known from Burullus Protected Area. The species is confined to the Egyptian Nile Valley, where it is very rare. The species was previously recorded from Wadi El Natrun in 1985. The only known record from Burullus area (Baltim) was from the 1930's. The Giant Musk Shrew *Crocidura flavescens* is the second rarest mammal in the Protected Area, where it is scarce. Three rodents are widely considered as pests because of the damage they cause to crops, these are: Black Rat *Rattus rattus*, Brown Rate *Rattus norvegicus* and House Mouse *Mus musculus*.

There are no globally endangered mammalian species recorded in Burullus Protected Area. In addition to the endemic Flower's Shrew *Crocidura floweri*, the Jackal *Canis aureus* and Jungle Cat *Felis chaus* are locally threatened large carnivores.

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13.7. PLATES OF MAMMALS (13.1 – 13.8)

(after Wassif 1995, Websites: www.animals.net & www.iucn.org)

Plate 13.1

Hemiechinus auritus
Crocidura flavescens

Plate 13.2

Crocidura floweri
Rousettus aegyptiacus

Plate 13.3

Rhinopoma microphyllum
Pipistrellus kuhlii

Plate 13.4

Gerbillus andersoni
Psammomys obesus

Plate 13.5

Arvicanthis niloticus
Rattus rattus

Plate 13.6

Rattus norvegicus
Mus musculus

Plate 13.7

Acomys cahirinus
Canis aureus

Plate 13.8

Vulpes vulpes
Mustela nivalis

Plate 13.9

Herpestes ichneumon
Felis chaus