

BULLETIN OF THE IRAQ NATURAL HISTORY MUSEUM

Iraq Natural History Research Center & Museum, University of Baghdad

<https://jnhm.uobaghdad.edu.iq/index.php/BINHM/Home>

Online ISSN: 2311-9799

Print ISSN: 1017-8678

Bull. Iraq nat. Hist. Mus.

(2022) 17 (1): 67-87.

<https://doi.org/10.26842/binhm.7.2022.17.1.0467>

ORIGINAL ARTICLE

BIRDS OF CONSERVATION CONCERN AT AL-NAJAF DESERT, SOUTHERN DESERT OF IRAQ

^{ORCID} Hayder M. Al-Rammahi*[✦] and ^{ORCID} Mohammad K. Mohammad**

*Faculty of Veterinary Medicine, University of Kufa, An-Najaf al-Ashraf, Kufa, Iraq.

**College of Health and Medical Technology, Uruk University, Baghdad, Iraq.

✦Corresponding author: hayderm.alrammahi@uokufa.edu.iq

Received Date: 26 November 2021, Accepted Date: 27 April 2022, Published Date: 20 June 2022



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)

ABSTRACT

One eighth of the bird species in the world is considered globally threatened; the avifauna of Iraq comprises 409 species and is considered as the major indicator of the health of Iraq's biological resources. The Iraqi geography falls into five main regions among which is the desert and semi-desert areas which cover much of the country area. Al-Najaf desert is still one of the poorly known regions from the biodiversity point of view. Birds of conservation concern are detected in Al-Najaf desert during 31 field trips to 20 sites conducted from August 2018 to April 2020, (citing literature records, and personal interviews with locals). The factors caused the bird numbers to decline in Al-Najaf desert include hunting and trapping, logging, invasive species, and climate change.

Nine birds are found threatened with 3 EN and 6 VU comprising Saker Falcon *Falco cherrug* Gray, 1834 (Falconidae, Falconiformes), Red-footed Falcon *Falco vespertinus* Linnaeus, 1766 (Falconidae, Falconiformes), Steppe Eagle *Aquila nipalensis* Hodgson, 1833 (Accipitridae, Accipitriformes), Egyptian Vulture *Neophron percnopterus* (Linnaeus, 1758) (Accipitridae, Accipitriformes), Greater Spotted Eagle *Aquila clanga* (Pallas, 1811) (Accipitridae, Accipitriformes), Marbled Teal *Marmaronetta angustirostris* (Ménétrés, 1832) (Anatidae, Anseriformes), Macqueen's Bustard *Chlamydotis macqueeni* (Gray, 1834) (Otididae, Otidiformes), Turtle Dove *Streptopelia turtur* (Linnaeus, 1758) (Columbidae, Columbiformes), and Southern Grey Shrike *Lanius meridionalis aucheri* Bonaparte, 1853 (Laniidae, Passeriformes). It is concluded that Al-Najaf desert is a region of top priority area for biodiversity conservation as it hosts large number of threatened bird species.

Keywords: Al-Najaf desert, Climate change, Hunting and trapping, Invasive species, Logging, Threatened birds.

INTRODUCTION

One eighth of the bird species in the world is considered globally threatened and there are 222 Critically Endangered species at risk now of pressing extinction (BirdLife

Birds of conservation concern at Al-Najaf

International, 2017a). The main threats that face world's birds include industrial farming, logging, invasive species, hunting and trapping and climate change (BirdLife International, 2017b). Continuous bird declining is a global phenomenon rather than local. Furthermore, deserts are among the most fragile ecosystems on the globe .

The Iraqi geography falls into five main regions among which is the desert and semi-desert areas which cover much of the country area (Salim *et al.*, 2012). The desert comprises the land that lying to the west and southwest of the River Euphrates, often subdivided into western desert to the north and southern desert to the south. The latter consists of a wide stony plain interspersed with sandy stretches. A widely ephemeral wadis-watercourses that are dry most of the year and runs from the international border to the River Euphrates carrying brief but huge floods during the rains of winter. It is known as Al-Dibdibah in the eastern part and as Al-Hajarah in the west. Al-Dibdibah is a sandy region covered with scrub vegetation. Al-Hajarah has a complex topography of depressions, ridges, wadis, and rocky desert (Cavendish, 2006; Ali *et al.*, 2021). The avifauna of Iraq comprises 413 species (IMOIE, 2018). Birds are considered as the major indicator of the health of Iraq's biological resources (Salim *et al.*, 2009). Iraq encountered three main bird flyways; Mediterranean-Black Sea Flyway, Central Asia Flyway, and East Asia-East Africa Flyway (Al-Sheikhly *et al.*, 2017). Therefore, the southern desert of Iraq represents staging/stopover sites for migratory birds .

Al-Najaf desert is still one of the poorly known regions from the biodiversity point of view. However, few works on the avifauna had been carried out in Al-Najaf Al-Ashraf Province by Mohammad *et al.* (2013 a, b) and Salim and Abed (2017), who highlighted some conservation hints in their texts. Salim and Abed (2017) studied the avifauna diversity at Bahr Al-Najaf, a salty water body adjacent to the desert from the northeastern side, and mentioned that the desert areas seem to harbor some threatened species naming 11 threatened bird species. However, Iraq has some laws that restrict hunting. For example, the Law No. 27 of 2009 (Law of Protection and Improvement of the Environment), which prohibits in the Article 18, inter alia, hunting birds that are threatened or likely to be threatened with extinction, or use them for trade. Law No. 17 of 2010 enactment (Law of Protecting Wild Animals) which was an update and abolition an old law (Law No. 21 of 1979) which is not enforced and actively implemented yet as there is still extensive illegal hunting/trapping of many IUCN Red-listed species. Action is seriously needed to stop such practices, otherwise such activities will continue, and could result in a significant decline of different bird species numbers in Iraq.

The aim of the present work is to survey, record sighting sites, and assess the current conservation status of threatened birds in Al-Najaf desert, southern desert of Iraq.

MATERIALS AND METHODS

Study area

Al-Najaf desert (Map 1) falls within the Arabian Desert and East Sahero-Arabian Xeric Shrubland ecoregion (PA1303). It represents an extension of the northern plateau of the

Arabia. Most of the Al-Najaf desert is not populated, except for a small settlement called Al-Shabaka. In general, Al-Najaf desert area is flat landscape reaching its highest height near the Iraqi-Saudi border by 300-400 m asl (Ma'ala, 2009). The majority is a plateau dissected by number of valleys, which drained rain water towards the northeastern part.

There are six physiographic structures which are considered important for avian biodiversity; Valleys include wadis and shaebs, Plateau and Fidhats, Tar Al-Najaf and cliffs, Temporary water pools and Oases. Table (1) provides detailed data on the threatened recording sites of threatened birds in Al-Najaf desert.

Climate

In Al-Najaf desert region, the climate is considered as hot summers and cool winters. This region also receives transitory violent rainstorms in the winter; precipitation is about 50-100mm (Saleh *et al.*, 2020; Al-Kafaji, 2016). Climate Change Knowledge Portal (CCKP, 2022) put most of Iraq including the study area as BWh hot desert climate according to Köppen-Geiger Climate Classification, 1991-2020 covering the period of this study.

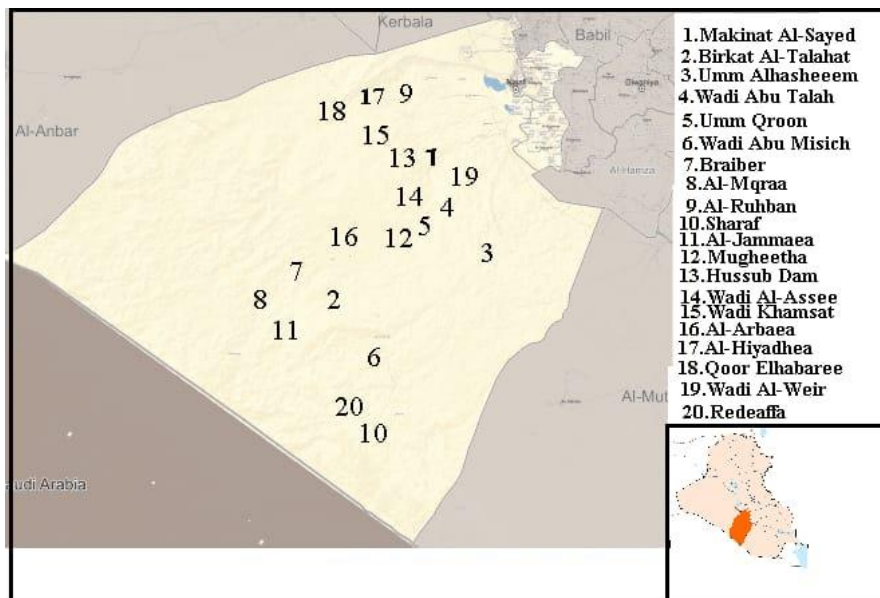
Methodology and data collection

The detection of occurrence of birds of conservation concern in Al-Najaf desert was made during 31 field trips lasted for 57 days in total conducted from August 2018 to April 2020, citing literature records, and personal interviews with local people.

(i) Field data: field records were obtained using rapid assessment through species-list method (MacLeod *et al.*, 2011). According to the distance between the sites, habitat heterogeneity includes the following: (topography, secondary habitat type, and flora main components) and habitat diversity (total number of general habitat types). A total of 20 sites were visited during the time between August 2018 to April 2020 (Tab.1). *In situ* work was two shifts of 3-4 hours per one-three days spent at the study sites. The expeditions were arranged putting in mind that each site should be visited at least 2 times in a season. During the time from June to August 2019, it is proved practically not possible to reach this goal; the starting time of field surveys was at 5-5:30 am in the summer and at 6:30-7:00 am in the winter.

The observations of presence and counting of the bird species were made by direct visual observations of live birds in the wild, birds in captivity, dead hunted specimens, and remains of carcasses at the study area. The photo documentation was made using a digital camera Canon EOS 6D equipped with 50-500mm F/4-6.3 AF zoom Lens .

Birds of conservation concern at Al-Najaf



Map (1): Map of Iraq showing Al-Najaf desert situation with the distribution of the visited sites during the study numbered as it is in Table (1). (Modified from: <https://www.google.com/maps/@31.3158653,44.2569566,9z?hl=ar> retrieved on 10.April. 2022).

(ii) Literature review: a review of literature which covers the study area yielded only a few records. For example, surprisingly, the comprehensive work of Allouise (1960, 1961, 1962) in its three volumes mentioned the name (Al-Najaf) only twice and both of them were not related to the desert area. The biodiversity of the Arabian Desert and East Sahero-Arabian Xeric Shrublands, which Al-Najaf desert falls within, is the least known in Iraq and received little focused study (IMOE, 2010) Most of the available knowledge on the avian fauna of Al-Najaf desert came from the works on Bahr Al-Najaf depression which is a large salt water body at the northeastern corner of the desert juxtaposing the study area. These works include Mohammad et al. (2013a) and Salim and Abed (2017).

(iii) Interviews with local people settled at Al-Shabaka Village near Iraqi-Saudi international border line, farmers of the two oases (Al-Rohban and Al-Hiadhiya) located at the northeastern corner of the desert, some hunters and trappers who regularly visited the region especially in winter and spring, the shepherds used to travel with their herds of sheep, goats or camels along the southern desert areas including the Al-Najaf desert, in addition to an interview with security forces members as they usually spend long time in remote locations. The data covered by the interviews mentioned above often concentrate on the most common birds which are

hard to be mistaken. Threats were categorized according to the IUCN classification criteria Ver. 14 (IUCN, 2019).

Specimen's identification

The species characteristic morphology and field identification signs were done following Allouse (1960), Salim *et al.* (2006), and Pope and Zogaris (2012).

Table (1): Birds of conservation concern recording sites at Al-Najaf Desert during August 2018 to April 2020.

Site	Site name	Habitat type	Coordinates	Altitude (m)	Dominant plant cover	Topography
1	Makinat Al-Sayed	Faidhat	31.593598N 44.018942E	145	Cultivated <i>Eucalyptus</i> sp. introduced trees	Many depressions
2	Birkat Al-Talahat	Faidhat	30.935338N 43.906387E	272	<i>Vachellia gerrardii negevensis</i> (Zohary) Ragup. <i>et al.</i> , 2014 trees and <i>Rhazya stricta</i> Decne. dwarf shrub	Depression with muddy base
3	Umm Alhasheem	Faidhat	31.180774N 44.423026E	135	<i>Ziziphus nummularia</i> (Burm.f.) Wight & Arn. perennial shrubs	Large depression
4	Wadi Abu Talah	Valley	31.544664N 44.261329E	80	<i>Vachellia gerrardii negevensis</i> trees	Shallow valley with rocky bottom
5	Umm Qroon	Faidhat	31.547683N 44.229974E	107	<i>Ziziphus nummularia Lycium shawii</i> Roem. & Schult. shrub trees	Depression
6	Wadi Abu Misich	Valley	30.745162N 43.741112E	316	<i>Thymus</i> sp. perennial herb	Up to 20 m cliff height with narrow stony-gravelly basin
7	Braiber	Faidhat	31.200681N 43.41789E	277	<i>Haloxylon</i> sp., annual herbs	Depression
8	Al-Mqraa	Faidhat	30.808608N 43.453759E	222	<i>Astragalus</i> spp., Annual herbs	Depression
9	Al-Ruhban	Oasis	32.073283N 44.061167E	27	Cultivated Date palm tree <i>Phoenix dactylifera</i> L., <i>Tamarix</i> spp.	Agricultural muddy land
10	Sharaf	Faidhat	30.62089N 43.751189E	346	Annual herbs only	Depression with rocky base and lot of artificial wells
11	Al-Jammaea	Faidhat	30.770278N 43.569166E	335	<i>Tamarix aphylla</i> (L.), Karst.	Muddy base depression
12	Mugheetha	Faidhat	31.355324N 44.131057E	173	<i>Ziziphus nummularia</i> shrub trees	Muddy base depression
13	Hussub Dam	Man-made	31.612208N 43.962677E	135	<i>Ziziphus nummularia, Lycium shawii</i> shrub	Deep muddy valley

BULLETIN OF THE IRAQ NATURAL HISTORY MUSEUM

Birds of conservation concern at Al-Najaf

		temporary wetland			trees	
14	Wadi Al-Assee	Valley	31.499105N 44.327263E	98	<i>Ziziphus nummularia</i> , <i>Lycium shawii</i>	
15	Wadi Abu Khamsat	Valley	31.771666N 43.90639E	126	<i>Ziziphus nummularia</i> , <i>Lycium shawii</i>	Rocky deep valley
16	Al-Arbaea	Faidhat	32.071667N 43.767176E	290	<i>Haloxylon</i> spp.	Undulating depression
17	Al-Hiyadhea	Oasis	32.031966N 43.913576E	68	Date palm tree <i>Phoenix dactylifera</i> , <i>Tamarix</i> spp., <i>Ziziphus spinachrista</i> (L.) Decf.	Agricultural muddy land
18	Qoor Elhabaree	Faidhat	31.917223N 43.732221E	138	<i>Haloxylon</i> spp.	Depression with isolated hills
19	Wadi Al-Weir	Valley	31.61941N 44.226857E	84	<i>Vachellia gerrardii</i> <i>negevensis</i> , <i>Lycium shawii</i> and <i>Ziziphus nummularia</i>	Rocky deep valley
20	Redeaffa	Temp. water body	30.710888 43.686728	348	Annual herbs only	Deep depression surrounded by high hills

RESULTS AND DISCUSSION

According to BirdLife International (2017b), the top five factors affecting and threatening birds worldwide include industrial farming, logging, invasive species, hunting and trapping, and climate change. At least four out of the five main factors caused bird's decline are identified in Al-Najaf desert with different impact levels. These factors could be categorized into the following:

1. Hunting and trapping: European Turtle Dove *Streptopelia turtur* (Linnaeus, 1758) was once a familiar migrant to Europe, Central Asia and the Middle East from the Sahel zone of Africa (BirdLife International, 2022). It is believed that 0.6 million individuals in 27 Mediterranean countries are illegally hunted annually (Brochet *et al.*, 2016). Because of habitat loss and hunting, the species is now declining across its range, especially in Western Europe, and has recently been up listed to vulnerable. Marbled teal *Marmaronetta angustirostris* (Ménétries, 1832), Macqueen's Bustard *Chlamydotis macqueenii* (Gray, 1832) and Sandgrouse; Pin-tailed Sandgrouse *Pterocles alchata* (Linnaeus, 1766), Black-bellied Sandgrouse *Pterocles orientalis* (Linnaeus, 1758), and Spotted Sandgrouse *Pterocles senegallus* (Linnaeus, 1771) are examples of hunting effect .

Marbeled Teal *Marmaronetta angustirostris*, Macqueen's Bustard *Chlamydotis macqueenii*, Brown-necked Raven *Corvus ruficollis* Lesson, 1831 and Common Raven *Corvus corax* Linnaeus, 1758 as trapping effect examples.

Falconry hunting parties from different Arabian Gulf countries have been visiting Iraq in order to trap falcons in particular, inter alia, Lanner Falcon or to hunt Macqueen's Bustard. It has been locally reported that both falcon and bustard species are becoming increasingly rare in Iraq because of hunting and trapping (Al-Sheikhly, 2011). Although falconers target falcons that are qualified to hunt, such Saker and Lanner Falcons, some other birds of prey such as harriers fall into their traps accidentally, they either killing them or selling them. Rarely were these birds released. Recently a social media advertisement for a private zoo in Al-Najaf Al-Ashraf City showed two mature and juvenile Egyptian Vultures (Pl. 1) but the authors could not be sure of their collection site. However, the illegal trade of wild birds has increased in the recent period at Al-Najaf Al-Ashraf City, and there are special markets dedicated to sell these birds. Al-Sheikhly (2011) collected detailed information about the trapping and traffic of Lanner Falcon *Falco biarmicus* Temminck, 1825.

2. Logging: Southern Grey Shrike *Lanius meridionalis* Temminck, 1820 is affected by logging the Talh trees *Vachellia gerrardii* var. *negevensis* (Zohary) Ragup. *et al.* 2014 and the Sidr bush *Ziziphus nummularia* (Burm.fil.) Wight & Arn., 1814 thickets which this bird used them largely to keep its preys on them, to get roost and hide within .



Plate (1): A juvenile Egyptian Vulture in the zoo at Al-Najaf Al-Ashraf City.

Birds of conservation concern at Al-Najaf

3. Invasive species: Black-winged Kite *Elanus caeruleus* (Desfontaines, 1789), *Oena capensis* (Linnaeus, 1766) and *Spilopelia senegalensis* (Linnaeus, 1766) are examples for invasive birds. Namaqua Dove *O. capensis* vs *Streptopelia turtur* in Al-Talhat site and *E. caeruleus* vs Grey Hypocolius *Hypocolius ampelinus* Bonaparte, 1850; Collared Dove *Streptopelia decaocto* (Frivaldszky, 1838) and Wood Pigeon *Columba palumbus* in Al-Ruhban and Al-Hiyadhia oases. Parejo *et al.* (2001) found that unidentified passerine birds comprise 2.54% of the prey biomass of *Elanus caeruleus* in Spain. Probably nestlings of *S. decaocto* and *C. palumbus* are utilized as food source for this kite as the predator and prey sympatrically breed.

4. Climate change: Azooz and Talal (2015) found a significant climate change in Iraq as manifested by temperature increase and precipitation reduction. Iraq suffers now from temperature rise, precipitation decline, severe droughts, desertification, salinization, and more frequent dust storms (USAID, 2017; Adamo *et al.*, 2018). This category of threat is not yet well understood in the Al-Najaf desert. The climate change impacts are expected to affect, *inter alia*, Iraq's biodiversity. So, it could be presumed that migratory and resident birds will be affected at different levels. In this context, Al-Blooshi *et al.* (2020) concluded that climatic changes put migratory birds at greater risk of extinction than permanent resident birds. Detailed studies on this issue in Al-Najaf desert including resident and migratory birds are urgently needed.

Table (2) provides a systematic list of the birds of conservation concern recorded in Al-Najaf desert. This would show that the threatened avian species belong to 6 orders, 6 families, 8 genera, and 9 species.

Table (2): A systematic list of threatened birds recorded in Al-Najaf desert emphasizing their conservation status.

no.	Order	Family	Scientific name	Common name	Conservation status
1	Falconiformes	Falconidae	<i>Falco cherrug</i>	Saker Falcon	EN
2	Falconiformes	Falconidae	<i>Falco vespertinus</i>	Red-footed Falcon	VU
3	Accipitriformes	Accipitridae	<i>Aquila nipalensis</i>	Steppe Eagle	EN
4	Accipitriformes	Accipitridae	<i>Neophron percnopterus</i>	Egyptian Vulture	EN
5	Accipitriformes	Accipitridae	<i>Aquila clanga</i>	Greater Spotted Eagle	VU
6	Anseriformes	Anatidae	<i>Marmaronetta angustirostris</i>	Marbled Teal	VU
7	Otidiformes	Otididae	<i>Chlamydotis macqueeni</i>	Macqueen's Bustard	VU
8	Columbiformes	Columbidae	<i>Streptopelia turtur</i>	Turtle Dove	VU
9	Passeriformes	Laniidae	<i>Lanius meridionalis</i>	Southern Grey Shrike	VU

Order: Falconiformes**Family: Falconidae**

Saker Falcon *Falco cherrug* Gray, 1834, rare local migrant in Al-Najaf desert. Saker Falcon was used as criteria to evaluate the nominated areas as IBAs (Al-Sheikhly and Al-Azawi, 2019). According to Ferguson-Lees and Christie (2001), the birds that were found in Iraq are considered as an intergrade subspecies *F. c. milvipes*. However, Al-Sheikhly and Al-Azawi (2019) in their survey to the diurnal raptors of the southern marshes in Iraq mentioned the Saker Falcon with the trinomial name *F. c. milvipes* without explaining whether it represents a subspecies or an intergrade race. It is known as the main bird used by falconers to hunt bustards which made its price very high bringing it to severe hunting through exporting to the Arabian Gulf countries regardless the rules of CITES convention. Salim and Abed (2017) mentioned that the locals at the north-eastern corner of Al-Najaf desert have reported that the falconers used to collect some Falcons (mainly *Falco cherrug*) from or around this area. Its existence gives the study area a special priority for management and conservation.

It was assessed globally as EN by IUCN, this needs reconsideration at a regional level in the Al-Najaf desert. This bird was reported to breed in the north of Iraq (Ferguson-Lees and Christie, 2001). They added that it is rare throughout its range of distribution and declining. Conservation status EN, Birdlife International (2022) assigned this species as globally EN. It is known as the main bird used by falconers to hunt bustards which made the price very high exposing it to severe hunting and exporting to the Arabian Gulf countries regardless the rules of CITES convention. Falconry hunting parties from different Arabian countries have been visiting Iraq in order to trap falcons particularly, inter alia, Saker falcon or to hunt Macqueen's bustard.

Red-Footed Falcon *Falco vespertinus* Linnaeus, 1766 VU, is a rare winter visitor in Al-Najaf desert. Birdlife International (2022) assigned this species as vulnerable ver 3.1. The global population trend is in decline due to habitat destruction. This raptor is only recently reported for Iraq (Al-Sheikhly, 2012). Only three records had been observed yet in the study area. Al-Sheikhly and Al-Azawi (2019) could not observe this species among the raptors in the Mesopotamian Marshes of southern Iraq. Furthermore, Hadi *et al.* (2021) were not able to found this species among the falcons voucher specimens which they examined in the collection of the Iraq Natural History Museum, Baghdad. It could be only speculated that illegal hunting is the major threat for this raptor. However, further study for this species is needed to clarify, in detail, the probable threats which are facing now.

Order: Accipitriformes**Family: Accipitridae**

Steppe Eagle *Aquila nipalensis* Hodgson, 1833, is uncommon winter visitor in Al-Najaf desert. Twenty individuals were seen at 8 sites in the study area (Tab. 3). It represents the most common eagle in Al-Najaf desert. This bird locally becomes insectivorous in its wintering ground (Rasmussen and Anderton, 2005) while severe

Birds of conservation concern at Al-Najaf

drought and dropping temperature conditions contribute to decrease the availability of active insects in the area. Pope and Zogaris (2012) noticed that it is very common as a passage migrant but scarce during winter in Kuwait state. This species experiences rapid population decline across most of its distribution range (BirdLife International, 2022). In an interesting record, Keijmel *et al.* (2020) counted >7000 birds in two dump sites in central Saudi Arabia during November 2019 to January 2020. It was seen mostly in steppe, semi-desert and desert areas in Iraq. The direct threats in the study area are food shortage and habitat loss while wintering. Birdlife International (2022) assigned this species as globally Endangered A2abcd + 3bcd + 4abcd ver 3.1 .

Table (3): Threatened bird species, recording sites, date of observations and number of observed birds in Al-Najaf Desert during 2018-2020 .

Threatened bird species		Recording site	Date of observation	Number of observed birds
Common name	Scientific name			
Saker Falcon	<i>Falco cherrug</i>	Umm Alhasheem	28.10.2019	1
		Wadi Abu Talah	24.3.2019; 12.11.2019	2; 2
		Wadi Al-Weir	19.12.2019	1
		Wadi Al-Assee	12.11.2019	1
Red-footed Falcon	<i>Falco vespertinus</i>	Birkat Al-Tahat	5.11.2019	1
		Wadi Abu Talah	20.3.2019	1
		Umm Qroon	12.10.2018	1
Steppe Eagle	<i>Aquila nipalensis</i>	Makinat Al-Sayed	18.10.2019	3
		Umm Alhasheem	3.1.2019	1
		Umm Qroon	14.3.2020	1
		Wadi Abu Misich	3.1.2020; 12.3.2020	1; 3
		Braiber	2.1.2020	1
		Al-Mqraa	12.3.2019	2
		Sharaf	30.12.2019	1
		Wadi al-Weir	15.2.2019	1
Egyptian Vulture	<i>Neophron percnopterus</i>	Makinat Al-Sayed	25. 3.2019	1
		Hussub Dam	19.2.2019; 6.3.2019	1; 1

BULLETIN OF THE IRAQ NATURAL HISTORY MUSEUM

Al-Rammahi and Mohammad

Greater Spotted Eagle	<i>Aquila clanga</i>	Makinat Al-Sayed	19.2.2019	2
		Sharaf	24.1.2020	1
		Hussub Dam	27.12.2018	1
Marbled Teal	<i>Marmaronetta angustirostris</i>	Wadi Abu Misich	8.1.2019	2
		Hussub Dam	27.3.2019	8
		Eredefa	28.2.2020	16
Macqueen's Bustard	<i>Chlamydotis macqueeni</i>	Umm Alhasheem	4.11.2018	4
		Wadi Abu Talah	6.10.2018	3
		Umm Qroon	14.11.2019	3
		Al-Mqraa	9.12.2019	1
		Mugheetha	13.11.2019	2
		Wadi Al-Assee	2.12.2018	3
		Wadi Abu Khamsat	6.12.2019	2
		Al-Arbaea	14.10.2019	1
		Qoor Elhabaree	8.12.2019	3
		Wadi Al-weir	28.9.2019	1
Turtle Dove	<i>Streptopelia turtur</i>	Birkat Al-Talhat	24.3.2019; 7.11.2019	1; 1
		Wadi Abu Talah	31.10.2019	1
		Al-Ruhban	26.3.2019	2
		Al-Hiyadhea	26.3.2019; 8.3.2019	1; 1
		Qoor Elhabaree	13.9.2018	1
Southern Grey Shrike	<i>Lanius meridionalis aucheri</i>	Birkat Al-Talhat	24.3.2019; 28.2.2020	1; 1
		Wadi Abu Talah	28.2.2019	4
		Umm Alhasheem	26.2.2020	1
		Al-Ruhban	6.3.2019	2
		Mugheetha	12.4.2019	2
		Wadi Al-Assee	19.1.2020	2
		Wadi Al-Weir	1.2.2019	2

Egyptian Vulture *Neophron percnopterus* (Linnaeus, 1758), is a rare local migrant. Birdlife International (2022) assigned this species as globally Endangered A2bcde+3bcde ver 3.1. This bird is EN as its population declined by 50% within the last 30 years; also that precipitation amount is the main variable in the determination of habitat locations (Rahim, 2014). Thus, in view of highly fluctuated amount of rain fall in Iraq it could be suspected that the bird population is not always stable and varied from a year to another. Botha *et al.* (2017) declared that Egyptian Vulture is declining in all

Birds of conservation concern at Al-Najaf

parts of its range. Unfortunately, the data on Egyptian Vulture status and breeding population estimates is missing for Iraq with limited distribution in the western desert and none in the southern desert. Allouse (1960) reported that it is with wide distribution in Iraq and reports its breeding in the Ahwaz marshes just bordering and continuous with Missan and Basrah Marshes, in Himrin Mountains in Kirkuk and Diyala Provinces, and northern mountains in Kurdistan of Iraq. He stated that the non-breeding birds are present in central and southern plains in small numbers. Recently, through satellite tracking, it is found that these birds migrate through the north of the southern marshes (Buechley *et al.*, 2018; Karyakin *et al.*, 2018; Al-Sheikhly and Al-Azawi, 2019). Abou – Turab *et al.* (2021) decided that this bird has not been observed a wide distribution in south of Iraq in the last few decades. By combining the previous notes of Allouse (1960), of Abou-Turab *et al.* (2021), and the authors' observations during last four decades which indicates its presence in several sites of Western desert such as Rutba, Haditha, Houran, Qa'ara, Anah, Qaim, Heet, Al-Baghdadi, Km 160 station, Habbariya, and Nukhaib, it is clear that the bird population is declining steadily. Now, it is very rare in Al-Najaf desert; the local main threats are food shortage and hunting. In the present study five birds were observed near Tar Al-Najaf and one found shot near Husub dam. This bird roosts on faces of cliffs (GRIN, 2022). Only few sites in Al-Najaf desert offer such places; this may explain, at least partly, its rarity in the area. However, its breeding is uncertain although the fact it is rarely found far from nesting cliffs. During the entire course of the study, the authors were unable to document its breeding.

Greater Spotted Eagle *Aquila clanga* Pallas, 1811, uncommon non-breeding passage migrant and probably winter visitor. It is rare in the area during the course of the study and recorded in Makinat Al-Sayed, Sharaf, and Hussub Dam. These sites are with good water supply almost around the year except for the severe drought years, relatively good plant cover with trees and shrub trees (except Sharaf site), and consequently a good deal of prey availability. Birdlife International (2022) assigned this species as globally Vulnerable C2a (ii) ver 3.1. but at the regional level it was assessed by IUCN (2013) as EN Endangered B1 ab (iii) + B2 ab (iii), depending on AOO. Al-Sheikhly and Al-Azawi (2019) decided that shooting, trapping and illegal trade are main threats facing wintering birds of prey in southern wetlands; this is true also in the present case as it was found that individuals were caught alive to be sold in markets at Al-Najaf city local markets.

Order: Anseriformes**Family: Anatidae**

Marbled Teal *Marmaronetta angustirostris*, uncommon local migrant. Richardson and Hussain (2006) mentioned that up to 60% of its global population is found in the south of Iraq; this bird was designated by Birdlife International (2022) as globally vulnerable (A2cd+3cd+4cd ver 3.1). This bird apparently undergoes a moderately rapid population decline in Iraq because of hunting pressure as it represents the only available game bird that targeted by shooting and trapping when the migratory ducks still not arrived during August and September after the raising ducklings are able to fly and the ducks tend to initiate rather large flocks at all of the breeding sites including Bahr Al-Najaf. Its

existence in Al-Najaf desert could be understood in view of two points, first: the bird usually shows nomadic and variable movements and dispersed at any time of year searching for a suitable habitat (del Hoyo *et al.*, 1992; Scott and Rose, 1996; Kear 2005), second: Bahr Al-Najaf which is juxtaposed the study area represents a major area for breeding of this bird (Mohammad *et al.*, 2013a). It had been infrequently recorded from Hussub dam, Wadi Abu Missich and ErRedeffa which are considered big temporary water bodies and the last rain pools that holds water after the wet season. Presence of this duck species in Hussub Dam during winter and spring is expected as this site is only about 50 km from the large permanent salty lake of Bahr Al-Najaf which is considered one of the important breeding places of the bird, but its presence in Wadi Abu Missich and ErRedeffa which are 155 and 160 km from Bahr Al-Najaf respectively is rather surprising and may reflect the effect of hunting pressure exerted on this endemic bird.

Order: Otidiformes

Family: Otidae

Macqueen's Bustard *Chlamydotis macqueeni* (J. E. Gray, 1832), vulnerable, uncommon winter visitor, passage migrant and former resident to Iraq. Birdlife International (2022) assigned this species as globally Vulnerable A4acd ver 3.1 .

On the basis of wide range of plant and animal food items through its long migration distance, it is considered as an opportunistic well adapted to desert environment getting water demands from food (Khan and Awan, 2019). Breeding grounds extend from north-western China and Mongolia to north Iran and the largest population is in southern Kazakhstan and the largest wintering populations present in Pakistan, Afghanistan and Iran with small populations in India and Iraq (Allinson, 2014). The bird is the most popular game bird in Iraq and severely hunted and trapped in the study area as well as other existence areas. It is widely distributed at various parts in Iraq in (Salim and Abed, 2017; Salim *et al.*, 2020). Parties from Arabian Gulf countries used to camp during winter and spring months to kill several hundred annually. The Macqueen's Bustard prefers the open, shrubby desert. It is facing serious pressure of illegal hunting, poaching through gun shots and falconry and trapping (Al-Sheikhly *et al.*, 2020).

Order: Columbiformes

Family: Columbidae

European Turtle Dove *Streptopelia turtur*. Vulnerable uncommon passage migrant.

Birdlife International (2022) assigned this species as globally Vulnerable A2bcd+3bcd+4bcd ver 3.1. According to Marchant (1963) the European Turtle Dove was present in large numbers in Iraq describing it, inter alia, as prominent and only visible daylight migrant bird crossing at autumn in vast numbers from east to west. Obviously, the situation now is not as such. This bird was recorded at many locations in the area but in a very few numbers. The major threat in the area is the hunting and poaching.

Birds of conservation concern at Al-Najaf

Order: Passeriformes**Family: Laniidae**

Southern Grey Shrike *Lanius meridionalis aucheri*, common resident breeder. BirdLife International (2022) assigned the species as globally Vulnerable A2abc+3bc+4abc ver 3.1. The population trend is decreasing. This bird has a wide range of distribution extends from eastern Sudan, Eritrea, North Ethiopia, North-western Somalia, Iraq, Southern Iran, Syria, Southeastern Israel, Southeastern Sinai Peninsula, West Arabian Peninsula and Oman with many races (Yosef and ISWG, 2008; Ganpule, 2016). It has a wide range of distribution in Iraq (Salim and Abed, 2017; Salim *et al.*, 2009, 2020). This bird is found in various Iraqi environments from aquatic to desert. It is well distributed in the study area as well. The direct threat in the study area is logging of Talh trees *Vachellia gerrardii negevensis*, Jujube (Sidr shrub tree) *Ziziphus nummularia* and Desert Thorn *Lycium shawii* by depriving the birds of places to monitor prey, hiding from predators, and losing food storage places.

Presence of 9 bird species of conservation concern in Al-Najaf desert highlighted its extreme importance in harboring and providing the necessities of life for this relatively large number of species. BirdLife International (2021) included 36 Iraqi birds as threatened comprising 2 critically endangered, 6 endangered, 9 vulnerable and 19 near threatened. This means that Al-Najaf desert hosts 1/4 of the Iraqi threatened birds including 3 out of 6 (50%) of endangered, 6 out of 9 (66.7%) of vulnerable. In view of these findings this area should be considered as top priority conservation area. According to BirdLife International (2021) Iraq encountered 9 threatened raptors belong to Accipitridae (7) and Falconidae (2). Table (2) shows that the Al-Najaf desert list includes 5 of them comprising 55.6% of the threatened birds of prey reported for whole Iraq, 2 falconids and 3 accipitrids. This highlights the high importance conservation value of the area. These results throw a light on the plight of the birds of prey in different ecosystems of Iraq. Worldwide, McClure *et al.* (2018) estimated that 52% of raptors are with declined populations and 18% are threatened with extinction .

From the data presented in Table (3), the birds of conservation concern in Al-Najaf desert could be categorized according to their recording frequency through August 2018 to April 2020 into the following categories: (1) birds with wide distribution including *Aquila nipalensis*, *Chlamydotis macqueeni*, and *Lanius meridionalis*; (2) birds with relatively restricted occurrence at certain habitats including *Marmaronetta angustirostris* (aquatic habitat) and *Streptopelia tutur* (presence of large trees), and (3) birds with only sporadic records including *Falco cherrug*, *F. vespertinus*, *Neophron percnopterus* and *Aquila clanga* .

There are 5 species of conservation concern birds that the current list shares with that of Salim and Abed (2017) who mentioned 11 avian species for the Bahr Al-Najaf and adjacent terrestrial area which just lies in touch with the northeastern corner of Al-Najaf desert. The shared species includes Egyptian Vulture, Greater Spotted Eagle, Saker Falcon, Macqueen's Bustard and Marbled Teal. The other 6 birds in their list either

Al-Rammahi and Mohammad

completely dependent on water species (Basrah Reed Warbler and Black-tailed Godwit), the threat status is NT (Pallid Harrier and Ferruginous Duck) or reduced to least concern LC (European Roller and Semi-collared Flycatcher).

Iraq has some laws that restrict hunting, but these are not enforced and there is extensive illegal hunting/trapping of many IUCN Red-listed species. Action is seriously needed to stop such practices, otherwise such activities will continue, and could result in a significant decline of raptors numbers in Iraq. The Marbled Teal is mentioned in the present list as a waterfowl and adapted well to live in large water bodies rather than the desert areas. Its presence is always in very few numbers. However its presence in remote areas needs more investigations.

CONCLUSIONS

Nine birds of conservation concern are present in Al-Najaf desert. These are 3 endangered and 6 vulnerable. The most influential factors affecting on avifauna of Al-Najaf desert are hunting, poaching, trapping, food shortage and climatic change. The role of Al-Najaf desert in hosting large number of threatened species qualifies it to be considered as a top priority area of biodiversity conservation.

CONFLICT OF INTEREST STATEMENT

"The authors have no conflicts of interest to declare".

ACKNOWLEDGEMENTS

The authors would like to acknowledge the help forwarded by Al-Numan Organization for the Protection of the Environment and Heritage of the Desert through providing logistics and facilities. Profound thanks to our colleagues Dr. Ali K. Haloob, National Herbarium of Iraq for his kind help in identifying the plant species, to Mr. Ahmad A. Al-Fiyada and Dr. Hassan Al-Maamoory from Al-Numan Organization for the Protection of the Environment and Heritage of the Desert for their assistance in the field work.

LITERATURE CITED

- Abou-Turab, M. K., Abduzahra, H. K. and Fadhil Abbas, A. 2021. Re-sighting Egyptian vulture *Neophron percnopterus*, (Linnaeus, 1758) with raptors survey at East Al-Hammar Marshes and Abo Al-Khaseeb, South of Iraq. *Iranian Journal of Ichthyology*, 8 (Special issue 1): 8-15. [[Click here](#)]
- Adamo, N., Al-Ansari, N., Sissakian, V. K., Knutsson, S. and Laue, J. 2018. Climate Change: Consequences on Iraq's Environment. *Journal of Earth Sciences and Geotechnical Engineering*, 8(3): 43-58. [[Click here](#)]
- Al-Blooshi, L. S., Issa, S. and Ksiksi, T. 2020. Assessing the environmental impact of climate change on desert ecosystems: a review. *Advances in Ecological and Environmental Research*, 5 (2): 27-52. [[Click here](#)]

Birds of conservation concern at Al-Najaf

- Ali, A. H., Ali, K. K., and Al-Shamma'a, A. M. 2021. Surface Basins Evaluation of the Southern Desert, West Iraq. *Iraqi Journal of Science*, 62(7): 2272-2285. [[CrossRef](#)]
- Al-Kafaji, S. N. 2016. The Morphometric and Hydrologic Features to Qarin Al-Thimad Valley in the Southern Desert of Iraq- Al-Najaf Desert. *Basic Education College Magazine for Educational and Humanities Sciences*, 26: 616-639. (In Arabic with an English abstract). [[Click here](#)]
- Allinson, T. 2014. Review of the global conservation status of the Asian houbara bustard *Chlamydotis macqueenii*. Report to the Convention on Migratory Species Office –Abu Dhabi. BirdLife International, Cambridge, 43pp. [[Click here](#)]
- Allouse, B. E. 1960. Birds of Iraq. Vol. 1. General Ornithology Podicipitiformes-Falconiformes, ArRabitta Press, Baghdad, 276 pp .
- Allouse, B. E. 1961. Birds of Iraq. Vol. 2. Galliformes-Piciformes, ArRabitta Press, Baghdad, 278 pp.
- Allouse, B. E. 1962. Birds of Iraq. Vol. 3. Passeriformes, ArRabitta Press, Baghdad, 288 pp.
- Al-Sheikhly, O. F. 2011. A survey report on the trapping and trade of raptors in Iraq. *Wildlife Middle East*, 6 (1): 6.
- Al-Sheikhly, O. F. 2012. Report on the first record of red-footed falcon *Falco vespertinus* in Iraq. *Falco*, 39: 10-11.
- Al-Sheikhly, O. F. and Al-Azawi, A. J. 2019. The diurnal birds of prey (raptors) in the Mesopotamian Marshes of southern Iraq with notes on their conservation status. *Bulletin of the Iraq Natural History Museum*, 15 (4): 381-402. [[CrossRef](#)]
- Al-Sheikhly, O. F., Al-Barazangi, A. N., Mukhtar, K. H., Fazaa, N., Abdulzahra, H. K., Abou Turab, M. K. and Al-Azawi, A. J. 2017. Ring recoveries from steppe eagles and eastern imperial eagles from the Russian and Kazakhstan breeding populations and a review of major threats to eagles in Iraq. *Raptors Conservation*, 35: 51-61.
- Al-Sheikhly, O. F., Fazaa, N. A., Al-Falahi, J. A., Haba, M. K. and Al-Barazengy, A. N. 2020. The illegal hunting and trapping: serious threats to the fate of the Asian Houbara *Chlamydotis macqueenii* in Iraq. *Aalborg Academy Journal of Pure Sciences*, 1(2):1-13.

- Azooz, A. A. and Talal, S. K. 2015. Evidence of Climate Change in Iraq. *Journal of Environment Protection and Sustainable Development*, 1(2): 66-73.
- BirdLife International. 2017a. One in eight of all bird species is threatened with global extinction. [[Click here](#)]
- BirdLife International. 2017b. A range of threats drives declines in bird populations. [[Click here](#)]
- BirdLife International. 2021. Country profile: Iraq. [[Click here](#)]
- BirdLife International. 2022. IUCN Red List for birds. [[Click here](#)]
- Botha, A. J., Andevski, J., Bowden, C. G. R., Gudka, M., Safford, R. J., Tavares, J. and Williams, N. P. 2017. Multi-species Action Plan to Conserve African-Eurasian Vultures. CMS Raptors MOU Technical Publication No. 5. CMS Technical Series No. xx. Coordinating Unit of the CMS Raptors MOU, Abu Dhabi, United Arab Emirates, 162 pp. [[Click here](#)]
- Brochet, A.-L., Van Den Bossche, W, Jbour, S., Ndang'ang'a, P. K., Jones, V. R., Abdou, W. D. L. I., Al- Hmoud, A. R., Asswad, N, G., Atienza, J. C., Atrash, I., Barbara, N., Bensusan, K., Bino, T., Celada, C., Cherkaoui, S. I., Costa, J., Deceuninck, B., Etayeb, K. S., Feltrup-Azafzaf, C., Figelj, J., Gustin, M., Kmecl, P., Kocevski, V., Korbeti, M., Kotrosan, D., Laguna, J. M., Lattuada, M., Leitao, D., Lopes, P., Lopez-Jimenez, N., Luci, V., Micol, T., Moali, A., Perlman, Y., Piludu, N., Portolou, D., Putilin, K., Quantenne, G., Ramadan-Jaradi, G., Ruzi, M., Sandor, A., Sarajli, N., Savelji, D., Sheldon, R. D., Shialis, T., Tsiopelas, N., Vargas, F., Thompson, C., Brunner, A., Grimmett, R. and Butchart, S. H. M. 2016. Preliminary assessment of the scope and scale of illegal killing and taking of birds in the Mediterranean. *Bird Conservation International*, 26: 1-28. [[CrossRef](#)]
- Buechley, E. R., McGrady, M. J., Çoban, E. and Şekercioğlu, Ç. H. 2018. Satellite tracking a wide ranging endangered vulture species to target conservation actions in the Middle East and East Africa. *Biodiversity and Conservation*, 27 (9): 2293-2310. [[Click here](#)]
- Cavendish, M. 2006. World and its peoples. Volume 1. Marshall Cavendish corporation. 1584 pp.
- CCKP. 2022. Climate Change Knowledge Portal. Retrieved online on 3.3.2022. [[Click here](#)]

Birds of conservation concern at Al-Najaf

- del Hoyo, J., Elliott, A. and Sargatal, J. 1992. Handbook of the Birds of the World. Vol. 1: Ostrich to Ducks. Lynx Edicions, Barcelona, Spain, 696 pp.
- Ferguson-Lees, J. and Christie, D. A. 2001. Raptors of the world: An identification guide to the birds of prey of the world. Houghton Mifflin Harcourt Publishers, 762 pp.
- Ganpule, P. 2016. Notes on the great grey shrike (Laniidae: *Lanius excubitor*) complex in north-western India: Variation, identification, and status. *Indian Birds*, 11(1): 1-10. [[Click here](#)]
- GRIN. 2022. Global Raptor Information Network. Species account: Egyptian Vulture *Neophron percnopterus*. [[Click here](#)]
- Hadi, A. M., Hadi, H. D., Jassim, S. Y. and Yousif, N. H. 2021. The falcons (Falconiformes, Falconidae) voucher collection in the Iraq Natural History Research Center and Museum (INHM). *Bulletin of the Iraq Natural History Museum*, 16 (3): 253-266. [[CrossRef](#)]
- IMO. 2010. Iraqi fourth national report to the convention on biological diversity. Ministry of Environment, Republic of Iraq, 153 pp. [[Click here](#)]
- IMO. 2018. Iraqi sixth national report to the convention on biological diversity. Ministry of Environment, Republic of Iraq, 250 pp. [[Click here](#)]
- IUCN. 2013. Regional red list assessment of selected species in the Iraqi marshlands. Ministry of Environment, Republic of Iraq. 35 pp. [[Click here](#)]
- IUCN. 2019. Guidelines for using the IUCN Red List Categories and Criteria. Version 14, Prepared by the Standards and Petitions Committee of the IUCN Species Survival Commission. [[Click here](#)]
- Karyakin, I., Bekmansurov, R., Nikolenko, E. and Dzhmirzoev, G. 2018. Monitoring results from the breeding group of Egyptian Vulture at Narat-Tyube Ridge and GPS/GSM tracking data from juvenile Egyptian Vultures (Republic of Dagestan, Russia). *Raptors Conservation*, 36:108–135. [[CrossRef](#)]
- Kear, J. 2005. Ducks, geese and swans, volume 2: species accounts (Cairina to Mergus). Oxford University Press, Oxford, U.K, 930 pp .
- Keijmel, M., Babbington, J., Roberts, P., McGrady, M. and Meyburg, B.-U. 2020. The world's largest gathering of Steppe Eagles *Aquila nipalensis* discovered in central Saudi Arabia. *Sandgrouse*, 42: 59-68. [[Google Scholar](#)]

- Khan, W. A. and Awan, Z. U.-R. 2019. Status, distribution and threats to Houbara Bustard (*Chlamydotis undulate macqueeni*) in southern belt of Khyber Pakhtunkhwa, Pakistan. *FUUAST Journal of Biology*, 9(1):135-138. [[Click here](#)]
- Ma'ala, K. A. 2009. Geomorphology. The Geology of the Iraqi Southern Desert, State Company of Geological Survey and Mining. *Iraqi Bulletin of Geology and Mining*, Special Issue, 2: 7-33. [[Click here](#)]
- MacLeod, R., Herzog, S. K., Maccormick, A., Ewing, S. R., Bryce, R and Evans, K. L. 2011. Rapid monitoring of species abundance for biodiversity conservation: Consistency and reliability of the MacKinnon lists technique. *Biological Conservation*, 144 (5) 1374-1381. [[CrossRef](#)]
- Marchant, S. 1963. Migration in Iraq. *IBIS*, 105(3): 369-398. <https://doi.org/10.1111/j.1474-919X.1963.tb02514.x>
- McClure, C. J. W., Westrip, J. R. S., Johnson, J. A. Schulwitz, S. E., Virani, M. Z., Davies, R., Symes, A., Wheatley, H., Thorstrom, R., Amar, A., Buij, R., Jones, V. R., Williams, N. P., Buechley, E. R. and Butchart, S. H. M. 2018. State of the world's raptors: Distributions, threats, and conservation recommendations. *Biological Conservation*, 227: 390-402. [[CrossRef](#)]
- Mohammad, M. K., Ali, H. H., Ali, B. A. A. and Hadi, A. M. 2013a. The biodiversity of Bahr Al-Najaf Depression, Al-Najaf Al-Ashraf Province. *Bulletin of the Iraq Natural History Museum*, 12 (3): 21-30. [[Click here](#)]
- Mohammad, M. K., Al-Rammahi, H. M., Lahony, S. R. 2013b. The first record of the thick-billed lark *Rhamphocoris clotbey* (Bonaparte, 1850). *Bulletin of the Iraq Natural History Museum*, 12 (3): 37-41. [[Click here](#)]
- Parejo, D., Aviles, J. M., Ferrero, J. J., Rivera, D. and Casas, J. M. 2001. Communal roosting and diet of black-shouldered kites (*Elanus caeruleus*) wintering in Southwestern Spain. *Journal of Raptor Research*, 35(2):162-164.
- Pope, M. and Zogaris, S. (eds.) 2012. Birds of Kuwait- A comprehensive visual guide. KUFPEC, Biodiversity East, Cyprus. 413 pp.
- Rahim, M. 2014. Predicting suitable habitat of Egyptian Vulture (*Neophron percnopterus*) in Iraq, using Maxent model Kindle Edition. M. Sc. thesis in Applied Ecology and Conservation, Faculty of Science, School of Biology at University of East Anglia, Norwich City, United Kingdom, 60 pp.

Birds of conservation concern at Al-Najaf

- Rasmussen, P. C. and Anderton, J. C. 2005. Birds of South Asia: the ripley guide. 1st ed. Washington, D.C. and Barcelona: Smithsonian Institution and Lynx Edicions. 2 vols, p 1-378, p 1-683.
- Richardson, C. J. and Hussain, N. A. 2006. Restoring the Garden of Eden: An Ecological Assessment of the Marshes of Iraq. *BioScience*, 56 (6): 477-489.
- Saleh, S. A., Al-Ansari, N. and Abdullah, T. 2020. Groundwater hydrology in Iraq. *Journal of Earth Sciences and Geotechnical Engineering*, 10(1): 155-197. [[Click here](#)]
- Salim, M. A. and Abed, S. A. 2017. Avifauna diversity of Bahr Al-Najaf Wetlands and the Surrounding Areas, Iraq. *Jordan Journal of Biological Sciences*, 10(3): 167-176. [[Click here](#)]
- Salim, M. A., Abed, S. A., Jabbar, M. T., Harbi, Z. S., Yassir, W. S., Al-Saffah, S. M. and Alabd-Alrahman, H. A. 2020. Diversity of avian fauna of Al-Dalmaj Wetlands and the surrounding terrestrial areas, Iraq. *Journal of Physics: Conference Series*, 1664 (2020) 012105. [[CrossRef](#)]
- Salim, M. A., Al-Sheikhly, O. F., Korsh, A. M. and Porter, R. F. 2012. Annotated checklist of the birds of Iraq, *Sandgrouse*, 34(1): 4-43.
- Salim, M., Porter, R. and Rubec, C. 2009. A summary of birds recorded in the marshes of southern Iraq, 2005–2008. *BioRisk*, 3: 205-219. [[CrossRef](#)]
- Salim, M. A., Porter, R. F., Christensen, S., Schiermacker-Hansen, P. and Al-Jbour, S. 2006. Field Guide to the birds of Iraq. Amman: Nature Iraq & BirdLife International, 254 pp. (In Arabic).
- Scott, D. A. and Rose, P. M. 1996. Atlas of Anatidae populations in Africa and Western Eurasia. Wetlands International Publication No. 41. Wetlands International, Wageningen, The Netherlands, 336 pp.
- USAID. 2017. Climate Risk Profile: Iraq. March 2017. [[Click here](#)]
- Yosef, R. and International Shrike Working Group. 2017. Great grey shrike (*Lanius excubitor*). In: del Hoyo, J., Elliott, A., Sargatal, J., Christie, D. A. and de Juana, E. (eds.). Handbook of the Birds of the World Alive. Lynx Edicions, Barcelona. (Retrieved from <http://www.hbw.com/node/60482> on 26 January 2017).

Bull. Iraq nat. Hist. Mus.
(2022) 17 (1): 67-87.

الطيور المثيرة للاهتمام من ناحية الصون في صحراء النجف، صحراء العراق الجنوبية

حيدر محمد جبر الرماحي* و محمد كاظم محمد**

*كلية الطب البيطري، جامعة الكوفة، النجف الاشرف، العراق.

**الكلية التقنية الطبية والصحية، جامعة أروك، بغداد، العراق.

تأريخ الاستلام: 2021/11/26، تأريخ القبول: 2022/04/27، تأريخ النشر: 2022/06/20

الخلاصة

تُمن أنواع الطيور في العالم تعتبر مهددة عالميًا. تتكون الطيور في العراق من 409 نوعاً وتعتبر مؤشراً رئيسياً على صحة الموارد الإحيائية في العراق. تنقسم جغرافياً العراق إلى خمس مناطق رئيسية منها المناطق الصحراوية وشبه الصحراوية التي تغطي معظم مساحة البلاد. لا تزال صحراء النجف واحدة من المناطق التي لم يتم التعرف عليها جيداً من ناحية التنوع الإحيائي. حددت الطيور المثيرة للاهتمام من ناحية الصون في صحراء النجف من خلال 31 رحلة ميدانية إلى 20 موقعا خلال الفترة من آب 2018 إلى نيسان 2020 والنقل عن التسجيلات في البحوث السابقة والمقابلات الشخصية مع السكان المحليين. العوامل المؤدية إلى انخفاض أعداد الطيور في صحراء النجف شملت الصيد والإيقاع بالشارك وقطع الأشجار والأنواع الغازية والتغير المناخي.

تم تحديد تسعة طيور مهددة منها ثلاثة مهددة بالخطر وستة ضعيفة وتشمل صقر الغزال والصقر احمر القدم وعقاب البادية والرخمة المصرية والعقاب الأسفح الكبير والشرشير المخطط والحبارى والقمرى والصدرد الرمادي الجنوبي. وقد استنتج أن صحراء النجف هي منطقة ذات أولوية قصوى للحفاظ على التنوع الإحيائي حيث أنها تستضيف عدداً كبيراً من أنواع الطيور المهددة.