

# Key Biodiversity Areas: Rapid assessment of birds in Kurdistan, northern Iraq

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## Abstract

Bird surveys to help identify and assess Key Biodiversity Areas (KBAs) were undertaken in Kurdistan in the winter and summer of 2008. The winter survey was from 19 January to 8 February and the summer survey from 7 May to 16 June, a total of 45 days. During these periods a total of 34 sites were surveyed in the North Iraq governorates of Sulaimani, Erbil, and Dohuk and 185 species of birds recorded. Of these, according to IUCN criteria, one species was globally endangered, three vulnerable and two near threatened. In addition, 32 species were considered to be of conservation concern in Iraq, based on a system developed by Richard Porter. Of the species observed, 124 were confirmed or probable breeding, whilst 59 were winter visitors. The KBA selection process used the Middle East Important Bird Areas (IBAs) criteria, which considers seven species-based categories.

## Keywords

Key Biodiversity Areas, birds, Kurdistan, Iraq

## Introduction

Kurdistan is located between 42°20' – 45°15' longitude and 37°23' – 34°20' latitude. It covers 65000 km<sup>2</sup>, approximately 15% of the total area of Iraq. Biogeographically, it lies in the Irano-Tauranian region (Irano-Anatolian sub-region) in the southeast of the western Palearctic realm, which consists mainly of mountainous areas in inner Anatolia and Armenia, the Iranian mountain plateau, and the greater part of Transcaspia (Eken et al. 2004).

In the past, limited surveys have been carried out in Iraqi Kurdistan. They revealed the presence of many areas important to birds. The aim of this study was to identify the Key Biodiversity Areas (KBAs) by surveying the bird populations and determining the trigger bird species. These are birds of global and/or regional importance from a conservation point of view, based on IUCN (2001) categories of Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concerned (LC), and Conservation Concern (CC), an additional category specific to Iraq, which is defined below.

The KBA selection process uses the Middle Eastern Important Bird Areas (IBAs) criteria, defined by BirdLife International (Evans 1994):

A: Important Bird Areas - Global importance

A1. Species of global conservation concern

A2. Restricted-range species

A3. Biome-restricted species

A4. Congregations

B: Important Bird Areas - Middle Eastern importance

B1: Regionally important congregations

B2: Species with an unfavorable conservation status in the Middle East

B3: Species with a favorable conservation status but concentrated in the Middle East

There are over 835 species of birds in the Middle East (Porter & Aspinall in prep.) of which over 400 have been recorded in Iraq (Salim et al. 2006). In the 2008 surveys in Kurdistan 185 species were observed.

## **Materials and methods**

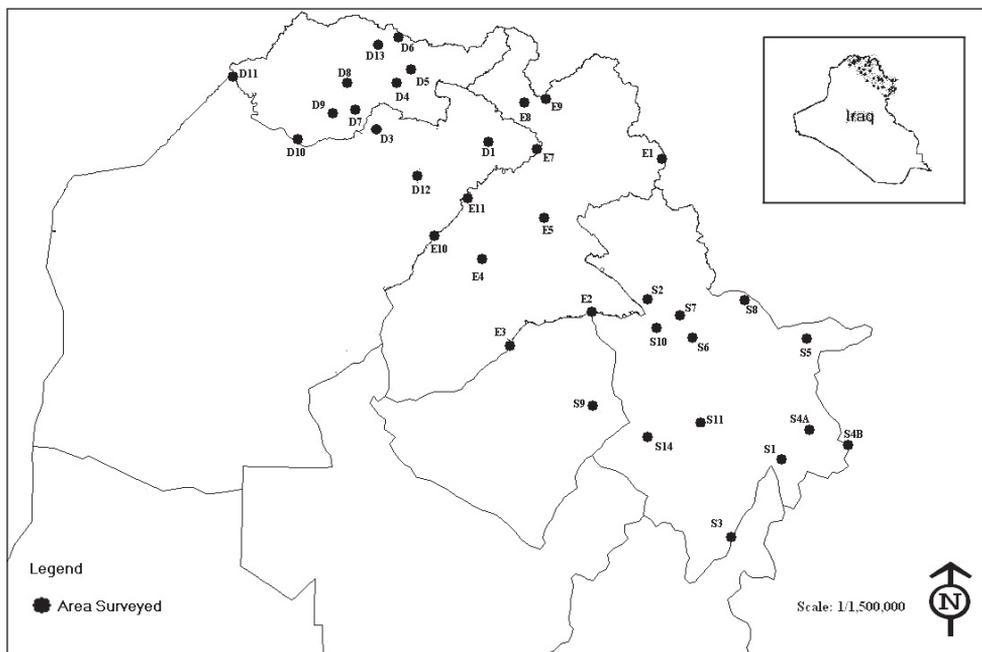
Bird observations were made using 8×42 Minox binoculars, a Canon 5D digital camera with 100–400 Sigma lens, and Kawa 500 mm spotting scopes (TSN-601). Depending on the type of sites visited, point, area and/or transect counts were taken at each site. All species were counted. This was often done from fixed points, e.g. when counting waterfowl on large lakes or searching for raptors in the mountains, but more frequently it involved a transect through the main habitats, along which all birds were counted. Species were identified using Salim et al. (2006); Porter et al. (1996); and Mullarney et al. (1999). The study was carried out at 34 sites in Sulaimani, Erbil, and Dohuk Governorates. Lake sites visited included: Darbandikhan Lake (S1), Dukan Lake (S2), Mosul Lake (D10), and Duhok Lake (D9). Watered valleys and gorge sites included Ahmad Awa (S4A), Awesar (S4B), Sargalu (S7), Chami Razan (S10), Penjween (S5), Haji Omran (E1), Smaquly and Ashaba Valley (E5A and E5B), Bakhma on the Big Zap River (E7), Barzan Area (E8), Kherazook (E9), Gali Zanta and Garbeesh (D1A and D1B), Ser Amadia and Sulav (D2A and D2B), Atrush (D3), Garagu (D5), Benavi (D6), and Sararu (D13). Mountainous areas with oak and/or pine forest sites included: Peramagroon Mountain (S6), Qara Dagh (S11), Sharbazher Area (S13), Zawita (D7), Mangesh (D8). Lowland sites with farmlands and foothills

where: Chamchamal (S9), Zalm Area (S12), Sangaw (S14), Turaq Steppe (E4), Kalkakchi and Khazar (D12A and D12 B). One marshland site, Altun Kopri on the Little Zap River (E3), was also visited. Lastly several wide and open rivers and their environs were included such as Kalar on the Diyala River (S3), Aski Kalak on the Big Zap River (E10), Taq Taq on the Little Zap River (E2), Bahraka on the Big Zap River (E11), and Fishkhaboor on the Tigris River (D11) (Fig. 1).

## Results and discussion

In January and February [Winter (W)] 2008 and May and June [Summer (S)] 2008, 185 bird species belonging to 49 families were recorded in the areas surveyed (Table 1). Six bird species were considered VU: *Aquila heliaca*, *Anser erythropus*, and *Falco naumani*; EN: *Neophron percnopterus*, NT: *Coracias garrulus* and *Emberiza cineracea*; and 32 species were categorized CC.

**Conservation Concern (CC):** The definition has been developed by Richard Porter in conjunction with staff members of Nature Iraq, in an attempt to determine those species for which Iraq has a special responsibility and which are a priority for conservation action. Species of the CC category include all globally threatened species; Iraqi endemics and near-endemics; those known to be seriously declining throughout or in most of their Eurasian/Middle Eastern range of distribution; those with a major



**Figure 1.** Map of areas surveyed.

**Table 1.** Status of birds recorded in Kurdistan, northern Iraq during the 2008 surveys, showing IUCN conservation status as evaluated by BirdLife International: LC (Least Concern), NT (Near Threatened), VU (Vulnerable), EN (Endangered), CC (Conservation Concern)].

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
<b>Family: Phasianidae</b>					
Chukar Partridge	<i>Alectoris chukar</i>	LC		X	resident breeder
See-see Partridge	<i>Ammoperdix griseogularis</i>	LC	X	X	resident breeder
Black Francolin	<i>Francolinus francolinus</i>	LC	X		resident breeder
Common Quail	<i>Coturnix coturnix</i>	LC	X		passage migrant; breeding summer visitor
<b>Family: Anatidae</b>					
Greylag Goose	<i>Anser anser</i>	LC	X	X	winter visitor, some may breed
Greater White-fronted Goose	<i>Anser albifrons</i>	LC	X		winter visitor
Lesser White-fronted Goose	<i>Anser erythropus</i>	VU, CC	X		winter visitor
Common Shelduck	<i>Tadorna tadorna</i>	LC	X		winter visitor
Ruddy Shelduck	<i>Tadorna ferruginea</i>	LC	X		resident; winter visitor and passage migrant
Mallard	<i>Anas platyrhynchos</i>	LC	X	X	winter visitor; passage migrant and some may breed
Eurasian Teal	<i>Anas crecca</i>	LC	X		winter visitor and passage migrant
Common Pochard	<i>Aythya ferina</i>	LC	X		winter visitor
Red-crested Pochard	<i>Netta rufina</i>	CC	X		winter visitor and passage migrant
Tufted Duck	<i>Aythya fuligula</i>	LC	X		winter visitor
Goldeneye	<i>Bucephala clangula</i>	LC	X		winter visitor
Smew	<i>Mergellus albellus</i>	LC	X		winter visitor
Little Grebe	<i>Tachybaptus ruficollis</i>	CC		X	resident breeder; winter visitor and passage migrant
Great Crested Grebe	<i>Podiceps cristatus</i>	LC	X		resident; winter visitor
Black-necked Grebe	<i>Podiceps nigricollis</i>	LC	X		resident; winter visitor
<b>Family: Ciconiidae</b>					
Western White Stork	<i>Ciconia ciconia</i>	LC	X	X	passage migrant; breeding summer visitor, but the first flock observed on 19 <sup>th</sup> January 2008

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
<b>Family: Threskiornithidae</b>					
Eurasian Spoonbill	<i>Platalea leucorodia</i>	CC		X	resident; breeding summer visitor; passage migrant
<b>Family: Ardeidae</b>					
Little Bittern	<i>Ixobrychus inutes</i>	LC		X	breeding summer visitor; passage migrant; some winter visitor.
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	LC	X	X	resident; breeding summer visitor; passage migrant
Squacco Heron	<i>Ardeola ralloides</i>	LC		X	resident; breeding summer visitor; and passage migrant
Grey Heron	<i>Ardea cinerea</i>	LC	X	X	winter visitor, passage migrant and some may breed
Great White Egret	<i>Ardea [Egretta] alba</i>	LC	X		winter visitor and passage migrant
Little Egret	<i>Egretta garzetta</i>	LC	X	X	winter visitor; passage migrant and some may breed
<b>Family: Phalacrocoracidae</b>					
Pygmy Cormorant	<i>Phalacrocorax pygmaeus</i>	CC	X		winter visitor, and passage migrant
Great Cormorant	<i>Phalacrocorax carbo</i>	LC	X	X	winter visitor and passage migrant
<b>Family: Falconidae</b>					
Lesser Kestrel	<i>Falco naumani</i>	VU, CC		X	passage migrant, and breeding summer visitor
Common Kestrel	<i>Falco tinnunculus</i>	LC	X	X	resident breeder; winter visitor.
Eurasian Hobby	<i>Falco subbuteo</i>	LC		X	breeding summer visitor; passage migrant
Barbary Falcon	<i>Falco pegrinoides</i>	LC		X	resident breeder; winter visitor
<b>Family: Accipitridae</b>					
Black Kite	<i>Milvus migrans</i>	LC		X	winter visitor, passage migrant, and some may breed
Lammergeier	<i>Gypaetus barbatus</i>	CC	X	X	resident breeder; winter visitor
Egyptian Vulture	<i>Neophron percnopterus</i>	EN, CC		X	breeding summer visitor; passage migrant
Eurasian Griffon Vulture	<i>Gyps fulvus</i>	LC	X	X	resident breeder; winter visitor

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Short-toed Snake Eagle	<i>Circaetus gallicus</i>	LC		X	breeding summer visitor, and passage migrant
Western Marsh Harrier	<i>Circus aeruginosus</i>	LC	X	X	winter visitor, and some may breed
Hen Harrier	<i>Circus Cyaneus</i>	LC	X		winter visitor
Eurasian Sparrowhawk	<i>Accipiter nisus</i>	LC	X	X	winter visitor, and passage migrant
Levant Sparrowhawk	<i>Accipiter brevipes</i>	CC		X	passage migrant, and may breed
Steppe Buzzard	<i>Buteo b. vulpinus</i>	LC	X	X	resident breeder; winter visitor and passage migrant
Long-legged Buzzard	<i>Buteo rufinus</i>	LC	X	X	resident breeder; winter visitor and passage migrant
Steppe Eagle	<i>Aquila nipalensis</i>	CC	X		winter visitor; passage migrant
Asian Imperial Eagle	<i>Aquila heliaca</i>	VU, CC	X		winter visitor and passage migrant
Golden Eagle	<i>Aquila chrysaetos</i>	CC	X	X	resident; winter visitor
Booted Eagle	<i>Aquila [Hieraaetus] pennata[pennatus]</i>	LC		X	breeding summer visitor; passage migrant
Bonelli's Eagle	<i>Aquila [Hieraaetus] fasciata [fasciatus]</i>	LC		X	resident breeder
<b>Family: Rallidae</b>					
Water Rail	<i>Rallus aquaticus</i>	LC		X	winter visitor and passage migrant
Common Moorhen	<i>Gallinuylya chloropus</i>	LC	X	X	resident breeder; winter visitor and passage migrant
Eurasian Coot	<i>Fulica atra</i>	LC	X		winter visitor; passage migrant and some may breed
<b>Family: Haematopodidae</b>					
Eurasian Oystercatcher	<i>Haematopus ostralegus</i>	LC		X	winter visitor and passage migrant
<b>Family: Recurvirostridae</b>					
Black-winged Stilt	<i>Himantopus ostralegu</i>	LC	X	X	resident breeder; winter visitor and passage migrant
<b>Family: Charadriidae</b>					
Northern Lapwing	<i>Vanellus vanellus</i>	LC	X		winter visitor, and some may breed
Spur-winged Lapwing	<i>Vanellus (Hoplopterus) spinosus</i>	CC		X	resident breeder; passage migrant

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Red-wattled lapwing	<i>Vanellus (Hoplopterus) indicus</i>	LC	X	X	resident breeder
White-tailed Lapwing	<i>Vanellus leucurus</i>	CC		X	resident breeder; probably winter visitor
Little-ringed Plover	<i>Charadrius dubius</i>	LC	X	X	resident breeder, and passage migrant
<b>Family: Scolopacidae</b>					
Common Snipe	<i>Callinago callinago</i>	LC	X	X	winter visitor, and passage migrant
Common Redshank	<i>Tringa tetanus</i>	LC	X		winter visitor, passage migrant
Common Greenshank	<i>Tringa nebularia</i>	LC	X		passage migrant & winter visitor
Green Sandpiper	<i>Tringa ochropus</i>	LC		X	winter visitor, and passage migrant
Common Sandpiper	<i>Actitis hypoleucos</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Gareolida</b>					
Collared Pratincole	<i>Glareola pratincola</i>	CC		X	passage migrant, and breeding summer visitor
<b>Family: Laridae</b>					
Common Gull	<i>Larus canus</i>	LC	X		winter visitor
Yellow-legged Gull	<i>Larus michahellis</i>	LC	X		winter visitor
Armenian Gull	<i>Larus armenicus</i>	CC	X	X	winter visitor, and passage migrant
Great Black-headed Gull	<i>Larus ichthyaetus</i>	LC	X		winter visitor
Common Black-headed Gull	<i>Larus ridibundus</i>	LC	X	X	winter visitor, and some may breed
Slender-billed Gull	<i>Larus genei</i>	CC	X	X	resident; breeding summer visitor; winter visitor and passage migrant
Gull-billed Tern	<i>Gelochelidon [Sterna] nilotica</i>	LC		X	breeding summer visitor, and passage migrant
Common Tern	<i>Sterna hirundo</i>	LC		X	breeding summer visitor, and passage migrant
White-winged Tern	<i>Chlidonias leucopterus</i>	LC		X	summer visitor; may breed, and passage migrant
<b>Family: Pteroclididae</b>					
Pin-tailed Sandgrouse	<i>Pterocles alchata</i>	CC		X	breeding resident; nomadic

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Black-bellied Sandgrouse	<i>Pterocles orientalis</i>	LC		X	winter visitor and passage migrant
<b>Family: Columbidae</b>					
Rock Dove	<i>Columba livia</i>	LC	X	X	resident breeder
Common Woodpigeon	<i>Columba palumbus</i>	LC	X	X	resident breeder; winter visitor
European Turtle Dove	<i>Streptopelia turtur</i>	CC		X	passage migrant, breeding summer visitor
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	LC	X	X	resident breeder
Laughing Dove	<i>Streptopelia senegalensis</i>	LC	X	X	resident breeder
<b>Family: Cuculidae</b>					
Common Cuckoo	<i>Cuculus canorus</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Strigidae</b>					
Little Owl	<i>Athene noctua</i>	LC	X	X	resident breeder
<b>Family: Caprimulgidae</b>					
European Nightjar	<i>Caprimulgus europaeus</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Apodidae</b>					
Common Swift	<i>Apus apus</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Coraciidae</b>					
European Roller	<i>Coracias garrulous</i>	NT, CC		X	passage migrant, and breeding summer visitor
<b>Family: Alcedinidae</b>					
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	LC	X	X	resident; winter visitor and passage migrant
Common Kingfisher	<i>Alcedo atthis</i>	LC		X	resident breeder
Pied Kingfisher	<i>Ceryle rudis</i>	LC	X	X	resident breeder
<b>Family: Meropidae</b>					
Blue-cheeked Bee-eater	<i>Merops [superciliosus] persicus</i>	LC		X	passage migrant, and breeding summer visitor
European Bee-eater	<i>Merops apiaster</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Upupidae</b>					
Eurasian Hoopoe	<i>Upupa epops</i>	LC		X	breeding summer visitor; passage migrant

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
<b>Family: Picidae</b>					
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	LC		X	resident breeder
Syrian Woodpecker	<i>Dendrocopos syriacus</i>	LC	X	X	resident breeder
<b>Family: Laniidae</b>					
Red-backed Shrike	<i>Lanius collurio</i>	LC		X	passage migrant, and summer breeding visitor
Daurian Isabelline Shrike	<i>Lanius isabellinus isabellinus</i>	LC		X	passage migrant
Lesser Grey Shrike	<i>Lanius minor</i>	LC		X	passage migrant, and breeding summer visitor
Woodchat Shrike	<i>Lanius senator</i>	LC		X	passage migrant, and breeding summer visitor
Masked Shrike	<i>Lanius nubicus</i>	CC		X	passage migrant, and breeding summer visitor
<b>Family: Oriolidae</b>					
Golden Oriol	<i>Oriolus oriolus</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Corvidae</b>					
Eurasian Magpie	<i>Pica pica</i>	LC	X	X	resident breeder
Eurasian Jay	<i>Garrulus glandarius</i>	LC	X	X	resident breeder
Red-billed Chough	<i>Pyrrhocorax pyrrhocorax</i>	LC		X	resident breeder
Western Jackdaw	<i>Corvus monedula</i>	LC	X		resident; winter visitor
Rook	<i>Corvus frugilegus</i>	LC	X		winter visitor
Hooded Crow	<i>Corvus[corone] cornix</i>	LC	X	X	resident breeder
Northern Raven	<i>Corvus corax</i>	LC	X	X	resident breeder
<b>Family: Paridae</b>					
Sombre Tit	<i>Poecile lugubris</i>	CC		X	resident breeder
Great Tit	<i>Parus major</i>	LC	X	X	resident breeder
Blue Tit	<i>Cyanistes caeruleus</i>	LC	X	X	resident breeder
<b>Family: Remizidae</b>					
Eurasian Penduline Tit	<i>Remiz pendulinus</i>	LC	X	X	winter visitor and passage migrant
<b>Family: Hirundinidae</b>					
Sand Martin	<i>Riparia riparia</i>	LC		X	passage migrant, and breeding summer visitor
Barn Swallow	<i>Hirundo rustica</i>	LC	X	X	passage migrant, and breeding summer visitor

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Red-rumped Swallow	<i>Cecropis daurica</i>	LC		X	breeding summer visitor; passage migrant.
House Martin	<i>Delichon urbicum [urbica]</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Aegithalidae</b>					
Long-tailed Tit	<i>Aegithalos caudatus</i>	LC	X	X	resident breeder
<b>Family: Alaudidae</b>					
Calandra Lark	<i>Melanocorypha calandra</i>	LC	X		resident; winter visitor
Desert Lark	<i>Ammomanes deserti</i>	LC		X	resident breeder
Greater Short-toed Lark	<i>Calandrella brachydactyla</i>	LC	X		winter visitor; passage migrant and may breed
Crested Lark	<i>Galerida cristata</i>	LC	X	X	resident breeder
Eurasian Skylark	<i>Alauda arvensis</i>	LC	X	X	winter visitor
<b>Family: Cisticolidae</b>					
Graceful Prinia	<i>Prinia gracilis</i>	LC	X	X	resident breeder
<b>Family: Pycnonotidae</b>					
White-eared Bulbul	<i>Pycnonotus leucotis</i>	CC	X	X	resident breeder
<b>Family: Sylviidae</b>					
Cetti's Warbler	<i>Cettia cetti</i>	LC		X	resident breeder
Great Reed Warbler	<i>Acrocephalus arundinaceus</i>	LC		X	passage migrant, and breeding summer visitor
Clamorous Reed Warbler	<i>Acrocephalus stentoreus</i>	LC		X	status uncertain. probably resident
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	LC		X	passage migrant
Marsh Warbler	<i>Acrocephalus palustris</i>	LC		X	passage migrant; may breed
Eastern Olivaceous Warbler	<i>Iduna [Hippolais] pallida</i>	LC		X	passage migrant, and breeding summer visitor
Upcher's Warbler	<i>Hippolais languida</i>	LC		X	passage migrant, and breeding summer visitor
Willow Warbler	<i>Phylloscopus trochilus</i>	LC		X	passage migrant
Common Chiffchaff	<i>Phylloscopus collybita</i>	LC	X	X	passage migrant, and winter visitor
Eurasian Blackcap	<i>Sylvia atricapilla</i>	LC		X	passage migrant; may breed
Lesser Whitethroat	<i>Sylvia curruca</i>	LC		X	passage migrant and may breed
Common Whitethroat	<i>Sylvia communis</i>	LC		X	breeding summer visitor

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Ménétries's Warbler	<i>Sylvia mystacea</i>	LC		X	breeding summer visitor; passage migrant.
<b>Family: Timaliidae</b>					
Iraq Babbler	<i>Turdoides altirostris</i>	CC	X	X	resident breeder
<b>Family: Troglodytidae</b>					
Winter Wren	<i>Troglodytes troglodytes</i>	LC	X		winter visitor
<b>Family: Sittidae</b>					
Eurasian Nuthatch	<i>Sitta europaea</i>	LC		X	resident breeder
Eastern Rock Nuthatch	<i>Sitta tephronota</i>	CC	X	X	resident breeder
Western Rock Nuthatch	<i>Sitta neumayer</i>	CC	X	X	resident breeder
<b>Family: Tichodromadidae</b>					
Wallcreeper	<i>Tichodroma muraria</i>	LC	X		winter visitor
<b>Family: Sturnidae</b>					
Rose-coloured Starling	<i>Sturnus roseus</i>	LC		X	passage migrant and may breed
Common Starling	<i>Sturnus vulgaris</i>	LC	X	X	winter visitor, passage migrant and some may breed
<b>Family: Turdidae</b>					
Eurasian Blackbird	<i>Turdus merula</i>	LC	X	X	resident breeder
European Robin	<i>Erithacus rubecula</i>	LC	X		winter visitor
White-throated Robin	<i>Inania gutturalis</i>	CC		X	breeding summer visitor; passage migrant
Thrush Nightingale	<i>Luscinia luscinia</i>	LC		X	passage migrant
Common Nightingale	<i>Luscinia megarhynchos</i>	LC		X	passage migrant, and breeding summer visitor
Rufous-tailed Scrub Robin	<i>Cercotrichas [Erythropygia] galactotes</i>	LC		X	breeding summer visitor
Black Redstart	<i>Phoenicurus ochruros</i>	LC	X		passage migrant and winter visitor
Common Redstart	<i>Phoenicurus phoenicurus</i>	LC		X	passage migrant, and breeding summer visitor
Whinchat	<i>Saxicola rubetra</i>	LC		X	passage migrant, and breeding summer visitor
Eurasian Stonechat	<i>Saxicola torquatus (S. rubicola)</i>	LC	X	X	Winter visitor; may breed
Isabelline Wheatear	<i>Oenanthe isabellina</i>	LC	X		Passage migrant, winter visitor, breeding summer visitor

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Northern Wheatear	<i>Oenanthe oenanthe</i>	LC	X		passage migrant, and breeding summer visitor
Rufous-tailed Wheatear	<i>Oenanthe xanthoprymna</i>	CC	X	X	breeding summer visitor; passage migrant
Black-eared Wheatear	<i>Oenanthe hispanica</i>	LC		X	breeding summer visitor; passage migrant
Finsch's Wheatear	<i>Oenanthe finschii</i>	CC	X	X	resident breeder; winter visitor
Rufous-tailed Rock Thrush	<i>Monticola saxatilis</i>	LC		X	passage migrant, and breeding summer visitor
Blue Rock Thrush	<i>Monticola solitarius</i>	LC	X	X	resident; winter visitor and passage migrant
<b>Family: Muscicapidae</b>					
Spotted Flycatcher	<i>Muscicapa striata</i>	LC		X	passage migrant, and breeding summer visitor
<b>Family: Cinclidae</b>					
White-throated Dipper	<i>Cinclus cinclus</i>	LC		X	resident breeder
<b>Family: Passeridae</b>					
House Sparrow	<i>Passer domesticus</i>	LC	X	X	resident breeder
Spanish Sparrow	<i>Passer hispaniolensis</i>	LC	X	X	resident breeder
Dead Sea Sparrow	<i>Passer moabiticus</i>	CC		X	resident; breeding summer visitor
Eurasian Tree Sparrow	<i>Passer montanus</i>	LC		X	rare winter visitor; passage migrant
Pale Rockfinch	<i>Carpospiza brachydactyla</i>	CC		X	resident breeder
Rock Sparrow	<i>Petronia petronia</i>	LC		X	resident breeder
Yellow-throated Sparrow	<i>Gymnoris [Petronia] xanthocollis</i>	CC		X	passage migrant, and breeding summer visitor
<b>Family: Motacillidae</b>					
Western Yellow Wagtail	<i>Motacilla flava</i>	LC		X	passage migrant
Grey Wagtail	<i>Motacilla cinerea</i>	LC	X	X	resident breeder; winter visitor
White Wagtail	<i>Motacilla alba</i>	LC	X		resident; winter visitor
Tree Pipit	<i>Anthus trivialis</i>	LC		X	passage migrant; may breed
Water Pipit	<i>Anthus spinoletta</i>	LC	X	X	winter visitor; passage migrant

Bird Species Name	Scientific Name	Conservation Status	Winter Survey	Summer Survey	Migration Status
Meadow pipit	<i>Anthus pratensis</i>	LC	X		passage migrant, and winter visitor
<b>Family: Fringillidae</b>					
Common Chaffinch	<i>Fringilla coelebs</i>	LC	X	X	resident; winter visitor.
Red-fronted Serin	<i>Serinus pusillus</i>	LC		X	winter visitor, and some may breed
European Greenfinch	<i>Carduelis chloris</i>	LC	X	X	rare resident; winter visitor
European Goldfinch	<i>Carduelis carduelis</i>	LC	X	X	resident; winter visitor and passage migrant
Linnet	<i>Carduelis cannabina</i>	LC	X	X	resident; winter visitor
<b>Family: Emberizidae</b>					
Corn Bunting	<i>Emberiza [Miliaria] calandra</i>	LC	X	X	resident; winter visitor
Rock Bunting	<i>Emberiza cia</i>	LC	X		winter visitor; may be resident
Cinereous Bunting	<i>Emberiza cineracea</i>	NT, CC		X	breeding summer visitor; passage migrant
Black-headed Bunting	<i>Emberiza melanocephala</i>	LC		X	passage migrant, and breeding summer visitor
Common Reed Bunting	<i>Emberiza schoeniclus</i>	LC	X		winter visitor

proportion (over 50%) of the world population breeding in the Middle East; and those which have, or are believed to have, important wintering populations in Iraq.

Unlike Europe, bird population data is often lacking in the Middle East and especially so in Iraq where the first comprehensive surveys have only started in the last four years (and during the last two years in Kurdistan). This lack of data means that decisions, which species qualify as being of CC are rather subjective. However assignments will be refined as more surveys and population assessments are made. For now, it provides the best judgment of our bird conservation priorities (Porter et al in prep.).

The region's three large wetlands are the Dukan Reservoir (completed in 1959), the Mosul Reservoir (completed in 1983), and the Darbandikhan Reservoir (completed in 1961). Two of them (Dukan and Darbandikhan) along with an unfinished dam site at Bakhma, were defined by Evans (1994) as IBAs. Based on the KBA surveys, Darbandikhan (S1) and Dukan (S2) Lakes match the KBA criteria. These sites regularly support globally threatened species; birds congregating in important numbers, either when breeding, on passage, or in winter; and sites important for species that are threatened or declining throughout or in large parts of their range in the Middle East. For example: 2% of the Middle Eastern population of *Larus genei* was seen during its breed-

ing season on these two lakes (Fig. 2). Mosul Lake (D10) also meets the criteria with 2% of the Middle Eastern population of *Phalacrocorax carbo* seen in winter at the lake and 18% of the Middle Eastern population of *Tadorna ferruginea* seen in winter and 1% of the Middle Eastern population of *Glareola pratincola* in summer. As with Dukan and Darbandikhan, this indicates that this lake regularly supports globally threatened species and birds congregating in important numbers, either when breeding, on passage, or in winter. Altun Kopri (E3) marshland in Erbil Governorate is another important KBA site, because birds congregate at this wetland site in large numbers.

Table 2 lists the 11 top sites for globally threatened species and/or species which are threatened locally or declining throughout all or large parts of their range in the Middle East. It also lists species that are restricted wholly or largely to the Middle East.

The following sites also meet the KBA criteria: Gali Zanta and Garbeesh Mountain (D1) Ser Amadiya (D2), Atrush (D3), Benavi (D6), Zawita (D7), Mangesh (D8), Fishkhaboor (D11), Sararu (D13); in Erbil Governorate: Haji Omran (E1), Smaqli and Ashab Valley (E5), Taq Taq (E6), Bakhma (E7), Barzan (E8), Kherazook (E9), Bahraka (E11); and in Sulaimani Governorate: Kalar (S3), Ahmad Awa (S4A), Hawraman (S4B), Penjween (S5), Peramagroon (S6), Sargalu (S7), Chamchamal (S9), Chami Razan (S10), Qara Dagh (S11), and Sharbazher (S13). The remaining sites, which did not match KBA criteria for bird species as results of these surveys are: Kalakchi and Khazar (D12A and D12B), Duhok Lake (D9), Turaq Steppe (E4), Aski Kalak (E10), Sangaw (S14).

Destruction of habitats by gravel mining and tree cutting and other major threats to birds, such as uncontrolled hunting, were prevalent throughout the survey area, as



**Figure 2.** *Larus genei* at Dukan Lake (S2) in summer 2008 (photo by the author).

**Table 2.** Priority sites for bird conservation in Kurdistan, Iraq.

Site	Description
Darbandikahn Lake (S1)	Lake/Reservoir ecosystem on the Diyala Watershed southeast of Sulaimani - 25000 ha. This site supports the globally threatened Imperial Eagle <i>Aquila heliaca</i> – 8 counted in winter and Egyptian Vulture <i>Neophron percnopterus</i> . Other wintering birds include Smew <i>Mergellus albellus</i> , Common Goldeneye <i>Bucephala clanga</i> , Great Black-headed Gull <i>Larus ichthyaetus</i> and Wallcreeper <i>Tichodroma muraria</i> . White Storks <i>Ciconia ciconia</i> nest and there is a large breeding colony of Slender-billed Gulls <i>Larus genei</i> (760 birds counted).
Dukan Lake (S2)	Lake/Reservoir ecosystem on the Upper Little Zap Watershed northwest of Sulaimani - 7500 ha. This site holds small numbers of the globally threatened Lesser White-fronted Goose <i>Anser erythropus</i> and Imperial Eagle <i>Aquila heliaca</i> in winter when there are large flocks of Great Black-headed Gulls <i>Larus ichthyaetus</i> and large concentrations of larks. Breeding species include White Storks <i>Ciconia ciconia</i> , Egyptian Vultures, Slender-billed Gulls (4500), Gull-billed Terns <i>Gelochelidon nilotica</i> and passerines with a restricted range in the Middle East, such as Eastern Rock Nuthatch <i>Sitta tephronata</i> .
Mosul Lake (D10)	Lake/Reservoir Ecosystem on the Tigris north of Mosel – 470 km <sup>2</sup> . An important site holding in winter small numbers of Lesser White-fronted Goose <i>Anser erythropus</i> and over 9,000 Ruddy Shelduck <i>Tadorna ferruginea</i> . There are very important breeding colonies of Collared Pratincole <i>Glareola pratincola</i> (870 individuals), Slender-billed Gulls <i>Larus genei</i> (630), Gull-billed Tern <i>Gelochelidon nilotica</i> (760), Common Tern <i>Sterna hirundo</i> (350) and Little Tern <i>Sternula albifrons</i> (200)
Altun Kopri (E3)	Riparian marshland on the Little Zap River bordered by steppe ecosystem south of Erbil – 10 km <sup>2</sup> . This site holds large numbers of waterfowl, notably Eurasian Coot <i>Fulica atra</i> with 11,500 counted. This varied habitat holds a large and diverse population of breeding/probable breeding birds including Little Grebe <i>Tachybaptus ruficollis</i> , Squacco Heron <i>Ardeola ralloides</i> , Purple Heron <i>Ardea purpurea</i> , Marsh Harrier <i>Circus aeruginosus</i> , Pin-tailed Sandgrouse <i>Pterocles alchata</i> , Pied Kingfisher <i>Ceryle rudis</i> , Penduline Tit <i>Remiz pendulinus</i> , Great Reed Warbler <i>Acrocephalus arundinaceus</i> and Dead Sea Sparrow <i>Passer moabiticus</i>
Barzan (E8)	This is a tribal protected area located to the northeast of Erbil City which represents mountains with woodlands of <i>Quercus</i> and the presence of some streams and rivers. The threatened Lesser Kestrel <i>Falco naumanni</i> and European Roller <i>Coracias garrulus</i> breed as well as Griffon Vulture <i>Gyps fulvus</i> , Booted Eagle <i>Aquila pennata</i> , Lesser Spotted Woodpecker <i>Dendrocopos minor</i> and several passerines restricted wholly or largely to the Middle East such as Eastern Rock Nuthatch <i>Sitta tephronota</i> .
Chami Razan (S10)	This site is located approximately 30 km to the northwest of Sulaimani City. It consists of a long valley with a stream that flows from the northeast down to the Little Zap and contains hills and rocky ridges with sparse oak woodlands. This site holds a good population of breeding birds of prey, notably Egyptian Vulture <i>Neophron percnopterus</i> and Griffon Vulture <i>Gyps fulvus</i> , Short-toed Eagle <i>Circaetus gallicus</i> , Bonelli's Eagle <i>Aquila fasciatus</i> , Long-legged Buzzard <i>Buteo rufinus</i> and probably Steppe Buzzard <i>Buteo buteo vulpinus</i> . European Roller <i>Coracias garrulus</i> may breed and there is a good breeding population of passerines, wholly or largely restricted to the Middle East, including Masked Shrike <i>Lanius nubicus</i> , Sombre Tit <i>Poecile lugubris</i> , Red-tailed Wheatear <i>Oenanthe xanthopyrmyna</i> and Eastern Rock Nuthatch <i>Sitta tephronota</i> .

Site	Description
Qara Dagħ (S11)	This area located south of Sulaimani City and represents a mountainous area with many gorges, rocky slopes and valleys covered mainly by oak forest. There are farmlands and villages as well. This site holds breeding populations of the globally threatened Egyptian Vulture <i>Neophron percnopterus</i> and Lesser Kestrel <i>Falco naumani</i> as well as Griffon Vulture <i>Gyps fulvus</i> , Short-toed Eagle <i>Circaetus gallicus</i> and Long-legged Buzzard <i>Buteo rufinus</i> . Other breeding birds include European Roller <i>Coracias garrulus</i> , Masked Shrike <i>Lanius nubicus</i> , Woodchat Shrike <i>Lanius senator</i> (75 individuals counted) and Red-tailed Wheatear <i>Oenanthe xanthopyrmyna</i> .
Ser Amadia (D2)	This is a mountainous area with rocky cliffs, gorges, and a valley with streams; plant coverage is <i>Quercus</i> , <i>Juniperus</i> , <i>Puplus</i> with grasses. The globally threatened Lesser Kestrel <i>Falco naumani</i> and European Roller <i>Coracias garrulus</i> breed as well as Eurasian Nuthatch <i>Sitta europaea</i> , Western Rock Nuthatch <i>S. neumayer</i> Eastern Rock Nuthatch and Long-tailed Tit <i>Aegithalos caudatus</i> .
Haji Omran (E1)	This area is located on the Iran/Iraq border northeast of Erbil City and is surrounded by a number of mountains such as Sakran in the south, Halgurd in the west and Gardamn in the north, with hills, streams and meadows offering high plant diversity. It is considered one of the most important plant areas in Iraq. This site holds several breeding species restricted wholly or largely to the Middle East including Finsch's Wheatear <i>Oenanthe finschii</i> . Black-eared Wheatears <i>Oenanthe hispanica</i> occur in good numbers
Sararu (D13)	Situated about 46 km northeast of Dohuk City and about 8 km <sup>2</sup> in size. It is a mountainous area with a valley including farmlands with walnuts and other trees. Breeding species include Lesser Kestrel <i>Falco naumani</i> and a diverse population of passerines including Masked Shrike <i>Lanius nubicus</i> , Eastern Rock Nuthatch <i>Sitta tephronota</i> , Sombre Tit <i>Poecile lugubris</i> and Long-tailed Tit <i>Aegithalos caudatus</i> . Levant Sparrowhawk <i>Accipiter brevipes</i> probably breeds.
Benavi (D6)	The site lies at 1,500-1,700 m and includes a valley containing Benavi village and the adjacent mountain ridge. The slopes are rocky and grassy, with a rich herb flora and isolated <i>Quercus</i> shrubs and trees. Benavi holds a good population of several species that are restricted wholly or largely to the Middle East, including Finsch's Wheatear <i>Oenanthe finschii</i> and Sombre Tit <i>Poecile lugubris</i> .

is the case for Iraq as a whole. These sites should be monitored for and protected from these threats.

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