

How to Cite:

Hadi, A. M. (2022). Checklist of Gruiform birds (Order Gruiformes) in Iraq. *International Journal of Health Sciences*, 6(S5), 4762–4772. <https://doi.org/10.53730/ijhs.v6nS5.9614>

Checklist of Gruiform birds (Order Gruiformes) in Iraq

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Abstract---A total of six genus and eight species that belong to three family Gruidae, Otidae and Rallidae, Order Gruiforms; about 39specimens which are deposited in the birds collection of in the Iraq Natural History Research Center and Museum INHM were reviewed. In the current study, morphometrics of seven species of taxidermy Gruiform birds: Common Crane*Grus grus* (Linnaeus, 1758), Houbara Bustard*Chlamydotis undulata* (Jacquin, 1784), Water Rail *Rallus aquaticus* (Linnaeus, 1758), Spotted Crake *Porzana porzana* (Linnaeus, 1766), Little Crake *Porzana parva* (Scopoli, 1769), Coot *Fulica atra* (Linnaeus, 1758), Common Moorhens *Gallinula chloropus* (Linnaeus, 1758) and Purpul Gallinule*Porphyrio poliocephalus* (Latham, 1801) were documented. In addition of the distribution ranges throughout Iraq and Global Conservation Status of each the mentioned species were reviewed and comprehensively discussed.

Keywords---Coot, Gruiformes, Houbara Bustard, *Grusgrus*, Spotted Crake.

1-Introduction

Gruiform birds are widespread geographical diversity, Gruiform mean "crane like". This Order is contain a considerable number of living and extinct families[1]. All terrestrial and wading birds that do not belong to another family are collected in this order and are classified together as Gruiformes which include 14 species of large cranes and about 145 species of smaller crakes and rails[2]. The phylogeny of extend Gruiformes with their families as follow: Rallidae -rails, crakes and coots; Sarothruridae – flufftails; Heliornithidae – finfoots;Psophiidae – trumpeters; Aramididae – limpkin; Gruidae – cranes was determind by Prum [3].

The aim of the current study is to create a database and provides an overview of existing literature on the Iraqi Gruiform birds Collection in the Iraqi Natural History Research Center and Museum (INHM) and comparing it with the

corresponding studies and recordings to provide a comprehensive overview of the environmental reality of Gruiform birds status in Iraq.

2-Materials and Methods

Specimen's collection

A total of 39 specimens of Gruiform birds of six genus: *Grus*, *Chlamydotis*, *Rallus*, *Porzana*, *Fulica*, and *Gallinula* that belong to Gruidae, Otidae, Rallidae Family which collected from different regions of Iraq as: Aski-Kalak in Arbil, Mosul, (north of Iraq); H2, Iraq, Felloja (west of Iraq); Baghdad, Attarya, Khalis, Tarmiya Road, Azizia Road, Shahraban, desret near Kut, Near Hindiya Dam, and Kerbala (middle of Iraq); Amara and Al- Chibayish Marsh (south of Iraq) deposited in the bird collection in (INHM) are reviewed. All birds were preserved (taxidermy) as study specimens and tagged with museum collection label with the accession number, common name, scientific name, and the location of collecting.

The morphological measurements in millimeters (mm) were measured for one specimen as a representative of each studied species. The taxidermy specimens were also photographed using mobile digital camera (Samsung SM-N770F) to support species identification and documentation.

3-Results and Discussion

A total of seven genus and eight species that belong to three families: Gruidae, Otidae and Rallidae were recorded in the collection of Order Gruiforms in the Iraq Natural History Research Center and Museum INHM, table 1. Figures 1-8.

Measurements \pm of collection two species *Grus grus* and *Chlamydotis undulata* of Gruiform birds by millimeters in Table 2. And, Measurements \pm of collection six species belong to five genus of Rallidae by millimeters in Table 3.

Table 1. Collection of Gruiformes Order in the Iraq Natural History Research Center and Museum INHM.

Family name	Genus name	Species name	Common name	Number of birds
Gruidae	<i>Grus</i>	<i>grus</i>	Common crane	3
Otididae	<i>Chlamydotis</i>	<i>undulata</i>	Houbara Bustard	1
Rallidae	<i>Rallus</i>	<i>aquaticus</i>	Water Rail	3
Rallidae	<i>Porzana</i>	<i>porzana</i>	Spotted Crane	2
Rallidae	<i>Porzana</i>	<i>parva</i>	Little Crane	2
Rallidae	<i>Fulica</i>	<i>atra</i>	Coot	14
Rallidae	<i>Gallinula</i>	<i>chloropus</i>	Moorhens	12
Rallidae	<i>Porphyrio</i>	<i>poliocephalus</i>	Purpul Gallinule	2

- 1- **Common Crane** *Grus grus* (Linnaeus, 1758),
Synonyms according to GBIF [4]
= *Ardea grus* (Linnaeus, 1758)

=*Ardea spec* (Linnaeus, 1758)
 = *Megalornis grus* (Linnaeus, 1758)

Species status in Iraq: Three specimens of current study were collected from Baghdad, desert near Kut (middle of Iraq). *Grus grus* is a winter visitor and passage migrant bird in Iraq [5, 6, 7,]. It has been recorded by Mohammad and Al-Zubaidi [8] in Gaara Depression, Iraqi Western Desert. Also, Mohammad [9] revealed it with the vertebrate diversity in Al-Dalmaj Marsh, Al-Diwaniya Province, south of Iraq. More than, Mohammad and Al-Zubaidi [10] recorded it near Razzaza Lake, central Iraq.

Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq. In addition of Mohammad [12] recorded it with the biodiversity in Al-Salman Depression, Al-Muthana Province, Southern Desert, Iraq.

Conservation status: It is listed as Least Concern (LC) increasing population trend by IUCN [13] and Birdlife International [14].



Figure 1: Dorsal view of Common Crane *Grus grus*.

2-Houbara Bustard *Chlamydotis undulata* (Jacquin, 1784)

Synonyms according to GBIF [4]
 = *Psophia undulata* (Jacquin, 1784)

Species status in Iraq: One specimen of *Chlamydotis undulata* was collected from Azizia Road (middle of Iraq).

It is a winter visitor bird in Iraq, bred formerly [5, 15, 16, 7]. Bachmann and Bridget [17] revealed it in the arid steppes of western Iraq in Anbar province, Himreen, Rabea'a in Mosul province, Al-Garbi of Missan province, Nogratt Al-Salman of Muthanna province and other areas of Iraq. While, Mohammad and Al-Zubaidi [8] recorded it in Gaara Depression, Iraqi Western Desert. Also, Mohammad [9] revealed it with the vertebrate diversity in Al-Dalmaj Marsh, Al-Diwaniya Province, south of Iraq. Then, Al-Zubaidi [18] recorded it with the diversity in Huwaiza marsh, south of Iraq. Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq. In addition of Mohammad [12] recorded it with the

biodiversity in Al-Salman Depression, Al-Muthana Province, Southern Desert, Iraq.

Conservation status: It is listed as Vulnerable (VU) and decreasing population trend by IUCN [13] and Birdlife International [14].



Figure 2: Dorsal view of Houbara Bustard *Chlamydotis undulata*.

Table 2: Measurements \pm of collection two species of Gruiform birds by millimeters.

Measurements	<i>Grus grus</i> ♂	<i>Chlamydotis undulata</i> ♂
T.L.	1290	590
W.	640	340
T.	240	180
B.	125	33
T.s	260	20

T.l.=total length, W= width, T=tail, B= beak, T.s=tarsus.

3- Water Rail *Rallus aquaticus* (Linnaeus, 1758)

Synonyms according to GBIF [4]

= *Rallus aquaticus subsp. Korejewi* (Zarudy, 1905)

Species status in Iraq: Three specimens of current study were collected from Diyala Bridge (middle of Iraq).

Rallus aquaticus is a winter visitor and Passage migrant bird in Iraq [5,6, 7]. It has been recorded in Bahr Al-Najaf Depression, Al-Najaf Al-Ashraf governorate by Mohammad [19]. And, Mohammad [9] revealed to it with the vertebrate diversity in Al-Dalmaj Marsh, Al-Diwaniya Province, south of Iraq. Then, Al- Zubaidi [18] recorded it with the diversity in Huwaiza marsh, south of Iraq. Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq.

Conservation status: It is listed as Least Concern (LC) with decreasing population trend by IUCN[13] and by Birdlife International [14].



Figure3: Dorsal view of Water Rail *Rallus aquaticus*.

4-Spotted Crane *Porzana porzana*(Linnaeus, 1766)

Synonyms according to GBIF [4]

= *Rallus porzana* (Linnaeus, 1766)

=*Rallus spec* (Linnaeus, 1766)

Species status in Iraq:Two specimens were collected from Baghdad middle of Iraq and H2. Iraq (west of Iraq).

Porzana porzana is a passage migrantbird in Iraq[5,15].Then, Al- Zubaidi [18] recorded it with the diversity in Huwaiza marsh, south of Iraq. Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq.

Conservation status: It is listed as Least Concern (LC) and stable population trend by IUCN [13] and by Birdlife International [14].



Figure 4: Dorsal view of Spotted Crake *Porzana porzana*.

5- Little Crake *Porzana parva* (Scopoli, 1769)

Synonyms according to GBIF [4]

= *Rallus parvus* (Scopoli, 1769)

Species status in Iraq: Two specimens of *Porzana parva* were collected from Baghdad and Bustan in Al-Khalis (middle of Iraq).

Porzana parva is a winter visitor and passage migrant [5,6,7]. There are little observation of this Gruiform bird. Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq.

Conservation status: It is listed as Least Concern (LC) and stable population trend by IUCN [13] and Birdlife International [14].



Figure5: Dorsal view of Little Crake *Porzana parva*.

6-Coot *Fulica atra* (Linnaeus, 1758)

Synonyms according to GBIF [4]

=*Fulicula atra* (Linnaeus, 1758)

Species status in Iraq: Fourteen specimens of *Fulica atra* were collected from Karbala Road, Tarmiya Road, Baghdad, Attaryia, Shahraban, (middle). Felloja desert (west).

Fulica atra is resident; winter visitor and passage migrant bird in Iraq [5, 6, 7]. It has been recorded in Bahr Al-Najaf Depression, Al-Najaf Al-Ashraf governorate [19]. And, Mohammad [9] revealed to it with the vertebrate diversity in Al-Dalmaj Marsh, Al-Diwaniya Province, south of Iraq. Then, Al-Zubaidi [18] recorded it with the diversity in Huwaiza marsh, south of Iraq. More than, Mohammad and Al-Zubaidi [10] recorded it near Razzaza Lake, central Iraq.

Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq.

Conservation status: It is listed as Least Concern (LC) and increasing population trend by IUCN [13] and Birdlife International [14].



Figure6: Dorsal view of Coot *Fulica atra*.

7-Common Moorhens *Gallinula chloropus* (Linnaeus, 1758)

Synonyms according to GBIF [4]

=*Fulica chloropus* (Linnaeus, 1758)

=*Fulica spec* (Linnaeus, 1758)

=*Gallinula brodkorbi* (McCoy, 1963)

= *Gallinula ochropus* (Linnaeus, 1758)

Species status in Iraq:Twelve specimens of *Gallinula chloropus* were collected from: Near Hindiya Dam, Hor Al- Niaaj in Kerbala, Baghdad (middle), Aski- Kalak in Arbil province, north of Mousl (north). H2. Iraq, (west). Al-Chibayish (south).

Gallinula chloropus is a resident; winter visitor and passage migrant bird in Iraq [5, 6, 7]. It has been recorded in Bahr Al-Najaf Depression, Al-Najaf Al-Ashraf governorate [19]. And, Mohammad [9] revealed to it with the vertebrate diversity in Al-Dalmaj Marsh, Al-Diwaniya Province, south of Iraq. Then, Al- Zubaidi [18] recorded it with the diversity in Huwaiza marsh, south of Iraq. More than, Mohammad and Al-Zubaidi [10] recorded it near Razzaza Lake, central Iraq. Recently, Salim [11] recorded it with the diversity of avian fauna of Al-Dalmaj Wetlands, and the surrounding terrestrial areas south of Iraq.

Conservation status: It is listed as Least Concern (LC) and stable population trend by IUCN [13] and Birdlife International [14].



Figure 7: Dorsal view of Common Moorhens *Gallinula chloropus*.

8- Purpul Gallinule *Porphyrio poliocephalus* (Latham, 1801)

Synonyms according to GBIF [4]

= *Porphyrioporphyrus* subsp. *poliocephalus* (Latham, 1802)

Species status in Iraq: Two specimens of *Porphyrio poliocephalus* were collected from Shahraban in Dyjala province (middle of Iraq).

Porphyrio poliocephalus is a resident bird in Iraq [5]. Purpul Gallinule was recorded by many researchers in all Iraq, [6, 7, 20, 19, 9, 18, 11].

Conservation status: It is listed as Least Concern (LC) and stable population trend by IUCN [13] and Birdlife International [14].



Figure 8: Dorsal view of Purpul Gallinule *Porphyrio poliocephalus*.

Table 3: Measurements \pm of collection six species belong to five genus of Rallidae by millimeters

Measurements	<i>Rallus aquaticus</i> ♀	<i>Porzana porzana</i> ♂	<i>Porzana parva</i> ♀	<i>Fulica atra</i> ♀	<i>Gallinula chloropus</i> ♂	<i>Porphyrio poliocephalus</i> ♂
T.L.	295	175	170	363	330	320
W.	80	103	105	200	155	275
T.	25	50	52	50	82	100
B.	40	17	17	43	34	68
T.s	30	30	29	61	53	97

T.L=total length, W= width, T=tail, B= beak, T.s=tarsus.

Conclusion

The current study are catalogue the taxidermy specimens of all species belong to Gruiformes Order which deposited in bird collection of the Iraq Natural History Research Center and Museum, University of Baghdad (INHM); A total of six genus and eight species that belong to three family Gruidae, Rallidae and Otidae; a total of 39 taxidermy specimens which are deposited in the INHM. The current study revealed to the presence and conservation state of 8 species distributed in different regions of Iraq.

Houbara Bustard *Chlamydotis undulata* was listed as Vulnerable (VU) with decreasing population trend by IUCN. Water Rail *Rallus aquaticus* was listed as Least Concern (LC) and decreasing in population trend by IUCN. The rest species were listed as Least Concern (LC) and stable population trend as : Common Moorhens *Gallinula chloropus* (LC), Spotted Crake *Porzana porzana* (LC) and Little Crake *Porzana parva*. However, Common Crane *Grus grus* (LC), Coot *Fulica atra* (LC) and Purple Gallinule *Porphyrio poliocephalus* were listed as Least Concern with increasing population trend by IUCN.

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