



Key Biodiversity Survey of Iraq 2010 Site Review



Nature Iraq & the Iraq Ministry of Environment
Sulaimani, Kurdistan, Iraq

Nature Iraq & Iraqi Ministry of Environment Report

© 2011 Nature Iraq & Iraq Ministry of Environment
Sulaimani, Kurdistan, Iraq

This report has been prepared in order to summarize and inform partner agencies on the status and progress of the biodiversity initiatives of Nature Iraq and the Iraq Ministry of Environment. For more information please refer to:

Nature Iraq Office

PO Box 249

Sulaimaniyah, Iraq

Tel/Fax: +964 53 329 2007

E-mail: info@natureiraq.org

Iraqi Ministry of Environment

Baghdad, Iraq

E-mail: moen_iraq@yahoo.com

DRAFT

Key Biodiversity Survey of Iraq

2010 Site Review

Compiled by

Kurdistan, Northern Iraq: Nabeel A. Abdulhassan, Saman Abdulrahman, Hana Ahmed, and Korsh Ararat;

Central & Western Iraq: Omar Fadhel, and

Southern Iraq: Nabeel A. Abdulhassan, Mudhafar A. Salim, and Laith A. Al-Ubeidi

Maps by

Ahmed Atwani

Edited by

Anna Bachmann, Bridget Chappell, Nicholas Elliott, & Noor Matti

Nature Iraq & the Iraq Ministry of Environment
Sulaimani, Kurdistan, Iraq
2011

Contents

Acknowledgements	8
Introduction.....	10
Key Biodiversity Areas Criteria Assessment.....	10
Important Bird Area Criteria Assessment.....	11
Important Plant Area Criteria Assessment	12
Survey Area	13
Methods & Procedures.....	20
Sites	20
Birds.....	23
Mammals & Other Fauna.....	25
Plants	26
Kurdistan, northern Iraq Site Review	29
Dukan Lake and Surrounding Area	29
Assos Mountain	32
Qadr Karam Area.....	35
Maidan Area.....	37
Darbandikhan Lake and Surrounding Areas	38
De Lezha.....	40
Peramagroon.....	43
Homer Qawm and Shadala Valley.....	46
Chami Razan Area.....	48
Parazan	50
Qara Dagh Area	53
Gmo Mountain.....	56
Awesar	58
Sargalu	61
Ahmed Awa	63
Hazarmerd	65
Barzan Area	67
Altun Kopri Marsh	70

Nature Iraq & Iraqi Ministry of Environment Report

Bahraka.....	71
Doli (Valley) Smaquli.....	72
Bradost	75
Sakran Mt-Choman Reserve Site.....	77
Haji Omran Mountain.....	80
Fishkhaboor.....	82
Mosul Lake.....	83
Garagu	85
Ser Amadia.....	88
Chamanke	90
Dure	92
96.....	Central Iraq Site Review
96.....	Habbaniya Lake
98.....	Haditha Wetland & Wahat Al Baghdadi
100.....	Anah and Rawa
102.....	Nekheab district and Hussaniya Oases
104.....	Augla
105.....	Gasr Muhaiwir
107.....	Qadissiya or Haditha Dam
110.....	Hawejjat Abu Alwan and Ramadi Marshes
112.....	Western Edge of Tharthar Lake
114.....	Al Rahaliya and Razaza Lake
115.....	Sabkhat Abu Garis
117.....	Rutba and Al Massad Gazelles Reserve
119.....	Samara Dam & Wetlands
121.....	Tharthar Lake and Dhebaeji fields
123.....	Mahzam
126.....	Abu Dalaf and Shari Lake
127.....	Jallet Abu Ajeel
129.....	Himreen Lake
130.....	Baquba Wetland
131.....	Attariya Plains
132.....	Mandli
134.....	Jadriyah and Umm Al Khanazeer Island
137.....	Abu Habba

Nature Iraq & Iraqi Ministry of Environment Report

137.....	Huweija Marshes and Beaji	
South Site Review		140
Jabal Senam.....		140
Kteibaan		141
Kharanj.....		143
Al-Lehais		145
Baghdadiya, South		146
Fuhood, North.....		149
Abu Zirig.....		150
Zichri		152
Teena, Northern.....		153
Buhaira Al-Hilwa.....		155
Naggaara		156
Shilaychiya Marsh.....		158
Haffaar Opening 2.....		160
Slein (Ghatra).....		161
Abu Hedeeda.....		162
Abu-'Ajaj		163
Nuwashi.....		164
Abu-Ajaj, East.....		166
Al-Rashid Lake		167
Shaafi		168
Al Ghabishiya		169
Umm At Tiyaar near-Al Buhaira		170
Umm Nakhla.....		171
Kermashiya Marsh.....		172
Umm An Ni'aaj		174
Udhaim		177
E'jayrda		179
Majnoon		180
Bushes near Umm Al-Warid.....		182
Khor Az Zubayr Canal-100 meters east.....		183
Khor Az-Zubayr		184
Khor Al-Zubayr, west		185
Umm Qasr Port		186

Nature Iraq & Iraqi Ministry of Environment Report

Dalmaj Marsh, South.....	188
Dalmaj Marsh, East.....	190
Dalmaj Marsh, North.....	191
Al-Basroogiya	192
Ibn Najm.....	193
Razzaza Lake	195
Al-Taar.....	197
Ein Al-Tamr.....	198
Hindiya Barrage.....	199
North Ibn Najm.....	201
Teeb oasis.....	203
Zubaidaat	205
Sawa Lake.....	206
Salman	208
Wadi Al-W'eir	210
Sh'eeb Abu-Talha.....	212
Euphrates & Tigris Junction	213
Ras Al-Beesha (Fao)	215
Sinnaaf Area, Western.....	217
Shuweicha Marsh.....	219
Teeb.....	219
Suwaibaat, South.....	221
Tell Al-Laham.....	223
Jazman (Zurbatia)	223
Summary & Conclusions	227
General findings on Birds	227
General findings on plants.....	229
Issues and areas of importance for other species	232
Sites	232
Animal Markets & Trade Issues.....	234
Zoos.....	236
Overall Conservation Concerns & Recommendations.....	237
Recommendations on addressing threats to sites	243
Delineation and prioritization of proposed KBA protected areas	244
Site Prioritization	249

Nature Iraq & Iraqi Ministry of Environment Report

Protected Areas Program in Iraq	253
Recommendations and Next Steps.....	255
KBA Sites.....	255
KBA Program.....	257
References	261
Annex A: List of birds seen on the KBA Surveys in Iraq in 2010	266
Annex B: List of plants seen on the KBA Surveys in Iraq in 2010.....	272
Annex C: Mammals & other fauna.....	284
Annex D: Images from the survey work	286
Some key bird species seen in the surveys of 2010.....	286
A variety of vertebrates species have been observed during winter and summer surveys in Iraq 2010	289
Common and Important Plant Species seen in the KBA 2010 Surveys in southern and Northern Iraq.....	292
Annex E: The 2010 KBA sites with their ecoregion, area, the KBA, IBA & IPA Criteria that they may meet and their percentage area of their respective ecoregion, as well as EVP prioritization.....	295

Acknowledgements

This report summarises the results of the Key Biodiversity Area (KBA) surveys undertaken in 2010. This on-going program would not have been possible without key partnerships and personal commitments of many of our colleagues. We would like to thank especially Dr. Azzam Alwash and Anna Bachmann at Nature Iraq, current Minister Sargon Lazar Slewa and former Minister Narmin Othman of the Iraqi Ministry of Environment, as well as Richard Porter, Simon Aspinall, Mike Evans and Sharif Al-Jbour at BirdLife International and BirdLife Middle East. Additional assistance for visiting the Rutba and Al Massad Gazelle reserve was provided by Samer Tawfik, Senior Agriculture Adviser (Veterinarian), USAID – Tatweer Program and staff from the Ministry of Agriculture.

Richard Porter reviewed the bird data and together with Anthony Miller and Matt Hall, took part in the spring/summer KBA trainings, which greatly informed the work of the field teams.

The project has been conducted in cooperation with the Iraqi Ministry of Environment with generous support provided by the Italian Ministry of Environment, Land and Sea.

KBA Teams

The Key Biodiversity Areas (KBA) teams for winter and summer 2009 consisted primarily of staff from Nature Iraq (NI), the Iraqi Ministry of Environment (IMoE), and the Kurdistan Commission of Environment (KCoE)

Kurdistan, Northern Iraq Team:

Birds: Korsh Ararat (NI) and Mariwan Qadir (KCoE Trainee)

Mammals and other Fauna: Hana Ahmed (NI)

Vascular plants/Macrophytes: Saman Abdul Rahman (NI) and Nabeel Abdulhassan (NI)

Central/Western Iraq Team:

Birds and other fauna: Omar Fadhil Abdulrahman (NI), Mohammed Fadhil Abd (IMoE), and Ali Ne'ema Salman (IMoE)

Southern Iraq Team:

Birds and other fauna: Mudhafar A. Salim (NI), Laith A. Al-Ubeidi (NI), Mohammed Turki (Trainee), Kadhum Jawad (Trainee), Zaman Salman (Trainee).

Vascular plants/Macrophytes: Nabeel Abdulhasan (NI), Saman Abdul Rahman (NI), Bestoon (Trainee), Bahaa Ahmed (Trainee), and Muataz Talib (Trainee).

Additional support was provided by:

In Anbar province:

Haithem Nafe'e Asad –Natural Ecosystems Division -Anbar Environmental Directorate
Dheea Mahmmod Al Mandalawi –Biodiversity Division - Anbar Environmental Directorate.

Qais Najih Abid - Anbar Environmental Directorate

Mustafa Saeed - Anbar Environmental Directorate.

Ahmad Kamel -Anbar Environmental Directorate.

In Salah Ad Din province:

Samer Abd Al Razak– Environmental Directorate in Northern Region – Tikrit Office.

Hassan Ahmad - Environmental Directorate in Northern Region –Tikrit Office.

Nature Iraq & Iraqi Ministry of Environment Report

Ayad Mohammad - Environmental Directorate in Northern Region –Tikrit Office.

In Diyala province:

Ahmad Nafe'e Abass - Diyala Environmental Directorate.

Mahmood Ali - Diyala Environmental Directorate.

In addition, local partners have assisted the project logistically and with information about the survey sites. These have included the many Iraqi police officers and policemen, PeshMerga, environmental and forestry police, guards, guides, falconers, hunters, drivers, and wildlife rangers (especially at Al Massad Reserve) with whom the team has worked. We wish to include them in our thanks.

DRAFT

Introduction

This document presents seasonal observations from the Key Biodiversity Areas (KBA) Survey Project conducted in 2010 at selected sites throughout Iraq in the governorates of: Sulaimani, Erbil, Dohuk, Salahadin, Diyala, Anbar, Kirkuk, Baghdad, Missan, ThiQar, Basrah, Muthanna, and Qadisiya, Najaf, Muthanna, Karbala, Wasit, and Babil. This survey is a joint effort of Nature Iraq (NI), the Iraqi Ministry of Environment (IMoE), and other partners including the Kurdish Commission on Environment (KCoE), environmental directorate offices in Anbar, Salahadin, Diyala and other locations, the Kurdistan Regional Government's Environmental Police (a division of the PeshMerga), and the Universities of Sulaimani and Baghdad. The following table lists the winter and summer 2010 survey periods for each area.

Table 1: Survey periods for 2010 KBA Project

	Kurdistan		Central Iraq		South	
	Winter	Summer	Winter	Summer	Winter	Summer
Birds	12 Jan – 3 Feb	18 Apr – 4 Jun	19 Dec –12 Jan	19 Dec –12 Jan	16 Jan – 21 Feb 2010	7 May – 30 June 2010
Mammals & other fauna	12 Jan – 3 Feb (primarily Anacdotal)	18 Apr – 4 Jun (primarily Anacdotal)	19 Dec –12 Jan (primarily Anacdotal)	19 Dec –12 Jan (primarily Anacdotal)	16 Jan – 21 Feb 2010 (primarily Anacdotal)	7 May – 30 June 2010 (primarily Anacdotal)
Flora	None	18 Apr – 4 Jun	None	None	None	15 Mar - 9 Apr (Spring Survey)

The 2010 KBA surveys represent the 7th and 8th seasonal surveys conducted in Kurdistan, northern Iraq, since the start of the project there in February 2007. They represent the 3rd and 4th seasonal surveys for central and western Iraq since the project was initiated there in January 2009, and they represent the 11th and 12th seasonal surveys for many of the southern sites since the start of fieldwork in the Mesopotamian Marshland areas in the winter of 2005. The field effort in 2010 focused on birds, mammals and plants. This report provides an overview of the basic findings on each site, a determination of whether the site meets KBA criteria (described below), as well as a threat assessment for the sites, a refinement of delineations for priority sites and recommendations for sites.

Key Biodiversity Areas Criteria Assessment

Key Biodiversity Areas (KBA) are those sites that are large enough, or sufficiently interconnected, to support viable populations of species to which they are important. The KBA selection process uses two main criteria of “Vulnerability” and “Irreplacability”. These are

Nature Iraq & Iraqi Ministry of Environment Report

further defined into sub-criteria and thresholds used to determine KBA Status for sites in which site-scale conservation is appropriate. These are shown in the table below:

Table 2: KBA Criteria and thresholds (IUCN, 2007)

Criterion	Sub-criteria	Provisional threshold for triggering KBA Status
V. Vulnerability Regular occurrence of a globally threatened species (according to the IUCN Red List) at the site		Presence of Critically Endangered (CR) and Endangered (EN) species – presence of a single individual or Vulnerable species (VU) – 30 individuals or 10 pairs ¹
I. Irreplaceability Site holds X% of a species' global population at any stage of the species' lifecycle	Ia) Restricted-range species.	Species with a global range less than 50,000 km ² or 5% of global population at site
	Ib) Species with large but clumped distribution.	5% of global population at site
	Ic) Globally significant congregations.	1% of global population seasonally at the site
	Id) Globally significant source populations.	Site is responsible for maintaining 1% of global population
	Ie) Bioregionally- restricted assemblages	To be defined

If a site meets one or more of these criteria, the site would be considered as an area of Key Biological Diversity. Within the KBA framework a variety of criteria-based systems focused on specific fauna and flora groups are also applied.

Important Bird Area Criteria Assessment

BirdLife International, an organization devoted to conservation of bird species throughout the globe, has developed criteria for the designation of Important Bird Areas (IBAs). Under BirdLife International, Mike Evans (1994) published a book titled *Important Bird Areas of the Middle East* that listed 42 IBAs in Iraq. The IBA criteria (BirdLife, 2010) used for defining these areas consists of the following:

- A1. Globally threatened species. **Criterion:** The site is known or thought regularly to hold significant numbers of a globally threatened species, or other species of global conservation concern¹.
- A2. Restricted-range species. **Criterion:** The site is known or thought to hold a significant component of a group of species whose breeding distributions define an Endemic Bird Area (EBA) or Secondary Area (SA).

¹ Based on IUCN Red-List Assessments of species

Nature Iraq & Iraqi Ministry of Environment Report

- A3. Biome-restricted species. Criterion: The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome.
- A4. Congregations. Criteria: A site may qualify on any one or more of the four criteria listed below:
- i). Site known or thought to hold, on a regular basis, ³ 1% of a biogeographic population of a congregatory waterbird species.
 - ii). Site known or thought to hold, on a regular basis, 1% of the global population of a congregatory seabird or terrestrial species.
 - iii). Site known or thought to hold, on a regular basis, ³ 20,000 waterbirds or ³ 10,000 pairs of seabirds of one or more species.
 - iv). Site known or thought to exceed thresholds set for migratory species at bottleneck sites.

As the Nature Iraq KBA program has developed a strong ornithological section and focused all surveys on birds as major indicator species, the application of the IBA criteria to the survey sites has been the most straightforward and comprehensive.

Important Plant Area Criteria Assessment

In addition, Plantlife International, an organization involved in international plant conservation measures, has developed criteria for the designation of Important Plant Areas (IPAs) throughout the globe (like IBAs, these are also a subset of KBAs). According to the Plantlife International's website, the criteria for the IPA project have been developed over a period of ten years by a process of consultation involving specialists from many countries (Plantlife, 2008).

Plantlife states that the identification of IPAs is based on three broad criteria listed below. Again, as with KBAs and IBAs, a site qualifies as an IPA if it fulfills one or more of these criteria:

1. Sites with threatened species (sites that hold significant populations of species of global or regional concern)
2. Sites of botanical richness (sites with exceptionally rich flora in a regional context in relation to its biogeographic zone)
3. Sites with threatened habitats (sites that are outstanding examples of a habitat type of global or regional importance)

In terms of plants, Iraq is only in the initial stages of assessing sites based on these three criteria. Unlike lists for bird life and other species, comprehensive plant lists for species in Iraq do not yet exist; information on threatened plant species (the first IPA Criteria) is incomplete. However, the KBA project has collected extensive botanical information and the botany work has also aided the project in terms of developing a broader understanding of species/habitat relationships.

As stated above, a number of different organizations and fields of research have developed their own sets of criteria. In addition to the Important Bird Areas (IBAs) and Important Plant Areas (IPAs) discussed above, there is also a criteria system set up by the Alliance for Zero Extinction

(AZE). Essentially all these criteria systems come under the umbrella of Key Biodiversity Areas (KBAs). Therefore, if a site meets IPA or IBA criteria, it can be considered a KBA site as shown in the diagram below:

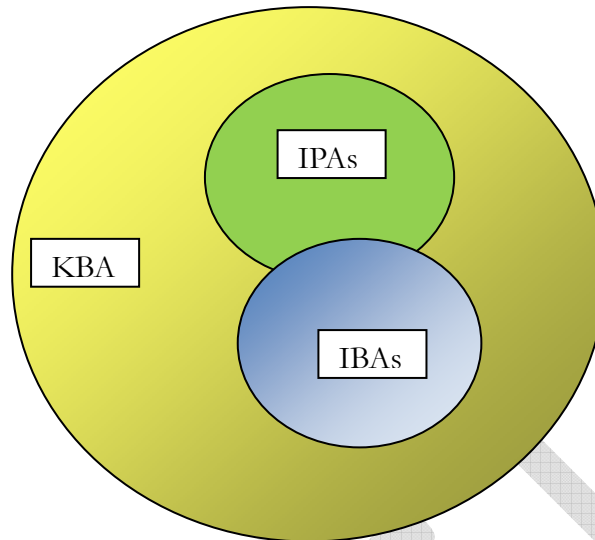


Figure 1: Key Biodiversity Area Site and their relationship to important bird and plant sites (IBA/IPA)

Important Note: For all sites in the following site reviews, a table of provided presenting evidence on the conservation significance of the site based on a review of the species and habitats present at each site and the specific KBA, IBA or IPA criteria that their presence allows the site to meet. These assessments are preliminary and based on only one year of data. Ideally, this assessment process is more rigorous and includes data from additional surveys. A more indepth analysis of the sites based on all data collected since the inception of the program is currently underway with plans to publish a paper on the KBAs of Iraq by the end of the year.

Survey Area

Iraq is part of the Palearctic Realm, the largest of the eight terrestrial ecozones that have been defined for the Earth. It includes the ecoregions covering Europe, northern Africa, the northern and central Arabian Peninsula and Asia north of the Himalaya foothills. Under the World Wildlife Fund (WWF, 2006) an ecosystem classification system of 26 biomes or major habitat types was developed from which 867 terrestrial ecoregions were defined.

Under the WWF system, there are 5 terrestrial biomes found in the Palearctic realm of Iraq:

1. Temperate Broadleaf and Mixed Forests
2. Temperate Grasslands, Savannas, and Shrublands
3. Flooded Grasslands and Savannas

Nature Iraq & Iraqi Ministry of Environment Report

4. Mediterranean Forests, Woodlands, and Scrub
5. Deserts and Xeric Shrublands

According to the World Wildlife Fund (2006), an ecoregion is defined as a large area of land or water that contains a geographically distinct assemblage of natural communities that:

- share a large majority of their species and ecological dynamics;
- share similar environmental conditions, and;
- interact ecologically in ways that are critical for their long-term persistence.

Iraq is made up of ten different terrestrial ecoregions, listed with their code, total area, and area within Iraq below (also see the map below):

Table 3: Ecoregions found in Iraq (WWF, 2006)

Ecoregion	Ecoregion Code	Conservation Status	Total Area (ha)	Area in Iraq (ha)
1. Eastern Anatolian montane steppe	PA0805	Critical	16820000	3
2. Tigris-Euphrates alluvial salt marsh	PA0906	Critical	3560000	3017501
3. Arabian Desert and East Sahero-Arabian Xeric Shrublands	PA1303	Critical	185130000	19399482
4. Mesopotamian Shrub Desert	PA1320	Vulnerable	21100000	12990700
5. Middle East Steppe	PA0812	Vulnerable	13230000	3791260
6. Zagros Mountains Forest Steppe	PA0446	Critical	39780000	3047020
7. Eastern Mediterranean conifer-sclerophyllous-broadleaf forest	PA1207	Critical	14380000	121204
8. Red Sea Nubo-Sindian Tropical Desert and Semi-Desert	PA1325	Critical	65130000	518925
9. South Iran Nubo-Sindian desert and semi-desert	PA1328	Critical	35150000	855179
10. Persian Gulf desert and semi-desert	PA1323	Critical	7260000	111335

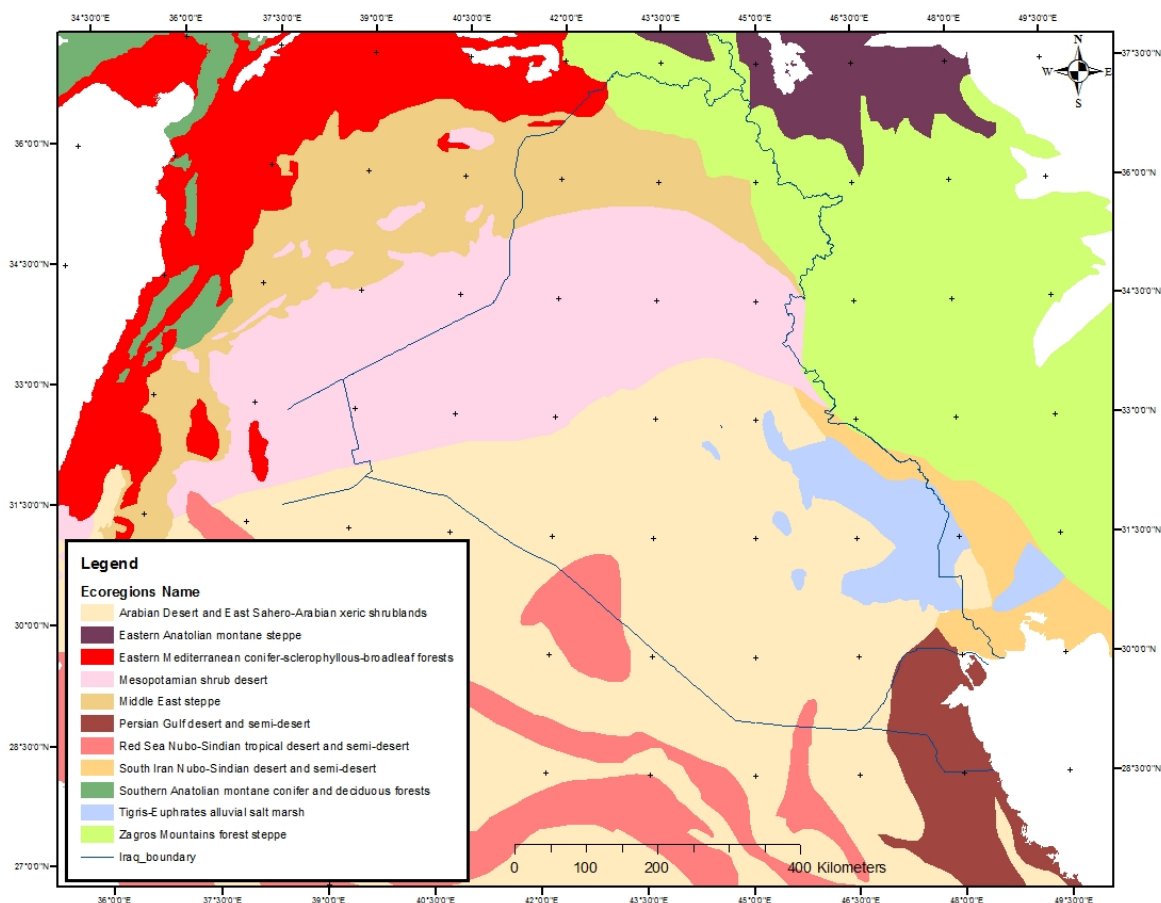


Plate 1: Major Iraqi Ecoregions

In addition, freshwater and marine “ecoregions” of the world were also defined, including three different freshwater ecoregions (Arabian Interior (440), Lower Tigris and Euphrates (441), Upper Tigris and Euphrates (442)) and one marine ecoregion (Arabian/Persian Gulf (90)), a part of the Western Indo-Pacific Realm.

The table below presents that list of sites visited in the 2010 survey and below it is a jurisdictional map showing the survey points throughout the country.

Table 4: Key Biodiversity Area Project Survey Sites in 2010

	Governorate	Site Name	Site Code	Season of Visit W, Spr, S*	GPS Coordinates						Elevation (meters)
					Latitude (North)			Longitude (East)			
					°	'	''	°	'	''	
Kurdistan, Northern Iraq Sites											
1.	Dohuk	Mosul lake	D10	W, S	36	44	28	42	47	10	310
2.	Dohuk	Fishkhaboor	D11	W	37	06	43	42	22	60	348
3.	Dohuk	Dure	D16	S	37	13	45	43	28	46	1543
4.	Dohuk	Chamanke	D18	S	36	25	08	43	44	39	916
5.	Dohuk	Ser Amadia	D2A	S	37	02	34	43	32	03	1123
6.	Dohuk	Garagu	D5	S	37	01	51	43	23	34	1028
7.	Erbil	Haji Omran Mountain	E1	S	36	40	01	45	03	00	1893

Nature Iraq & Iraqi Ministry of Environment Report

	Governate	Site Name	Site Code	Season of Visit W, Spr, S*	GPS Coordinates						Elevation (meters)
					Latitude (North)			Longitude (East)			
					°	'	"	°	'	"	
8.	Erbil	Bahraka	E11	W	36	27	13	43	48	37	297
9.	Erbil	Sakran Mt-Choman Reserve	E14	S	36	35	26	44	59	10	1872
10.	Erbil	Bradost Mountain	E18	S	36	42	07	44	22	54	1345
11.	Erbil	AltunKopri	E3	W	35	42	57	44	07	10	256
12.	Erbil	Doli (Valley) Smaquly	E5A	S	36	21	49	44	19	22	1184
13.	Erbil	Barzan	E8	W, S	36	56	37	44	11	44	530
14.	Sulaimani	Darbandikhan Lake and Surrounded Area	S1	W	35	08	41	45	45	18	578
15.	Sulaimani	Chami Razan	S10	S	35	48	33	45	01	14	648
16.	Sulaimani	Qara Dagh	S11	S	35	19	52	45	17	25	910
17.	Sulaimani	Dukan Lake and Surrounding Area	S2	W, S	36	05	33	44	56	09	485
18.	Sulaimani	Maidan Area	S22	W	34	39	21	45	40	49	508
19.	Sulaimani	De Lezha	S23	S	35	27	37	45	11	40	683
20.	Sulaimani	Homer Qawm and Shadala Valley	S24	S	35	47	06	45	15	09	1306
21.	Sulaimani	Parazan	S26	S	35	37	37	45	44	19	1047
22.	Sulaimani	Qadr Karam	S30	W	35	13	43	45	14	27	914
23.	Sulaimani	Assos Mountain	S32A & B	W, S	36	03	56	45	15	00	848
24.	Sulaimani	Gmo Mountain	S33	S	35	54	46	45	33	01	2164
25.	Sulaimani	Hazarmerd	S34	S	35	29	51	45	18	42	1035
26.	Sulaimani	Ahmed Awa	S4A	S	35	17	59	46	04	41	900
27.	Sulaimani	Awesar	S4B	S	35	12	45	46	07	56	1660
28.	Sulaimani	Peramagroon	S6	S	35	48	33	45	01	14	2613
29.	Sulaimani	Sargalu	S7	S	35	52	31	45	09	55	953
Central Iraq Sites											
1.	Anbar	Habbaniya Lake	AN1	W,S	33	11	48	43	27	38	35
2.	Anbar	Rahaliya and Razaza Lake	AN10	W, S	32	46	26	43	27	6	37
3.	Anbar	Sabkhat Albu Garis	AN11	W, S	34	41	54	41	13	9	42
4.	Anbar	Rutba and Al Massad Gazelles Reserve	AN12	S	32	54	29.8	40	13	14.2 2	43
5.	Anbar	Haditha Wetlands & Baghdadi	AN2	W,S	33	54	21	42	31	58	65
6.	Anbar	Anah & Rawa	AN3	W,S	34	28	31	41	53	2	42
7.	Anbar	Anah & Rawa	AN3	W,S	34	28	31	41	53	2	42
8.	Anbar	Al Nekheab District Oases - Al Hussayniyah	AN4	S	33	25	9	41	1	17	453
9.	Anbar	Gasr Muhaiwir	AN6	W, S	33	32	37	41	0	14	42
10.	Anbar	Qadissiya or Haditha Dam	AN7	W, S	34	20	87	42	3	84	18

Nature Iraq & Iraqi Ministry of Environment Report

	Governate	Site Name	Site Code	Season of Visit W, Spr, S*	GPS Coordinates						Elevation (meters)
					Latitude (North)			Longitude (East)			
					°	'	"	°	'	"	
11.	Anbar	Hawijat Albu Dheab and Al Ramadi Marshes	AN8	W, S	33	28	31	43	16	5	42
12.	Anbar	Tharthar Lake, Western Edge	AN9	W, S	33	41	56	43	18	17	40
13.	Baghdad	Jadriyah and Umm Al Khanazeer Island	BG1	W, S	33	16	31	44	22	36	64
14.	Diyala	Himreen lake	DY1	W, S	34	11	35	45	0	11	42
15.	Diyala	Attariya Plains	DY3	W, S	33	31	41	44	45	47	12
16.	Diyala	Mandli	DY4	S	34	4	6	45	27	38	27
17.	Kirkuk	Huweija Marshes & Beagi	KK1	W, S	34	58	36	44	0	8	154
18.	Salah Ad Din	Samarra dam & Wetlands	SD1	W, S	34	11	33	43	50	68	45
19.	Salah Ad Din	Tharthaar Lake & Dhebaeji Field	SD2	W, S	34	17	2	43	10	59	38
20.	Salah Ad Din	Mahzam	SD3	W, S	34	50	56	43	39	14	89
21.	Salah Ad Din	Abu Dalaf & Shari Depression	SD4	W, S	34	21	32	43	51	27	123
22.	Salah Ad Din	Jallet Albu Ageel	SD5	W, S	34	37	48	43	47	57	98
Southern Iraq Sites											
1.	Basrah	JabalSenam	BR1	W,Spr,S	30	7	28	47	37	38	
2.	Basrah	Kteibaan	BR2	W,S	30	42	30	48	1	38	
3.	Basrah	Kharanij	BR3	W	29	24	8	46	32	57	
4.	Basrah	Lehais	BR4	Spr	30	36	21	46	31	45	
5.	ThiQar	Baghdadiya, South	CM1	W,Spr,S	31	1	28	47	0	57	
6.	ThiQar	Fuhood, North	CM10	W	30	59	10	46	43	32	
7.	ThiQar	Abu Zirig	CM16	W,Spr,S	31	8	57	46	37	16	
8.	ThiQar	Zichri	CM5	W	31	3	19	47	13	19	
9.	ThiQar	Teena, Northern	HA1	W	30	53	19	46	54	24	
10.	ThiQar	Naggaara	HA16	W,Spr,S	30	41	15	47	36	6	
11.	ThiQar	Shilaychiya Marsh	HA17	W,Spr,S	30	37	32	47	37	32	
12.	ThiQar	Haffaar Opening 2	HA19	W	30	56	10	46	58	13	
13.	Basrah	Slein (south Rumaila)	HA21	W,Spr,S	30	41	17	47	28	16	
14.	ThiQar	Abu Hedeeda	HA22	W,S	30	48	10	46	48	49	
15.	ThiQar	Abu-'Ajaj	HA23	W,S	30	52	18	46	48	11	
16.	ThiQar	Nuwashi	HA24	W,S	30	51	36	46	27	12	
17.	ThiQar	Al-Rashid Lake	HA25	W,Spr,S	30	40	58	46	37	52	
18.	Basrah	Shaafi	HA26	W,S	30	49	32	47	26	48	
19.	ThiQar	Abu-Ajaj, East	HA27	Spr	30	50	7	46	52	48	
20.	ThiQar	Ghabishiya	HA28	Spr	30	40	41	46	53	3	

Nature Iraq & Iraqi Ministry of Environment Report

	Governate	Site Name	Site Code	Season of Visit W, Spr, S*	GPS Coordinates						Elevation (meters)
					Latitude (North)			Longitude (East)			
					°	'	"	°	'	"	
21.	ThiQar	Buhaira Al Hilwa	HA3	Spr	30	46	54	47	3	1	
22.	ThiQar	Umm At-Tiyaar near Al Buhaira	HA4	W,S	30	53	59	46	51	59	
23.	ThiQar	Umm Nakhla	HA6	W,S	30	49	16	46	38	32	
24.	ThiQar	Kermashiya Marsh	HA8	W,Spr, S	30	47	56	46	37	25	
25.	Missan	Umm An Ni'aaj	HZ1	W,Spr,S	31	35	35	47	34	56	
26.	Missan	Udhaim	HZ2	W,Spr,S	31	41	13	47	44	56	
27.	Missan	E'jayrda	HZ4	W,S	31	19	55	47	37	51	
28.	Basrah	Majnoon	HZ8	W,Spr,S	31	5	41	47	34	38	
29.	Missan	Bushes near Umm Al-Warid	HZ9	Spr	31	34	5	47	30	4	
30.	Karbala	Al-Taar	KR1	Spr	32	28	55.6	43	44	12.9	
31.	Karbala	'Ein Al-Tamr	KR2	Spr	32	32	57.6	43	30	11.7	
32.	Basrah	KhorAzZubayr Canal-100 meters east	KZ3	W,S	30	5	27	47	57	13	
33.	Basrah	Khor Az Zubary	KZ4	Spr	30	2	30	47	57	51	
34.	Basrah	Khawr Al-Zubair, west	KZ5	W,S	30	18	25	47	49	25	
35.	Basrah	Umm Qasr Port	KZ6	Spr	30	3	44	47	56	23	
36.	Qadissiya	Dalmaj Marsh, South	ME10	W,Spr,S	32	7	30	45	27	7	
37.	Wasit	Dalmaj Marsh, East	ME11	W,S	32	10	27	35	38	37	
38.	Qadissiya	Dalmaj Marsh, North	ME12	W,S	32	21	27	45	15	32	
39.	Qadissiya	Basroogiya	ME13	Spr	31	55	8.5	45	35	34.7	
40.	Najaf	IbnNajm	ME4	W,S	32	8	57	44	38	31	
41.	Karbala	Razzaza Lake	ME5	W,Spr,S	32	33	9	43	53	57	
42.	Babil	Hindiya Barrage	ME7	W,S	32	44	2	44	15	50	
43.	Babil	North IbnNajm	ME8	W	32	18	55	44	24	25	
44.	Missan	Teeb oasis	MN1	W,Spr,S	32	23	19	47	20	30	
45.	Missan	Zubaidaat	MN2	W,Spr,S	32	23	40	47	23	27	
46.	Muthanna	Sawa Lake	MT1	W,Spr,S	31	18	50	45	0	13	
47.	Muthanna	Salman	MT3	Spr	30	25	12	44	24	57	
48.	Najaf	Wadi Al-W'eir	NJ1	W,Spr,S	31	41	2	44	17	33	
49.	Najaf	Sh'eeb Abu-Talha	NJ2	W,S	31	4	35	44	1	19	
50.	Basrah	Euphrates & Tigris Junction	SA1	W,Spr	30	34	59	47	46	18	
51.	Basrah	Ras Al-Beesha (Fao)	SA4	W,Spr,S	29	55	44	48	36	9	
52.	Missan	Sinnaaf Area, Western	SM5	W, S	31	52	51	47	12	56	
53.	Wasit	Shuweicha Marsh	SM7	W,S	32	42	33	45	48	32	
54.	Missan	Teeb	SM8	W,Spr,S	32	1	22	47	24	12	
55.	Thi Qar	Suwaibaat, South	TQ1	W,Spr,S	30	28	22	45	57	59	
56.	Thi Qar	Tell Al-Laham	TQ2	Spr	30	43	39	46	23	26.6	

Nature Iraq & Iraqi Ministry of Environment Report

	Governate	Site Name	Site Code	Season of Visit W, Spr, S*	GPS Coordinates						Elevation (meters)
					Latitude (North)			Longitude (East)			
					°	'	"	°	'	"	
57.	Wasit	Jazman (Zurbatia)	WT1	W, S	33	8	50	46	4	39	

*W- Winter Bird (& other fauna) surveys,

Spr- Spring Plant surveys (southern Iraq only),

S – Summer Bird (& other fauna) surveys (Botany surveys in Kurdistan, Northern Iraq were done with the bird surveys)

DRAFT

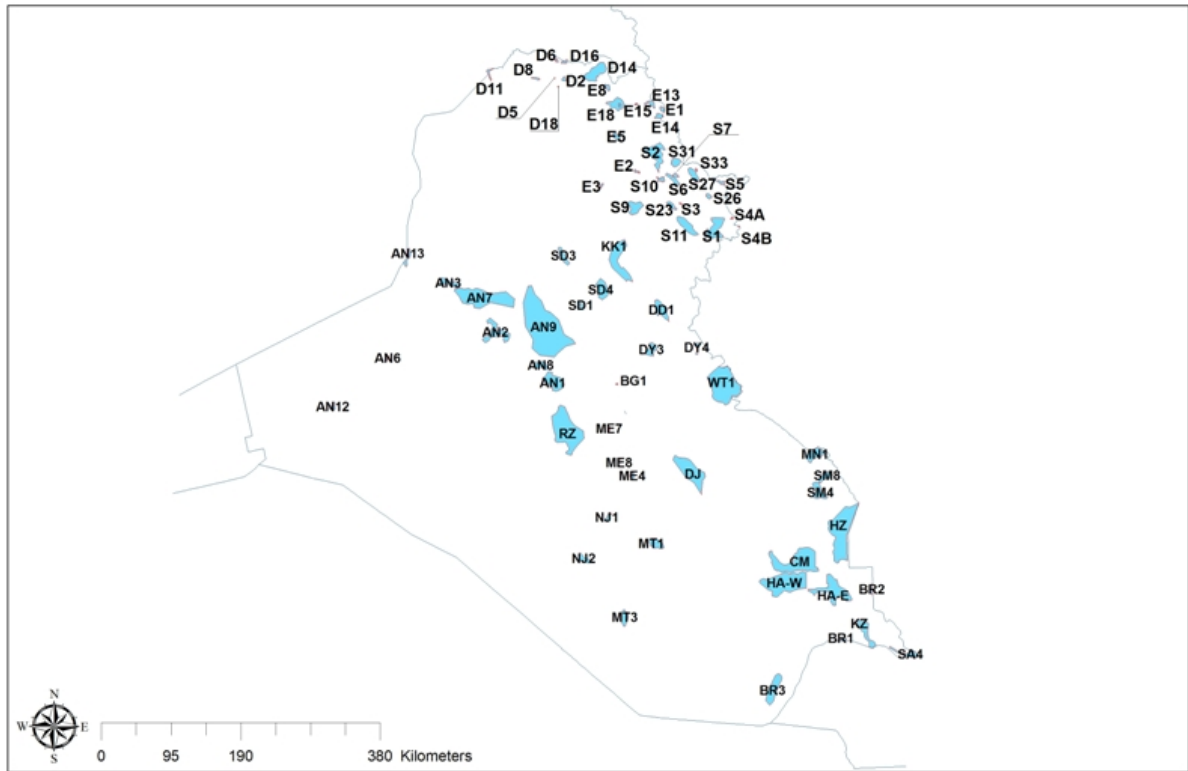


Plate 2: Map of the surveyed areas in 2010

Methods & Procedures

Sites

All sites were located using a *Garmin* GPS Device. Occasionally maps (e.g. 1:100000 scale) were used to trace the fieldwork path. A Basic Site Information Sheet was used to record information on the sites (GPS Location, nearest town, security and logistical details, photos taken at the site, basic habitat information and for drawing the map to site).

Note: Some sites in Sulaimani were visited in April for a spring Nature Iraq training program and then were revisited later in the year. The dates of these separate observations are listed in the site accounts but the findings have been integrated with the regular observations. For the south, the decision was made to cover more terrestrial areas (in addition to wetlands) including oases and seasonal wetlands identified in the desert areas of the south. Nine terrestrial sites were added to the KBA list in the south during the surveys in 2010. These sites were in the western, southwestern, and southern parts of the Lower Desert of Iraq. Most of these areas are remote and relatively unimpacted as very few people visit these areas.

Site Threat Assessments

Nature Iraq & Iraqi Ministry of Environment Report

In winter and summer of 2010, the survey team conducted a site threat assessment using the Pressure-State-Response (PSR) Model: as outlined by the BirdLife International (2006) report on Monitoring Important Bird Areas. The bulk of this section quotes full sections of this report. The PSR Model relies on three types of indicators:

- **Pressure** - Pressure indicators identify and track the major threats to important bird populations at IBAs. Examples include rates of agricultural expansion, over-exploitation and pollution.
- **State** - State indicators refer to the condition of the site, with respect to its important bird populations. State indicators might be population counts of the birds themselves. They might also be measures of the extent and quality of the habitat required by these birds.
- **Response** - Response indicators identify and track conservation actions: for example, changes in conservation designation, implementation of conservation projects and establishment of Local Conservation Groups (LCGs).

Pressure Indicators

These consist of the following eleven threat types, most of which were assessed for all sites in the 2010 survey:

1. **Agricultural expansion & intensification:** Threats from farming and ranching as a result of agricultural expansion and intensification, including silviculture, mariculture and aquaculture. Note that wood and pulp plantations includesafforestation, and livestock farming and ranching includes forest grazing. Agricultural pest control and agricultural pollution-specific problems apply to '5. Overexploitation, persecution & control' and '9. Pollution' respectively.
2. **Residential & commercial development:** Threats from human settlements or other non-agricultural land uses with a substantialfootprint; resulting in habitat destruction and degradation, also causing mortality through collision. Note that domestic or industrial pollution-specific problems apply to '9 Pollution'.
3. **Energy production & mining:** Threats from production of non-biological resources; resulting in habitat destruction and degradation, also causing mortality through collision. Note that renewable energy includes windfarms.
4. **Transportation & service corridors:** Threats from long narrow transport corridors and the vehicles that use them; resulting in habitatdestruction and degradation, disturbance and collision.
5. **Over-exploitation, persecution & control:** Threats from consumptive use of wild biological resources including both deliberate andunintentional harvesting effects; also persecution or control of specific species. Note that hunting includes egg-collecting, gatheringincludes firewood collection, and logging includes clear cutting, selective logging and charcoal production.
6. **Human intrusions & disturbance:** Threats from human activities that alter, destroy and disturb habitats and species associated withnon-consumptive uses of biological resources.
7. **Natural system modifications:** Threats from actions that convert or degrade habitat in service of managing natural or semi-naturalsystems, often to improve human welfare. Note that 'other ecosystem modifications' includes intensification of forest management, abandonment of managed lands, reduction of land management, and under grazing.

Nature Iraq & Iraqi Ministry of Environment Report

'Dams & water management/use' includes construction and impact of dykes/dams/barrages, filling in of wetlands, groundwater abstraction, drainage, dredging and canalisation.

8. **Invasive & other problematic species & genes:** Threats from non-native and native plants, animals, pathogens and other microbes, or genetic materials that have or are predicted to have harmful effects on biodiversity (through mortality of species or alteration of habitats) following their introduction, spread and/or increase in abundance. The KBA team was not able to assess these threats due to lack of information.
9. **Pollution:** Threats from introduction of exotic and/or excess materials from point and non-point sources causing mortality of species and/or alteration of habitats. Note that domestic and urban waste water includes sewage and run-off; industrial and military effluents includes oils spills and seepage from mining; agricultural and forestry effluents and practices includes nutrient loads, soil erosion, sedimentation, high fertiliser input, excessive use of chemicals and salinisation; and air-borne pollutants includes acid rain.
10. **Geological events:** Threats from catastrophic geological events that have the potential to cause severe damage to habitats and species. The KBA team was not able to assess these threats due to lack of information but in most cases the main geological threats facing Iraq are earthquakes.
11. **Climate change & severe weather:** Threats from long-term climatic changes which may be linked to global warming and other severe climatic/weather events. The KBA team did not have adequate information to assess these threats but global warming, desertification and increased dust storm events are potentially significant threats in Iraq.

Each threat class was rated based on its Timing, Scope and Severity to provide an integrated threat assessment score that would classify the particular threat classification as Low, Medium, High or Very High.

State Indicators

The condition or state of the environment is an assessment may be based on the following:

- Population sizes for one or more 'trigger' species (for which there is good information) or each 'trigger' species assessed individually (then applying the 'weakest link' approach)
- The area and quality of the key habitats on which the 'trigger' species depend, as an indirect measure, or 'surrogate', for population size.

For the most part state indicators for these KBA sites would be based on an assessment of the conditions of the habitat at each site. For the most part this assessment was not carried out at the KBA sites in 2010 due to lack of adequate habitat and habitat/species association information.

Response Indicators

The response indicators are described as follows:

- These indicators gauge the level of response to given threats and are rated based on the level of conservation designation, management planning and conservation actions that have taken place at a given site.

Most KBA sites in 2010, except in a very few limited cases noted in the text, would score very low in terms of response to threats as there are few national, regional or local institutions, policies, or resources allocated for addressing environmental threats (pressures) in Iraq. For this reason, this part of the PSR Model assessment was not carried out.

Birds

To accomplish a rapid assessment of bird species and numbers at any given site is not easy. Bird observations were made using 8x30 and/or 8x42 binoculars and 500 mm spotting scopes. The methodology that Nature Iraq has adopted is relatively simple and can be summed up as 'walking, scanning and counting' along a route that attempts to cover the key habitats of the site. This is referred to as an area count. In general small birds (passerines and near-passerines) will be located (by sight or voice) within a 100-200m width; for larger birds (such as raptors) the range may be up to 2kms; shy birds may not be located. Ideally more than one visit should be made to a site in each season, and certainly over different years, however with the constraints of time and logistics it is accepted that this is not always possible.

The counts obtained are those that are entered onto the Nature Iraq KBA database. However given the knowledge of the area actually surveyed and the area and habitats of the whole KBA site it is possible, by extrapolation to make crude population estimates or 'best guesses' for a number of species.

In the case of wetland sites, particularly areas of open water, counting all waterbirds (especially wildfowl and waders) is often possible by counting from vantage points on the shore; totals are then obtained by aggregating the counts. Occasionally a motor-canoe was used for moving over inaccessible or deep waters, or observations were made while wading within reed beds. Also, cars were used to cover the more accessible areas.

For a more accurate assessment of the populations of passerines and near-passerines (as well as their relative abundance and specific density) Transects² and Spot Counts³ should be made (and were occasionally done in the KBA survey work). However they are more suited to detailed study of a site when there are no time constraints and especially for monitoring purposes. For larger birds, notably raptors, sitting and scanning from suitable vantage points for at least 3 hours is

² Transect count: Identifying and counting birds as the observer walks a straight line between two GPS plotted points.

³ Spot Counts or Point Counts: Identifying and counting birds from a stationary location.

Nature Iraq & Iraqi Ministry of Environment Report

essential to assess numbers present, particularly during the breeding season when birds are displaying.

The main identification guides used in the surveys were Salim, Porter, Christensen, Schiermaker-Hanson, & Jbour (2006); Porter, Christensen, & Hansen (1996); Mullarney, Svensson, Dan, & Grant (2001) and Allouse (1953& 1963), the latter was used to review and compare the bird populations over certain areas as a whole.

Breeding Information

During the summer survey, a strong emphasis was placed on determining the breeding status of birds. Breeding evidence was based on British Trust for Ornithology guidelines adapted by Richard Porter. The following table lists the breeding codes used.

Table 5: Breeding codes for Bird Observations during the summer survey

Non-breeding	
F	Flying over
M	Species observed but suspected to be still on Migration
U	Species observed but suspected to be sUmmering non-breeder
Possible breeder	
H	Species observed in breeding season in suitable nesting Habitat
S	Singing male present in breeding season in suitable breeding habitat
Probable breeding	
P	Pair observed in suitable nesting habitat in breeding season
T	Permanent Territory presumed through registration of territorial behaviour (song etc) on at least two different days a week or more at the same place or many individuals on one day
D	Courtship and Display (judged to be in or near potential breeding habitat; be cautious with wildfowl)
N	Visiting probable Nest site
A	Agitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby
I	Brood patch on adult examined in the hand, suggesting Incubation
B	Nest Building
Confirmed breeding	
DD	Distraction-Display or injury feigning
UN	Used Nest or eggshells found (occupied or laid within period of survey)
FL	Recently FLedged young (nidicolous species) or downy young (nidifugous species). Careful consideration should be given to the likely provenance of any fledged juvenile capable of significant geographical movement. Evidence of dependency on adults (e.g. feeding) is helpful. Be cautious, even if the record comes from suitable habitat.
ON	Adults entering or leaving nest-site in circumstances indicating Occupied Nest (including high nests or nest holes, the contents of which can not be seen) or adults seen incubating
FF	Adult carrying Faecal sac or Food for young
NE	Nest containing Eggs
NY	Nest with Young seen or heard

In winter and summer, data was entered into a Microsoft Access 2007 database that was developed specifically for KBA bird assessments in 2009. In addition, all data from the 2010 survey has been uploaded to the WorldBirds Database (a joint project of BirdLife International, The Royal Society for the Protection of Birds (RSPB) and Audubon) and can be accessed from their public website at www.worldbirds.org.

Mammals & Other Fauna

Effortsto conduct a more rigorous mammal survey was initiated as part of the KBA Project in 2007 in both southern and Kurdistan, northern Iraq, but was discontinued pending more capacity-building. Field teams have always collected anecdotal information regarding mammals and other fauna including taking pictures of live animals, tracks or any signs that the presence of these speciesin the survey sites. Since most of the mammals are nocturnal, the teams were rarely able to see them in these rapid assessment field works. However, a more focused survey on mammals within the KBA Project was begun again in 2009 in Kurdistan, northern Iraq and was continued during the winter and summer of 2010. This survey emphasized collecting further information from locals regarding species reported at sites andconcerning hunting issues in the areas.In addition, information on species trade was also collected and a separate paper is currently in preparation regarding animal trade and hunting within the country.

Information for the 2010 Kurdistan surveys was collected through three means: interviewing individuals at local communities near survey sites; visiting and interviewing individuals at local animal markets; and visiting and interviewing staff at local animal zoos.

Observations at thesurvey sites were also done through taking photos of live mammals seen anecdotally as well as phtographing their tracks and signs and then identifying these using the followingreferences: Murieand Elbroch (2005) and Stokesand Stokes (1986). Otherwise information about the presence and absence of different kinds of mammals were gathered through tapedinterviews with villagers in and found around the survey areas.

In areas where there are minefields site access is difficult, therefore the team replied completely on taped interview with villagers at the sites.

Visits to animal markets included taped interviews with pet shop owners and any local hunters that are present. In addition, in 2010, notes were taken of the number and types of species that were shown in the market, how they were contained, and estimation of the animals' health status and origin, along with photos of the animals that were used when necessary for later

identification of species. The same procedure was followed for the animal zoos particularly where zoos and animal parks appear to be involved in species trade activities.

During the summer survey the team used a voice recorder to maintain a record of the interviews, (making sure to protect the anonymity of those interviewed) to allow the interviewer to collect the information freely and accurately. All data was entered into a Microsoft Excel datasheet, under the three categories of site visits, animal markets, and animal zoos. Since the works on mammals are not fully developed yet, using a database to enter the information collected will be required for future, site-specific surveys.

Information collected on other fauna, including reptiles, amphibians and insects, was also, as stated above, anecdotal. Due to the fact that the team is not well trained in survey techniques for most of these species, collecting information about them is challenging; data assembly is only based on taking photos of any species the field teams located while visiting the sites during the KBA rapid assessment surveys. When possible, efforts were made to identify these species later from photographs.

Plants

The botany survey was conducted in the spring in southern Iraq and in summer in Kurdistan, Northern Iraq. Waypoints are selected within the main key habitat types located within the site. GPS coordinates and the elevation for each waypoint along with photographs of the waypoint are taken and a description including slope, exposure, and percentage of vegetated area is developed (the latter is described more fully below). The dominate tree, shrub, herb and grasses are noted in the waypoint and a number representing the ecological status of the waypoint is determined (also described below). Any threats to the site are also noted. Plant identification is done in the field and those plants that can not be identified are collected in plastic bags and then pressed before being sent back to the office of identification.

The following references were used to assist in the development of plant samples Sample identification was done in the field. The plants that could not be identified were collected and then identified in the lab using the following references: Babashekh (2006), Bermani (1981), Davis (1978 and 1982), Guest (1966), Hour and Hour (2001, Vol I & II), Ghahraman (1983, 1987, 1999, 2001 and 2003), Maahzide (2003), Mashhadani (1992), Rawi (1964), Raza and Dawd (1983) and Sardar (2003), Tohme and Tome (2002), and Townsend and Guest (1966, 1968, 1974, 1980a and 1980b). General information on habitats was based on Guest (1966).

Nature Iraq & Iraqi Ministry of Environment Report

Pictures of plants were also taken in order to help with their identification and the description of their status. Profile pictures (detailed photos of plant parts to be assembled later into a complete digital profile of the plant) were taken for some plants in order to help in the identification (see the plate below). The plant profiles as well as the method of assigning of herbarium numbers of individual specimens were introduced into the 2009 survey by the Royal Botanic Garden of Edinburgh (RBGE)/Center of Middle Eastern Plants (CMEP). Ideas about the vegetation cover at the site were formed using direct observation (estimating the percentage of vegetated and non-vegetated area). The ecological condition of the site was rated on a scale of 1 to 5 with 1 representing the least disturbed or impacted (best ecological condition and quality) and 5 representing the most disturbed or impacted (poorest ecological condition and quality). Though this methodology is subjective, the goal of the survey was simply to conduct a rapid assessment of the overall plant communities as well as their habitat and health.

Since the summer of 2009, data was entered into a Microsoft Access 2007 database that was developed specifically for KBA assessments.

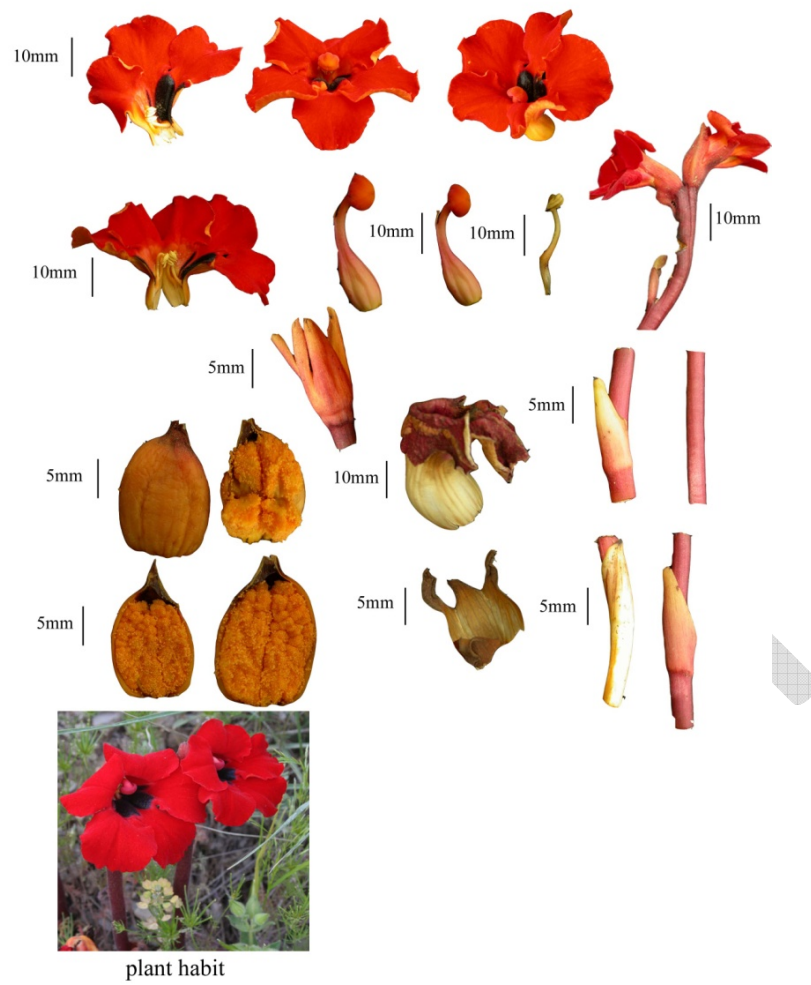
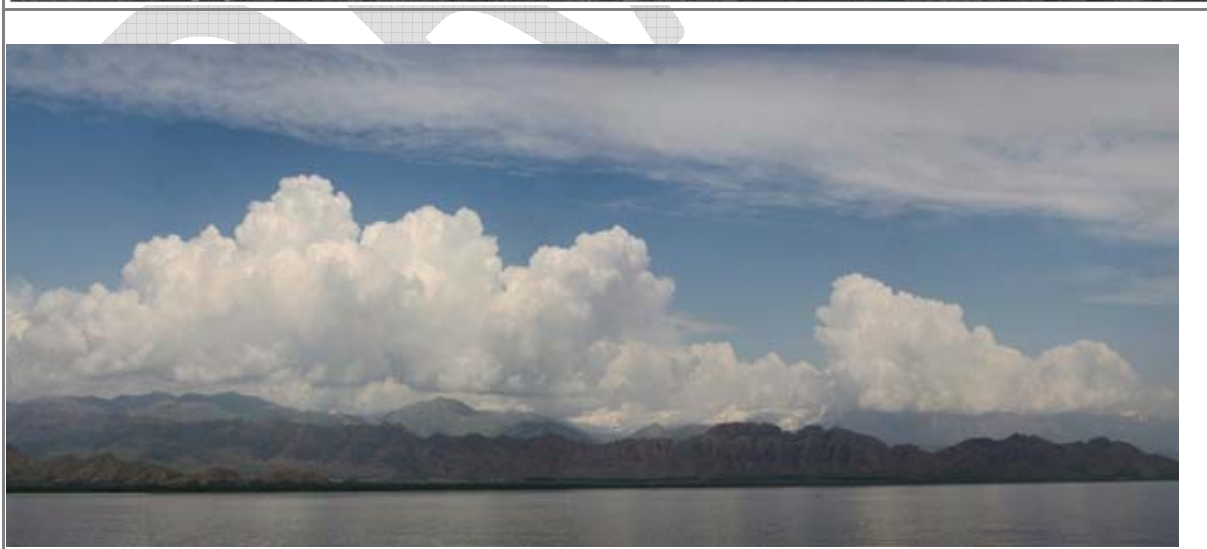
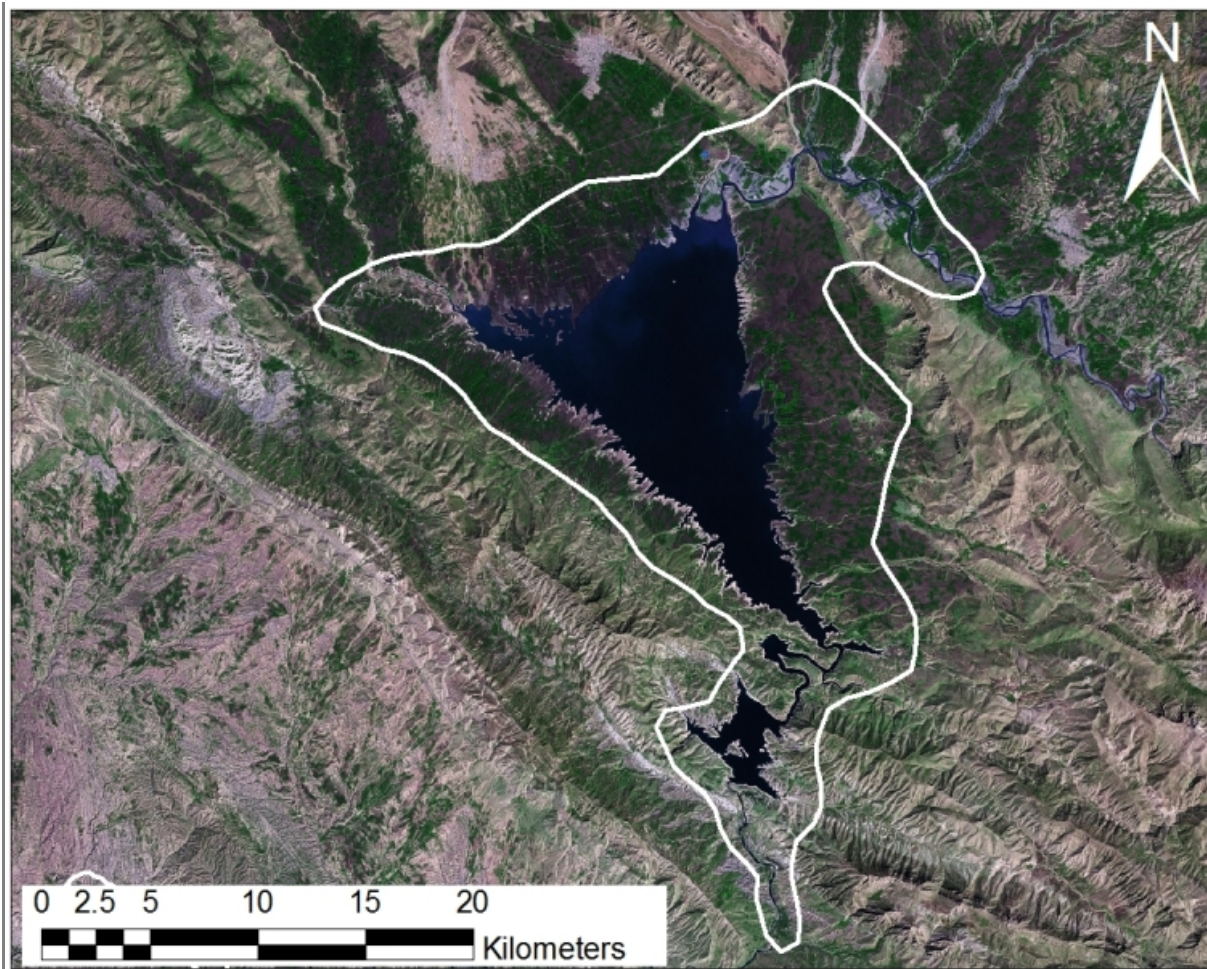


Plate 3: Partial Plant profile of *Phelypaea coccinea* at Peramagroon (S6) developed with Photoshop CS3

Kurdistan, northern Iraq Site Review

This section describes each site visited within Kurdistan, northern Iraq during the 2010 Key Biodiversity Areas survey. It details fauna and flora observations at these sites and waypoints with particular focus given to species and habitats of conservation significance in accordance with KBA/IBA/IPA Criteria. Additional information on mammals at some sites is also included when available as well as information on other fauna either seen “anecdotally” or reported at the sites. Conservation issues and recommendations that are site specific are also provided.

Dukan Lake and Surrounding Area	S2, IBA004
Winter observations: 12, 14 and 16 Jan 2010; Summer observations: 24-25 April 2010	
Admin Area: Sulaimani	IBA Criteria: A1, A3, and A4i IPA Criteria: Criteria B and C
Coordinates: N 36 5.0 33 E 44 56 9.0	Unprotected area
Area: 47281 ha	
Altitude: 400-495 m	
Directional information: 55 km NW of Sulaimani city.	



Site Description: This site is a large lake/reservoir of approximately 25,000 ha in to which runs the Little Zab River from the northeast and the Hizop Stream from the northwest. It is surrounded by mountains (Mt. Kosrat, Qarasrd, and Sara), hills and lowland areas characterized by oak forests and steppe ecosystems.

Nature Iraq & Iraqi Ministry of Environment Report

About 65 km northwest of Sulaimani city, a gorge extends from Turba village to Bemusha village, separating the larger, northern part of the lake from the smaller southern end where the dam is located. The town of Dukan is located on the southern edge of the lake. Villages and towns with agricultural lands, such as Rania, Chwar Qurna and Qala Dza surround the lake.

In the 2010 survey of the Little Zab River, gravel mining and oil refinery activities were observed in the area below the dam and close to the river. Gravel mines are also located close to Rania (in the upper Little Zab River where it feeds into the lake), and most of the riparian areas were disturbed. In the winter of 2010 hunting activity was noted in the area near Rania.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer /Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i> <i>Anser erythropus</i> <i>Branta ruficollis</i>	630 2	4 -Confirmed
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Carpopsiiza brachydactyla</i> <i>Emberiza melanocephala</i>		6 -Probable 2 -Possible 4 -Confirmed 11 -Confirmed 2 -Possible 18 -Confirmed
A4. Congregations			
A4i.	<i>Chroicocephalus ridibundus</i> <i>Anser erythropus</i>	630	4700 -Confirmed
Important plant area criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Notobasis syriaca</i> , <i>Cephalaria syriaca</i> , <i>Thymus syriacus</i> , <i>Zengandra iranica</i> , <i>Salix babylonica</i> (endemic), and <i>Juncus effuses</i> (locally rare)	117 species of plants were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe – Critical	This site is located in a critically threatened ecoregion. Livestock grazing, water contamination and waste and pollution pose serious threats to the ecosystems of the site.	

Birds: Winter total count: 18102. Winter species number: 72. Summer total count: 5494. Summer species number: 74. Eight Lesser Kestrel *Falco naumanni* were seen at the site in summer and this vulnerable species is a probable breeding bird at the site.

Mammals: Winter total count: 3. Species number: 1. Mammals observed: Golden jackal *Canis aureus*. Fishermen around the lake reported the presence of the Eurasian otter *Lutra lutra*, Striped hyena *Hyaena hyaena*, Gray wolf *Canis lupus*, Eurasian badger *Meles meles*, Red fox *Vulpes vulpes* and Indian Crested Porcupine *Hystrix indica*. One local reported the hunting of an otter in the year 1996. Wolf attacks on local herds of livestock have also been reported. Tracks and signs of animals were seen, mostly belonging to the *Canidae* family. Interviews conducted with locals reveal that this site is home to two globally threatened animals: the Eurasian otter *Lutra lutra* (NT), and Striped hayena *Hyaena hyaena* (NT).

Nature Iraq & Iraqi Ministry of Environment Report

Plants: Two waypoints were visited: Waypoint 306 (N: 35 57 38.4 E: 44 58 27.3), a cliff habitat, and Waypoint 307 (N: 35 56 29.6 E: 44 57 34.3), a river/riparian habitat with willows and poplars lining the banks.

Waypoint 306: This waypoint was at the cliffs surrounding the lake.. The total number of plant species found was 86. The dominant tree was pine *Pinus halepensis* var. *prutia*, the dominant shrub was thyme *Thymus syriaca*, the dominant herb was wild mustard or charlock *Sinapis arvensis*, the dominant grasses were goatgrasses *Aegilops crassa* and *Aegilops umbellulata* and meadow-grass *Poa bulbosa*. The terrain was dominated by the cliffs that surround the lake's edge and the ecological condition was very disturbed, with anecological scale of 4. The slope was gentle (0-5°) and the exposure was to the east (68-112°). The geology and soil types were sedimentary and sand respectively. The elevation of this area was 522m and 60% of the area was non-vegetated.

Waypoint 307: This waypoint was at the inlet of the lake (Al Zab Alzagheer River) close to the dam. The total number of plant species was 69. There were a small number of willow tree species *Salix acmophylla* and *Salix babylonica* and poplars *Populus euphratica*. The habitat of this area was river/riparian with some trees along the edges. The ecological scale was 4. The slope of the site was gentle (0-5°); the exposure to the south (158-202°); the geology of the area was sedimentary; the soil type was clay, the percentage of non-vegetated area was 60% and the elevation was 414m.

While the ecological scale of the entire site was 4 (very disturbed), there were some rare species sighted such as *Zugandira iranica* (found at the lake), *Salix babylonica* (Townsend, V4, p2 and p35) and *Juncus effuses*.

Conservation Issues & Recommendations for the Site: The impact of human inhabitation on this site includes animal grazing; use of agricultural chemicals, and the pollution of Dukan Lake as a result of garbage and sewage from the nearby towns of Chwar Qurna and Rania. We also observed that some farmers have been using poison to kill the mice found in their fields. According to unpublished data from the Ministry of Agriculture, 1325.5 Kg of Bromadioline and Rodenticide were given to farmers in 2009 in the Sulaimania governorate alone. 120 Kg of Bromadioline and 997 L of Mathalion, a pesticide known to be slightly to moderately toxic for many birds, were used by farmers in the Rania district, an area of significant importance to birds, particularly raptors. It is recommended that another form of biological control be used other than pesticides and an education campaign on safe pesticide use be conducted at pesticide distribution centers.

Several hunting blinds had been constructed near pools, presumably with the intent of hunting water birds. The popularity of the activity in an area so highly populated by threatened species of birds, in this study's opinion, necessitates the education of hunters so as to prevent the killing of globally endangered bird species. The habitat of the region was also noted to be damaged as a result of hunting.

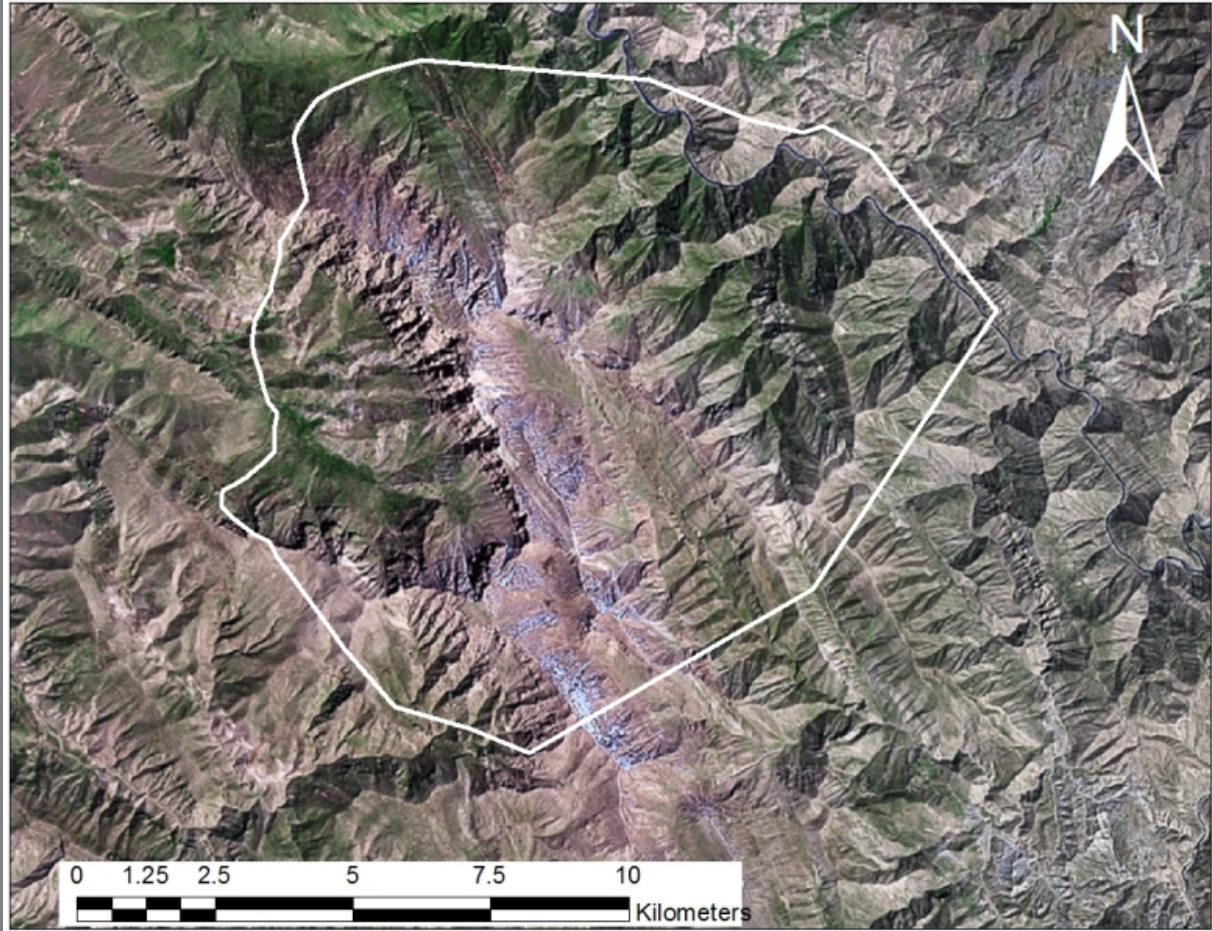
Assos Mountain	S32A & B
Winter observations: 13 Jan 2010; Summer observations: 30 April 2010	
Admin Area: Sulaimani	KBA Criteria: V IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 35 59 32.348 E 45 12 26.067	Unprotected area

Nature Iraq & Iraqi Ministry of Environment Report

Area: 12010 ha

Altitude: 600-1000 m

Directional information: The area is located 18km southeast of Qala Dza town.



Site Description: This is a mountainous area with deciduous oak forest. The Little Zab River passes through the area to the north near Asos Mountain. There are several villages in the area (Isawe, Ashkana, Barozh, Priska and Gwaran to the north of the mountain and Kurkur, Kani Tu, Awazhe, Loter, Sofian and

Nature Iraq & Iraqi Ministry of Environment Report

Bardashan to the south). The north side of Assos Mountain was surveyed during the winter of 2010 and the south was surveyed during the summer of the same year.

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (state evidence)	
Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Capra aegagrus</i> <i>Panthera pardus saxicolor</i>	The wild goat <i>Capra aegagrus</i> was not observed during the surveys but was reported by locals. One persian leopard was killed on Assos Mt in January 2011 after attacking livestock	
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer /Summer/ breeding data
A3. Biome-restricted species	<i>Pyrrhocorax graculus</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Oenanthe xanthopyrmyna</i> <i>Oenanthe melanoleuca</i> <i>Emberiza melanocephala</i>		63 -Confirmed 1 -Possible 1 -Possible 2 -Confirmed 1 -Possible 2 -Probable 8 -Probable 11 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Cephalaria syriaca</i> , <i>Hesperis kurdica</i> , <i>Scorzonera bulbipes</i> , <i>Symphytum kurdicum</i> (endemic), <i>Quercus macranthera</i> , <i>Juncus effuses</i> , and <i>Zengandra iranica</i> (locally rare)	116 plant species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to the site include livestock production and grazing.	

Birds: Winter total count: 273. Winter species number: 37. In summer, total count: 194. Summer species number: 35. Eight *Falco naumani* were seen in summer and this vulnerable species is a confirmed breeder at the site.

Mammals: According to the interview surveys held at this site, the Wild goat *Capra aegagrus* can be seen, but the animals appear to be shy and small in number as a result of intensive and uncontrolled hunting with pellet guns. According to locals, Gray wolves *Canis lupus* attack their herds every year. There are reports of one Persian leopard *Panthera pardus saxicolor* sighted near the village close to the base of the mountain (one was later killed in January 2011 after reportedly preying on livestock) and one Brown bear *Ursus arctos* both spotted in the last year.

The survey shows that several globally important mammal species can be found at this site, such as Wild goat *Capra aegagrus* (VU) and the Persian leopard *Panthera pardus saxicolor* (EN). The survey also reveals that hunting is practiced on a mass scale, with most hunters travelling from urban centers around the site to hunt animals for their meat or fur.

Nature Iraq & Iraqi Ministry of Environment Report

Plants: One waypoint was visited at this site. Waypoint 313 (N: 35 59 17.7 E: 45 12 47.7) was a woodland (trees and shrubs constituted over 60%) habitat.

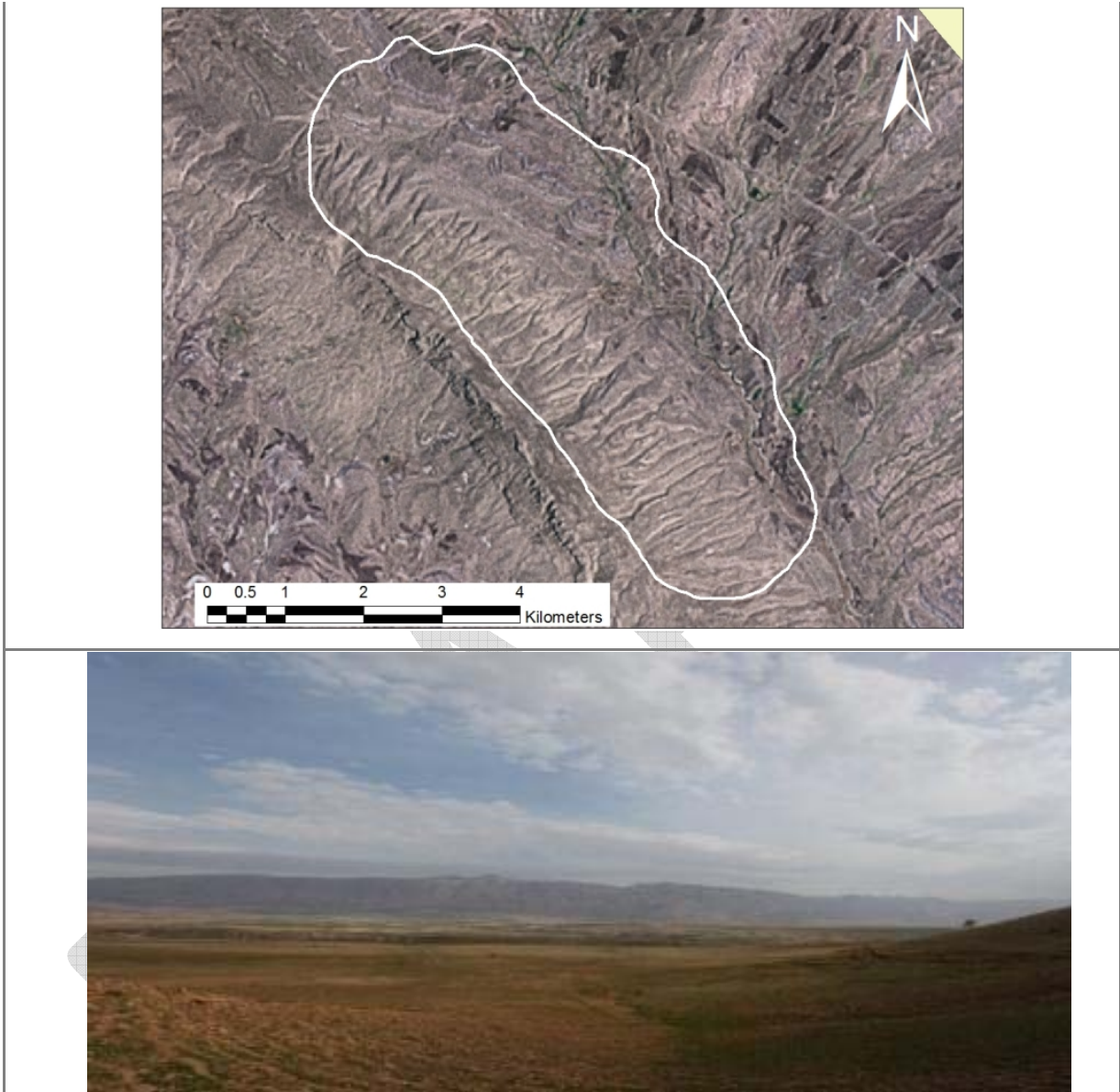
Waypoint 313: The dominant tree was *Quercus aegilops*; the dominant shrub was *Rbus coriaria*; the dominant herb was *Centaurea solstitialis* and the dominant grass was *Poa bulbosa*. The total number of plants at this waypoint was 120 species. The geology and soil type were sedimentary and sandy clay respectively. The slope of the area was somewhat steep (15-26°) and the exposure was to the east (68-112°). The elevation was 1712m and the non-vegetated area was 15%. The habitat was woodland and the ecological scale was 4 (very disturbed).

Assos Mountain is an important site for plant diversity in Iraqi Kurdistan. One of the many reasons contributing to the site's importance is the presence of many endemic species, including *Hesperis kurdica*, *Pisum formosum*, *Scorzonera bulbipes* and *Symphytum kurdicum*. Many very rare species can also be found here, such as *Hesperis straussii* and *Quercus macranthera*, in addition to the presence of the native oak species *Quercus aegilops*. The entire area of Assos Mountain is rich in flora. The ecological conditions of this site are more disturbed at the base of the mountain than at higher elevation on account of agriculture and livestock grazing.

Conservation Issues & Recommendations: Hunting constitutes one of the main threats to wildlife in this region. This can be managed through an educational program in the surrounding villages to promote sustainment of the area's wildlife and natural resources. The threat of urban growth and picnicking need also to be addressed with better planning and education respectively.

Qadr Karam Area	S30
Winter observations: 15 Jan 2010	
Admin Area: Sulaimani	IBA Criteria: A3
Coordinates: N 35 13 43 E 45 14 27	Unprotected Area
Area: 2500 ha	
Altitude: 800-914m	
Directional information: This area located to 40 km southwest of Sulaimani city.	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: The topography of the area is characterized by foothills, steppes, and mountains (Ashdagh Mountain). Qara Dagh drilling site 8 km to the north. Villages in the area include Timar, Kchan, Zindana, Kareza Raba, Kela Barza and Hanlira, in addition to the remains of several other villages that were destroyed by Saddam Hussein.


Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/breeding data
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i>		14
	<i>Sitta tephronota</i>		13
	<i>Oenanthe finschii</i>		22

Nature Iraq & Iraqi Ministry of Environment Report

Birds: Winter total count: 296. Winter species number: 26. One *Falco cherrug* (VU) was seen in summer.

Conservation Issues & Recommendations: This area is predominantly agricultural, which may be negatively impacted by the recent discovery of several oil fields. It is not known if an Environmental Impact Assessment (EIA) has been conducted for these activities.

Maidan Area	S22
Winter observations: 20 Jan 2010	
Admin Area: Sulaimani	IBA Criteria: A3
Coordinates:	Unprotected area
Area: 57448 ha	
Altitude: 480-508m	
Directional information: This area is located to the southeast of Darbandikhan between the Diyala River and the Iraq-Iran border.	
	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This is an open area characterized by foothills, agricultural lands, a series of mountains, including Bamo and Shrwal Dra Mountains, that extend from the northeast to northwest of the area and Diyala River in the west of this area. Several villages, mostly abandoned during the Anfal process, are found here, including Kani Pamu, Razwar, Khurkhuri Khwaru and Khurkhuri Saru.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migrati on data	Summer/ breeding data
A3. Biome-restricted species	<i>Ammoperdix grisogulari</i> <i>Oenanthe finschiis</i>	5 29	

Birds: Winter total count: 392. Winter species number: 33.

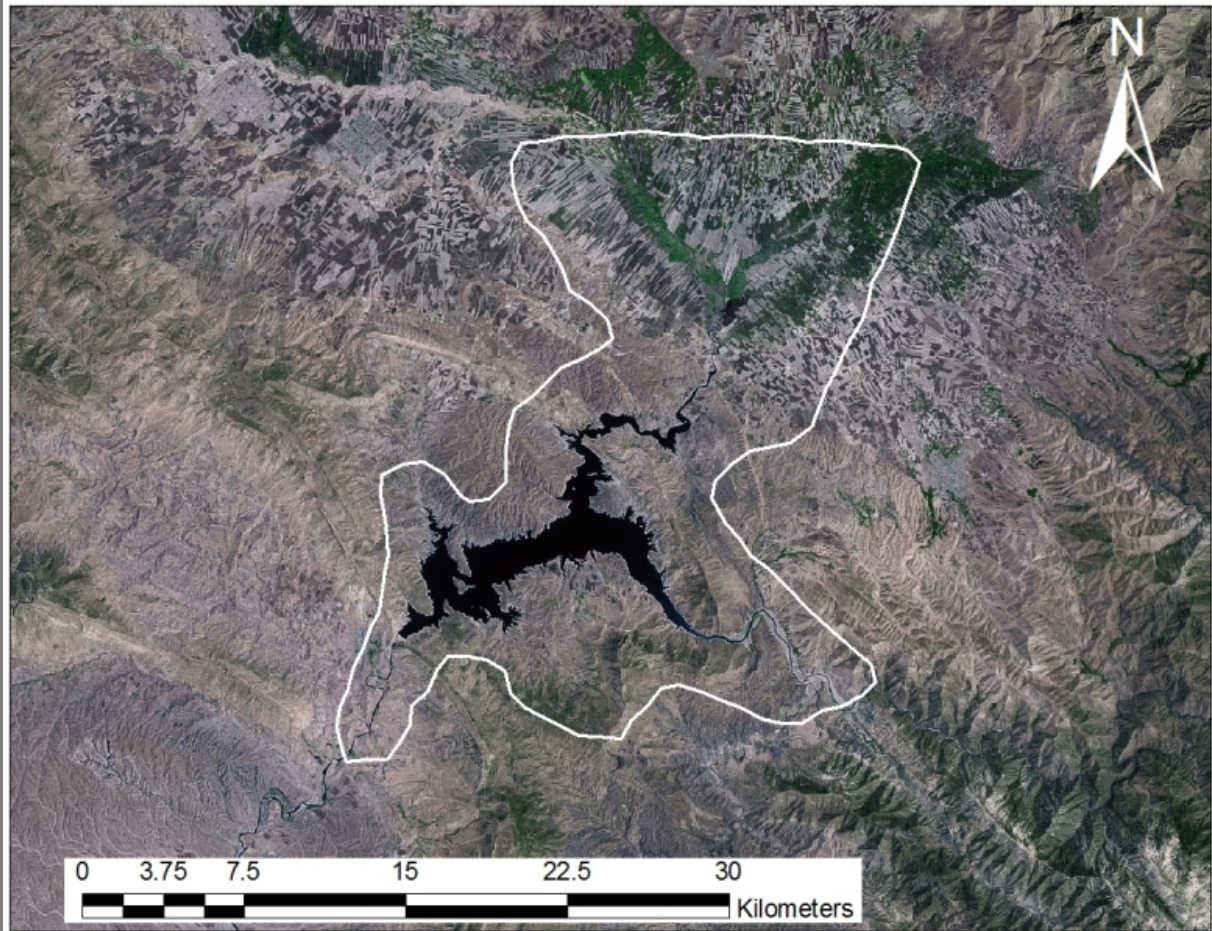
Mammals: Large number of signs and tracks were seen, most likely belonging to wild boar *Sus scrofa* and domestic goats, sheep and cattle. Reports from hunters suggest the presense of Goitered gazelles *Gazella subgutterosa* (VU) and Roe deer *Capreolus capreolus* (LC) at this site.

Conservation Issues & Recommendations: This area is used for livestock grazing. Locals report that several gazelles were found dead in the area last year, possibly due to the current drought. There are mine fields to the east of the area, on the Iraq-Iran border. It is crucial to clear these areas of mines, as they impact on both humans and wildlife alike. Additionally, gazelles may be facing a significant threat of hunting in the area, warranting further research to determine potential hunting limits and protective action through legislation, enforcement and hunter education programs.

Darbandikhan Lake and Surrounding Areas		S1, IBA 004
Winter observations: 21-24 Jan 2010		
Admin Area: Sulaimani		KBA Criteria: V IBA Criteria: A3
Coordinates: N 35 8.0 41 E 45 45 18		Unprotected area
Area: 43861 ha		
Altitude: 500m-578m		

Nature Iraq & Iraqi Ministry of Environment Report

Directional information: The lake is located 60 km southeast of Sulaimani city on the road to the town of Darbandikhan.



Nature Iraq & Iraqi Ministry of Environment Report

Site Description: Darbandikhan is a large, fresh water lake of approximately 7500 ha. It is fed by two rivers, the Tanjero in the north and the Sirwan in the east, and surrounded by steppes and mountains (including the Bashari, Zmnako, and Zawaly) that are covered in oak forests. The lake and surrounding mountains support a significant number of birdlife. Water levels decline in summer after the spring melt due to dam release, until winter rains return in the late fall.

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (state evidence)	
Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Capra aegagrus</i> <i>Panthera pardus saxicolor</i>	These species are reported or there is strong, recent evidence of their presence. No direct observation of the species was made at the site.	
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Oenanthe finschii</i>	2	

Birds: Winter total count: 4594. Winter species number: 75. An important conservation concern species found at the site was *Aquila heliaca*.

Mammals: Winter total count: 3. Species number: 1. Mammals observed: Red fox *Vulpes vulpes*. According to the locals and fishermen near the lake the following animals have been sighted in the area: Gray wolf *Canis lupus*, Eurasian badger *Meles meles*, Eastern European hedgehog *Erinacious concolor*, Indian crested porcupine *Hystrix indica*, and less frequently, the Wild goat *Capra aegagrus* and Eurasian otter *Lutra lutra*. One fisherman reported killing an otter *Lutra lutra* who then sold it for \$US200. A local resident reported the sighting of a large cat similar, in description, to the Eurasian lynx *Lynx lynx* four years ago. Locals also claimed that the Persian leopard *Panthera pardus saxicolor* is present in the mountains surrounding the lake (and one was killed by a land mine near the village of Mertka several years before), and mountain sheep *Ovis ammon* were seen on Daban Mountain, approximately 95km from the lake.

Conservation Issues & Recommendations: There are a considerable number of threats to the ecological health of this site, such as fishing, livestock production/grazing, tourism, sewage and water pollution, garbage, and the presence of the dam and electric station. Several ecologically-important plants and birds were observed here, contributing to the urgent need to both raise awareness of and address the conservation needs of this area. One of the most critical threats to this lake is from An Iranian state-built dam on Sirwan River, one of lake's sources, constitutes one of the most critical threats, as it now prevents the river's water from feeding into lake. This has decreased the water level, which in turn threatens all life in and around the lake, which is dependent on it. Another notable threat to the site is the vast quantity of sewage carried downstream from Sulaimani city and other towns on the Tanjero River into the lake.

De Lezha	S23
Summer observations: 18 April and 21 and 29 May 2010	
Admin Area: Sulamani	IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 35 27 37 E 45 11 40	Unprotected area
Area: 8110 ha	

Nature Iraq & Iraqi Ministry of Environment Report

Altitude: 600- 900m

Directional information: A hilly area located 40 km to the southeast of Sulaimani; the area is along the road leading to Chamchamal district. The left turn (to the south)Entry to the site is through a left-turning road located after the main checkpoint of Mahmoodiya village.



Site Description: Ridge of mountains to the south of the site was not surveyed; heavy grass and scattered bushes with a seasonal stream and bridge. The stream is densely wooded on both banks, with some

Nature Iraq & Iraqi Ministry of Environment Report

cultivated areas and two small villages nearby. A line of old willows stands along one section of the stream. It is popular picnic site.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		3 -Probable
A3. Biome-restricted species	<i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Oenanthe finschii</i> <i>Emberiza melanocephala</i>		3 -Possible 1 -Possible 7 -Confirmed 2 -Possible 2 -Probable 34 -Confirmed
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Silybum marianum</i> , <i>Notobasis syriaca</i> , <i>Astragalus spinosus</i> (endemic), <i>Briza minor</i> , and <i>Aristolochia paecilantha</i> (locally rare)	89 plant species were identified at this site	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to the site include livestock production/grazing.	

Birds: Winter total count: 846. Winter species number: 69. The conservation concern species seen at the site included: Egyptian vulture *Neophron percnopterus*, Lesser kestrel *Falco naumani* (one was seen in summer and this vulnerable species is a possible breeder at the site), Sombre tit *Poecile lugubris*, Eastern rock nuthatch *Sitta tephronota*, White-throated robin *Irania gutturalis*, and Finsch's wheatear *Oenanthe finschii* were seen.

Mammals: Summer total count: 1. Summer species number: 1. Mammals observed: Indian grey mongoose *Herpestes edwardsii*.

Plants: One waypoint was visited at this site - Waypoint 300 (N: 35 27 37 E: 45 11 40) was woodland (trees and shrubs over 60%).

The dominant trees were *Fraxinus syriaca* and *Quercus aegilops*, the dominant shrubs was *Anagyris foetida* and *Gundelia tournefortii*, the dominant herb was *Sinapis arvensis* and the dominant grasses were *Poa bulbosa*, and *Hordeum sp.* The total number of plants at this waypoint was 89 species. The geology and soil type were sedimentary and clay respectively. The slope of the area was somewhat steep (15-26°) and the exposure was to the west (248-292°). The elevation was 683m and the percentage of non-vegetated area was 3%. The habitat was woodland and the ecological scale was 3 (moderately disturbed).

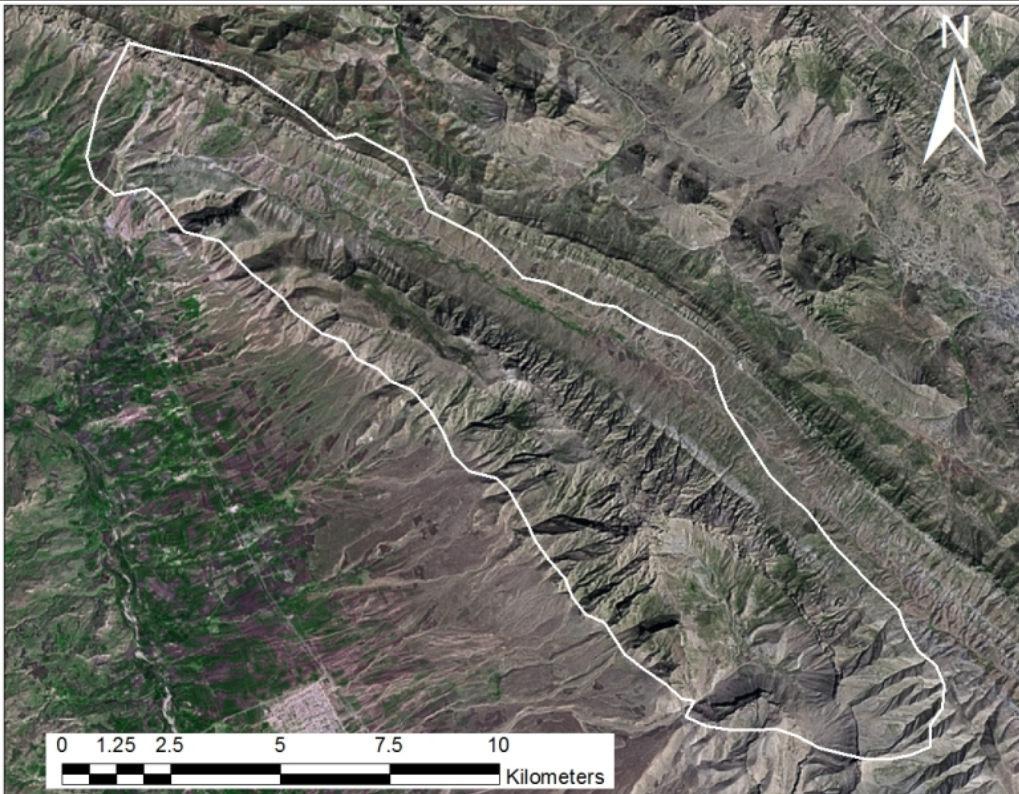
This site contains some plant species of environmental conservation significance, such as *Silybum marianum* (Ghahraman, 1987), *Scorzonera bulbipes*, *Pisum formosum* (Townsend, V3, p577), *Notobasis syriaca* (Ghahraman, 2001) (endemics), *Aristolochia paecilantha* and *Bromus brachystachys* (rares) (Townsend, V8, p134).

Conservation Issues & Recommendations: Factors threatening the ecological health of this site are livestock production/grazing, agriculture, garbage, water pollution and tourism. Conservation efforts need to be launched here, such as educational programs to increase the ecological awareness amongst tourists and

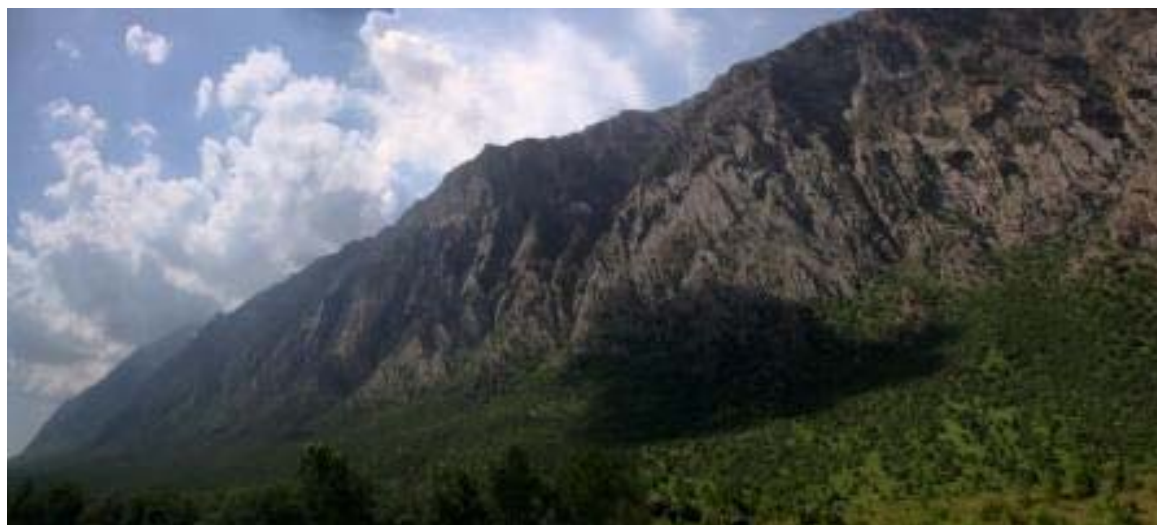
Nature Iraq & Iraqi Ministry of Environment Report

residents of nearby villages. Confining tourism and livestock grazing to smaller areas would also help to improve the ecological conditions of the area and protect its wildlife.

Peramagroon	S6
Summer observations: 19 April, 30 May, 3 and 5 June 2010	
Admin Area: Sulaimani	KBA Criteria: V IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 35 45 37 E 45 14 22	Unprotected area
Area: 10028 ha	
Altitude: 1200-2613m	
Directional information: 27 km NW to Sulaimani city. Can be reached by a right-turning road from the road to Dukan.	



Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This is a high mountain (2613m) located northwest of the city of Sulaimani, which receives snowfall in winter. It is accessed from the road to Dukan. Peramagroon Valley (where the small village of Zewe is located) lies below the mountain in a wide bowl. The slopes of the mountain are cultivated, primarily with grapevines. Above the village is a seasonal spring, and the area is used for picnicking and recreation. This area was subject to chemical attacks in the past.

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (state evidence)	
Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Capra aegagrus</i> <i>Testudo graeca</i>	Wild goats <i>Capra aegagrus</i> reported through finding foodprints and feces of the animal. No direct observation of the species was made at the site. Spur-Thighed Turtoise <i>Testudo graeca</i> were observed and photographed.	
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		2 -Confirmed
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Lanius nubicus</i> <i>Pyrhocorax graculus</i> <i>Poecile lugubris</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Sylvia mystacea</i> <i>Oenanthe xanthopygma</i> <i>Oenanthe melanoleuca</i> <i>Oenanthe lugens</i> <i>Oenanthe finschii</i> <i>Emberiza melanocephala</i>		3 -Probable 2 -Probable 2 -Probable 2 -Probable 5 -Confirmed 8 -Confirmed 7 -Confirmed 2 -Confirmed 5 -Confirmed 13 -Confirmed 2 -Probable 4 -Probable 7 -Confirmed

Nature Iraq & Iraqi Ministry of Environment Report

Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)
B. Botanical richness	<i>Pisum formosum</i> , <i>Thymus syriacus</i> , <i>Symphytum kurdicum</i> , <i>Campanula mardinensis</i> (endemics) and <i>Dionysia odora</i> and <i>Phehyphaea coccinea</i>	119 plant species were at this site.
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to the site include livestock production/grazing, tourism and agriculture.

Birds: Summer total count: 814. Summer species number: 67. Additionally, five *Falco naumanni* were seen in summer and these vulnerable species are confirmed breeders at the site. The same was true of *Emberiza semenowi* of which were four were seen in summer.

Mammals: Summer total count: 2. Summer species number: 1. Mammals observed: Persian squirrel *Sciurus anomalus*. Signs and scats of Wild goat *Capra aegagrus*, and Brown hare *Lepus capensis* were found at the site.

Plants: Two waypoints were visited in this site - Waypoint 301 (N: 35 45 36.8 E: 45 14 22.1) was woodland and Waypoint 302 (N: 35 45 43.2 E: 45 13 57.3) was sub-alpine rocky cliffs.

Waypoint 301: This waypoint was at the foothill of Peramagroon Mountain where the habitat was Coppeist woodland (predominantly *Pistacia eurycarp* and *Quercus aegilops*), although trees and other vegetation degrade as the elevation increases. The ecological condition was moderately disturbed according to the ecological scale (3). The dominant plants were *Quercus aegilops* and *Pistacia eurycarpa* (tree), *Prunus microcarpa* (shrub), *Vicia villosa* (herb) and *Hordeum bulbosum* (grass). The ground at this waypoint is somewhat steep (15-26°), the exposure is to the east (68-112°), the elevation is 1627m and the non-vegetated area is 5%. The geology of the area and the soil type were sedimentary and clay respectively. The total number of species at this waypoint was 98.


Waypoint 302: This waypoint was at Peramagroon Mountain (close to the summit) where the habitat was sub-alpine rocky cliffs. The vegetation cover gradually degrades as elevation increased, where the percentage of non-vegetated area reached in excess of 70%. The dominant plants included varieties of shrubs such as *Acantholimon sp.*, the herb *Rheum ribes* and the grass *Poa bulbosa*. The area was very steep (45-69°) and the exposure was to the east. The ground was predominantly rocky with almost no soil. The elevation was 2004m and the ecological scale was 2. The total number of species at this waypoint was 52.

Peramagroon Mountain is an important site for plant diversity in Iraqi Kurdistan. There are many reasons that make this site an important one for plant diversity. The site contains many endemic species such as *Pisum formosum*, *Thymus syriacus* (Davis, Flora of Turkey, 1982, p. 361), *Symphytum kurdicum* and *Campanula mardinensis* (Davis, Flora of Turkey., 1978, p. 38). Many rare species are also found here, such as *Dionysia odora* and *Phehyphaea coccinea*, in addition to two native species of oak: *Quercus aegilops* and *Q. infectoria*. Peramagroon Mountain is also one of the richest areas of flora in Iraq. The ecological condition of this site is more disturbed at the base of the mountain than higher up as a result of the tourism, construction, agriculture and livestock grazing.

Conservation Issues & Recommendations: As expected, site conditions are more impacted in areas of heavy human use and presence. As is the case with other tourism sites in Iraq, a great deal of garbage is left at the site by visitors. Most of this is collected and burned onsite (including plastics and other hazardous materials). The use of agricultural chemicals, such as pesticides, has been seen in the fields, many of which

Nature Iraq & Iraqi Ministry of Environment Report

are used for grapevines. Grazing may also be impacting the ecology of the mountain. Environmental conditions are notably better closer to the summit of Peramagroon Mountain where there are no environmental threats other than the small-scale collection of Rhume, an edible plant growing in the region. It is recommended a set of guidelines be devised to contain the ecological impacts of tourism, livestock and agriculture in the area. Through this it can be limited to certain areas only, and raise environmental awareness tourists and those in the surrounding villages.

Homer Qawm and Shadala Valley	S24
Summer observations: 20 April and 3 June 2010	
Admin Area: Sulaimani	KBA Criteria: V IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 35 50 49.329 E 45 8 16.771	Unprotected area
Area: 10028 ha (part of Peramagroon (S6) KBA Site)	
Altitude: 1000-1306m	
Directional information: 30 km NW to Sulaimani city, close to Surdash town.	
See S6 GIS Map	
	

Site Description: This site is located on the northwest of Sulaimani city near Surdash town and the villages of Homer Qawm and Shadala. It is an open area characterized by oak forest (as shown in the above photo, several old trees growing inside cemeteries have been preserved), foothills and farmlands. A gorge is located to the south of the area and bounded by Daban Mountain to the north. Many of the area's original oak trees were burned under the Saddam regime and chopped down for fuel during the 1990s. As this site is very close to Peramagroon it could be considered as a part of Peramagroon Area.

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (state evidence)

Nature Iraq & Iraqi Ministry of Environment Report

Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Testudo graeca</i>	Spur-thighed tortoises <i>Testudo graeca</i> were observed and photographed	
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		3 -Possible
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Hippolais languida</i> <i>Falco naumanni</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Oenanthe melanoleuca</i> <i>Emberiza melanocephala</i>		2 -Probable 4 -Probable 3 -Probable 1 -Possible 4 -Probable 6 -Confirmed 3 -Probable 25 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Paronychia kurdica</i> , <i>Campanula mardinensis</i> , and <i>Cousinia inflata</i> (endemics)	122 plan species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to the site include livestock production/grazing, construction, tourism and agriculture.	

Birds: Summer total count: 315. Summer species number: 47.


Plants: One waypoint was visited here - Waypoint 303 (N: 35 47 05.7 E: 45 15 08.8), which was woodland habitat.

Waypoint 303: The total number of plant species was 129, the ecological condition 4. The dominant tree was *Quercus aegilops*, the dominant shrubs were *prunus microcapa* and *Crataegus azorolus*, the dominant herbs were *Vicia tenuifolia* and *Cerastium inflatum* and the dominant grasses were *Poa bulbosa* and *Hordeum bulbosum*. The habitat was coppiest woodland (oaks). The area was steep (27-45°), with the exposure to the west (248-292°) and an elevation of 1306m. The geology and soil type at this waypoint were sedimentary and silt respectively. The percentage of non vegetated area was only 5%.

This site was disturbed ecologically by extensive agricultural, picnicking, grazing and deforestation activities. However, there were several important species of plants present, such as *Cousinia inflata*, *Paronychia kurdica* and *Pisum formosum* (endemics) (Ghahraman, 2003), *Quercus macranthera* (rare), *Q. aegilops* and *Q. infectoria* (both natives).

Conservation Issues & Recommendations: Grazing and other human activities such as picnicking, road construction and sewage from Homer Qawm and other villages upstream are affecting the area. The site may also be affected by construction and agriculture on the high number of farms in the region. The above threats all contribute to the poor environmental condition of this site.

Nature Iraq & Iraqi Ministry of Environment Report

Chami Razan Area	S10
Summer observations: 21 April and 23 May 2010	
Admin Area: Sulaimani	IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 35 46 53 E 44 58 38	Unprotected area
Area: 4906 ha	
Altitude: 600-800m	
Directional information: 40 km NW of Sulaimani city.	
	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This site is located approximately 30 km to the west of Sulaimani city. It features the Tabben Stream flowing from the northeast through a long valley and into a narrow winding gorge, eventually entering the Little Zab River. The landscape is characterized by hills and rocky ridges, with sparse oak woodlands. Several villages are situated near the site, and a small picnicking destination close to a spring and secondary stream that runs in to the Tabben. There is also a cave and archaeological ruins nearby.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		6 -Confirmed
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Neophron percnopterus</i> <i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Oenanthe finschii</i> <i>Emberiza melanocephala</i>		4 -Probable 4 -Confirmed 1 -Possible 2 -Possible 4 -Confirmed 8 -Confirmed 2 -Probable 34 -Confirmed
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Silybum marianum</i> , <i>Notobasis syriaca</i> , <i>Campanula mardinensis</i> (endemic)	98 plant species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to the site include livestock production/grazing, picnic activities and littering.	

Birds: Winter total count: 532. Winter species number: 55.

Nature Iraq & Iraqi Ministry of Environment Report

Mammals: No observations were made at this site. The quill of an Indian Crested porcupine was found, and according to local residents, the Wild boar *Sus scrofa*, Eastern European hedgehog *Erinacious concolor*, and Golden jackals *Canis aureus* can be found in the area.

Plants: There was only one waypoint at this site - Waypoint 304 (N: 35 46 53.0 E: 44 58 38.5), which was characterized by woodland.

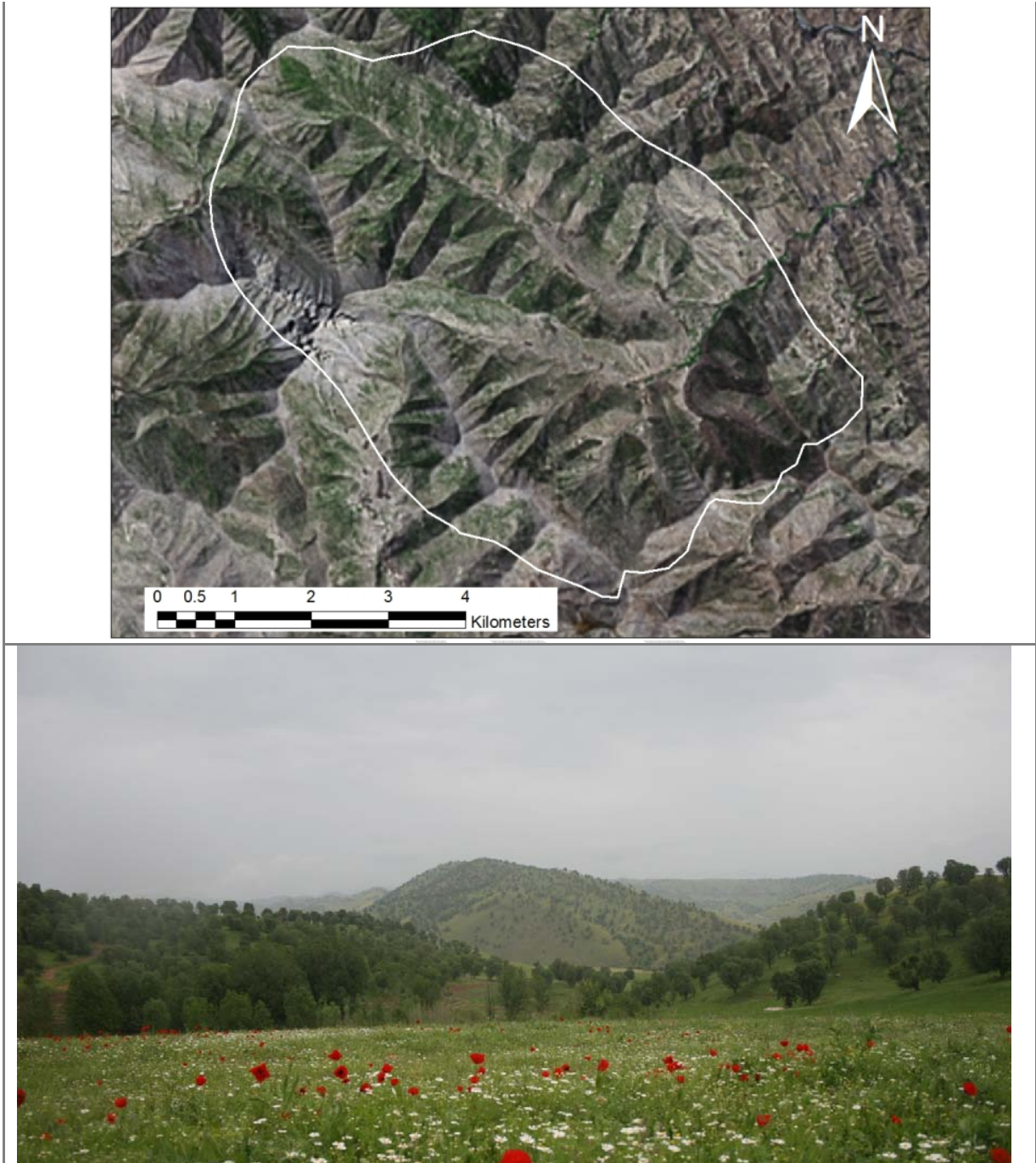
Waypoint 304: The total number of recorded plant species was 105. The dominant plants were: tree *Pistacia eurycarpa*, shrub *Anagyris foetida*, herb *Sinapis arvensis* and grass *Bromus sp.* The habitat at this waypoint featured woodland (pistache and oak) and the ecological condition was very disturbed (where the ecological scale was 4). The geology of area was sedimentary and the soil type was clay. This area was somewhat steep (15-26°), the exposure was to the east (68-112°) and the elevation was 947m. The 5% of the area was non-vegetated.

This site was, in the past, an area for tourism, which caused the deterioration of ecological conditions. Despite this, there were a number of endemic plants found such as *Pisum formosum*, *Onosma albo-roseum*, *Silybum marianum* and *Notobasis syriaca*.

Conservation Issues & Recommendations: Road construction, tourism (and accumulation of related trash and sewage) and grazing are affecting this area. The site needs to be cleaned of garbage left behind by tourists and a garbage collection scheme devised to preserve the site and its popularity as a tourist location. Similarly, an educational program aimed at raising awareness amongst locals and visiting tourists would aid in improving and protecting the site. Last winter people were observed electrofishing in the stream that runs through the valley. Due to the damage this causes, it is strongly recommended that this practice be stopped.

Parazan	S26
Summer observations: 22 April and 1 June-2010	
Admin Area: Sulaimani	KBA Criteria: V IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 35 37 37 E 45 44 19	Unprotected area
Area: 3856 ha	
Altitude: 900-1200m	
Directional information: The site is located 24km northeast of Sulaimani city	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: Rainfall at the site has increased in the past year, as evidenced by the increased plant cover and water levels of the stream in comparison to last year's survey. This area is home to one of the healthiest oak forests in Iraq, with all oak trees in good condition. The habitat of this area is dominated by oak forest, with foothills of the Kura Kazhaw Mountain to the north of the area and a tributary of the Little Zab passing through the area to the south of the area, close to Parazan and Gweza Rash villages.

Conservation Significance:

Nature Iraq & Iraqi Ministry of Environment Report

Key Biodiversity Criteria	Area	Scientific name (count of individuals or pairs if found)	Notes (state evidence)
Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)		<i>Macrovipera lebetina</i>	The blunt-nosed viper (<i>Macrovipera lebetina</i>) was observed at the site. This species is in the CITES appendix II list.
Important Bird Areas Criteria	Area	Scientific name	Wintering/migration data Summer/ breeding data
A1. Globally threatened species		<i>Neophron percnopterus</i>	1 -Possible
A3. Biome-restricted species		<i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta tephronota</i> <i>Oenanthe melanoleuca</i> <i>Gymnoris xanthocollis</i> <i>Emberiza melanocephala</i>	4 -Probable 2 -Possible 3 -Probable 8 -Probable 2 -Probable 11 -Probable
Important Plant Area Criteria	Area	List scientific name or eco-region type as appropriate	Notes (state evidence)
B. Botanical richness		<i>Pisum formosum</i> , <i>Notobasis syriaca</i> , <i>Cephalaria syriaca</i> (endemic)	97 plant species were identified at this site.
C. Threatened habitats		Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to the site include livestock production/grazing, littering and picnicking activities.

Birds: Summer total count: 374. Summer species number: 43.

Mammals and other Fauna: Winter total count: 2. Winter species number: 1. Mammals observed: Persian squirrel *Sciurus anomalus*. Two local shepherds reported that a Grey wolf *Canis lupus* was killed by locals this year in an attempt to contain frequent wolf attacks on their herds. According to locals interviewed there are also Jungle cats *Felis chaus*, Wild boars *Sus scrofa*, and Indian crested porcupines *Hystrix indica* inhabiting the survey site.

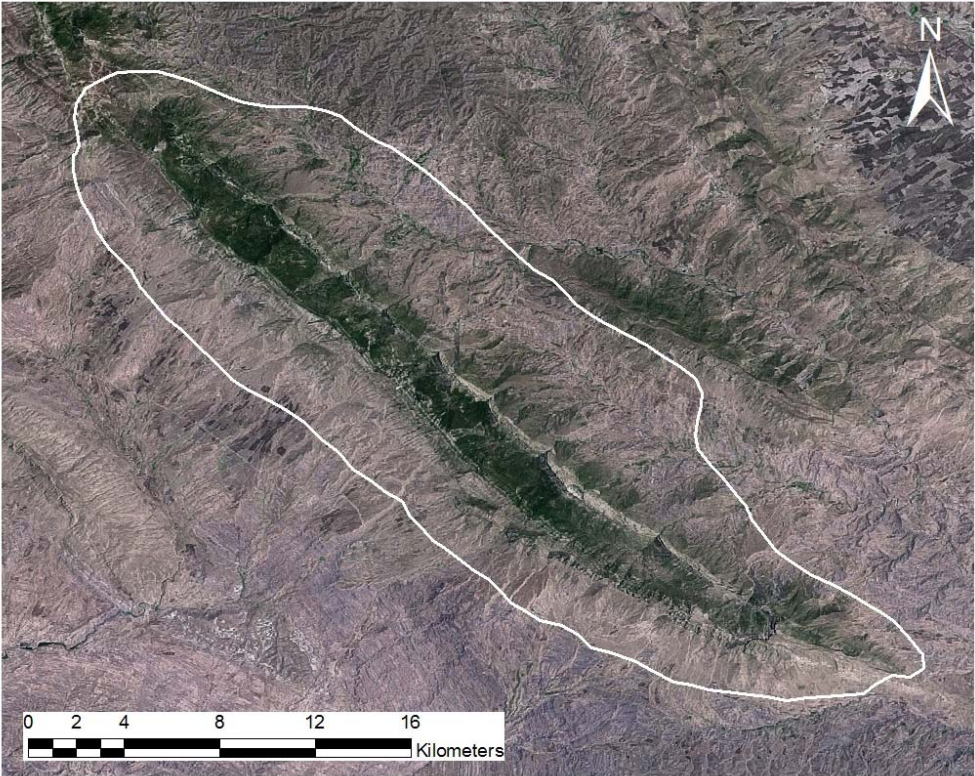
Plants: One waypoint was visited - Waypoint 305 (N: 35 37 33.4 E: 45 44 14.3). Waypoint 305 is woodland habitat.

Over 100 plant species were observed at this waypoint. The dominant tree was *Quercus aegilops*, the dominant shrub *Crataegus azorolus*, the dominant herb was *Trifolium repens* and the dominant grasses were *Poa bulbosa* and *Aegilops crassa*. The habitat was woodland (oaks) with a ground-covering of herb and grasse species. The ecological condition was very disturbed, resulting in an ecological scale of 4. The slope of the ground was moderate (6-14°) and the exposure was to the east (68-112°). The geology was sedimentary and the soil type was clay. The elevation was 1116m and the the non-vegetated area was only 3%.

The ecological condition of this site is very disturbed (4), with few significant plants apart from the endemic species of *Pisum formosum*, *Notobasis syriaca* and *Scorzonera bulbipes*. The native species of oak *Quercus aegilops* also grows here. It is important to note that in terms of their numbers, health and size, the oak trees in this area are in good condition.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Several factors constitute a threat to the ecology of this site, including tourism, livestock production/grazing, agriculture and construction work, such as the refurbishment of a new health center and restoration of old homes in the nearby village. The habitat of the surrounding mountains was in better ecological condition than lower areas however, and is generally regarded as one of the best areas for oak forest in Kurdistan, northern Iraq.

Qara Dagh Area	S11
Summer observations: 26-27 April, 20 and 22 May 2010	
Admin Area: Sulaimani	KBA Criteria: V IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 35 19 52 E 45 17 25	Unprotected area
Area: 31105 ha	
Altitude: 600-1300m	
Directional information: The site is located 32km to the south of Sulaimani city.	
	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This area is a mountain ridge featuring many gorges, valleys and uplands covered primarily by oak forest, with rocky slopes and many farmlands and villages nearby. It is located within the Irano-Turanian biome/Zagros Mountains Forest Steppe (PA0446), which is a critically threatened habitat and hotspot. While the entire ridge stretches over 100 km, lying along a NW-SE bearing, the NI survey encompassed approximately half this length, focusing primarily on the southeastern section of the ridge. A paved road runs along the ridge in this area. The cave formations of Kuna Ba constitute an important deep cave ecosystem within the Qara Dagh range, where others of a similar nature could potentially be found. The Neramsin archeological site is also located in Qara Dagh, consisting of a rock carving along a stream. This stream is now subject to a water diversion project, related to oil extraction development in the area).

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (state evidence)	
Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Capra aegagrus</i> <i>Gazella subgutturosa</i> <i>Testudo graeca</i>	Wild goats <i>Capra aegagrus</i> have not been directly observed during the survey but are reported by hunters and are known to inhabit the region. Goitered gazelles <i>Gazella subgutturosa</i> are likely to inhabit the site, according to locals' reports. Spur-thighed tortoise <i>Testudo graeca</i> has been observed at the site.	
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i> <i>Falco naumani</i>		9 -Confirmed 14 -Confirmed
A3. Biome-restricted species	<i>Poecile lugubris</i> <i>Hippolais languida</i> <i>Sylvia mystacea</i> <i>Oenanthe melanoleuca</i> <i>Oenanthe finschii</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i>		5 -Probable 10 -Probable 1 -Possible 5 -Confirmed 2 -Probable 5 -Confirmed 6 -Confirmed

Nature Iraq & Iraqi Ministry of Environment Report

	<i>Emberiza melanocephala</i>	25 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)
Threatened species		
Botanical richness	<i>Symphytum kurdicum</i> , <i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Cephalaria syriaca</i> , <i>Astragalus spinosus</i> , <i>Cephalanthera kurdica</i> (endemics), <i>Bromus brachstachys</i> (locally rare)	112 place species were identified at this site.
Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include livestock production/grazing, garbage/littering, oil excavation and picnicking activities

Birds: Summer total count: 774. Summer species number: 63.

Mammals and other fauna: According to interviews conducted with locals, Wild goats *Capra aegagrus* inhabit the site. According to residents the wild goat population was once higher in number, possibly due to uncontrolled gun-hunting, causing those remaining to rarely leave the relative safety of the mountain. Locals reported several wolf attacks on their herds and the presence of a large number of wild boar that destroy their crops. Local residents feel that this is adequate reason to shoot these animals. Other species that are likely present in the site are brown hare *Lepus capensis* and Jungle cat *Felis chaus*. And the interviews conducted at this site suggested the presence of two globally vulnerable species, according to the IUCN 'red list' of threatened species: Wild goat *Capra aegagrus* and Goitered gazelle *Gazella subgutturosa*. *Testudo graeca* is also commonly seen here.

Plants: Three waypoints were selected on Garad Dagh Mountain, in order to cover as much of the mountain as possible: Waypoint 208 (N: 35 15 45.7 E: 45 21 00.7) was coppiest woodland environment,, Waypoint 309 (N: 35 16 35.4 E: 45 20 10.5), also characterized by coppiest woodland and Waypoint 310 (N: 35 13 11.1 E: 45 24 52.3), rocky cliff.

Waypoint 308: Over 73 plant species were observed at this waypoint, with a wide range of trees, shrubs, herbs and grasses. The dominant tree was oak *Quercus agelops*, the dominant shrub Mediterranean medlar *Crataegus azorolus* and the dominant herb saw-wort *Serratula grandifolia*. The habitat was coppiced woodland with a ground covering of herbs. The site rated as 3 (moderately disturbed) on the ecological scale. The geology of the area was sedimentary and the soil type clay. The waypoint was somewhat steep (15-26°) and its exposure was toward the east (68-112°). The elevation of this waypoint was 1203m, with 0% of the area non-vegetated.

Waypoint 309: Approximately 45 species of plant were identified at this waypoint. The dominant tree was oak *Quercus aegilops*. The habitat was coppiest woodland and the ecological condition was 2 (slightly disturbed). The geology of the area and the soil type were sedimentary and clay respectively. The area was somewhat steep (15-26°) and the exposure was to the east (68-112°). 15% of the area was non-vegetated. The elevation of the area was 1518 m.

Waypoint 310: Over 33 plant species were identified at this waypoint. The dominant plant was oak *Quercus agelops* and the habitat defined by rocky cliffs. The ecological condition was 3 (moderately disturbed). The geology of the area was sedimentary and the soil type clay. The waypoint was quite steep (27-45°), with

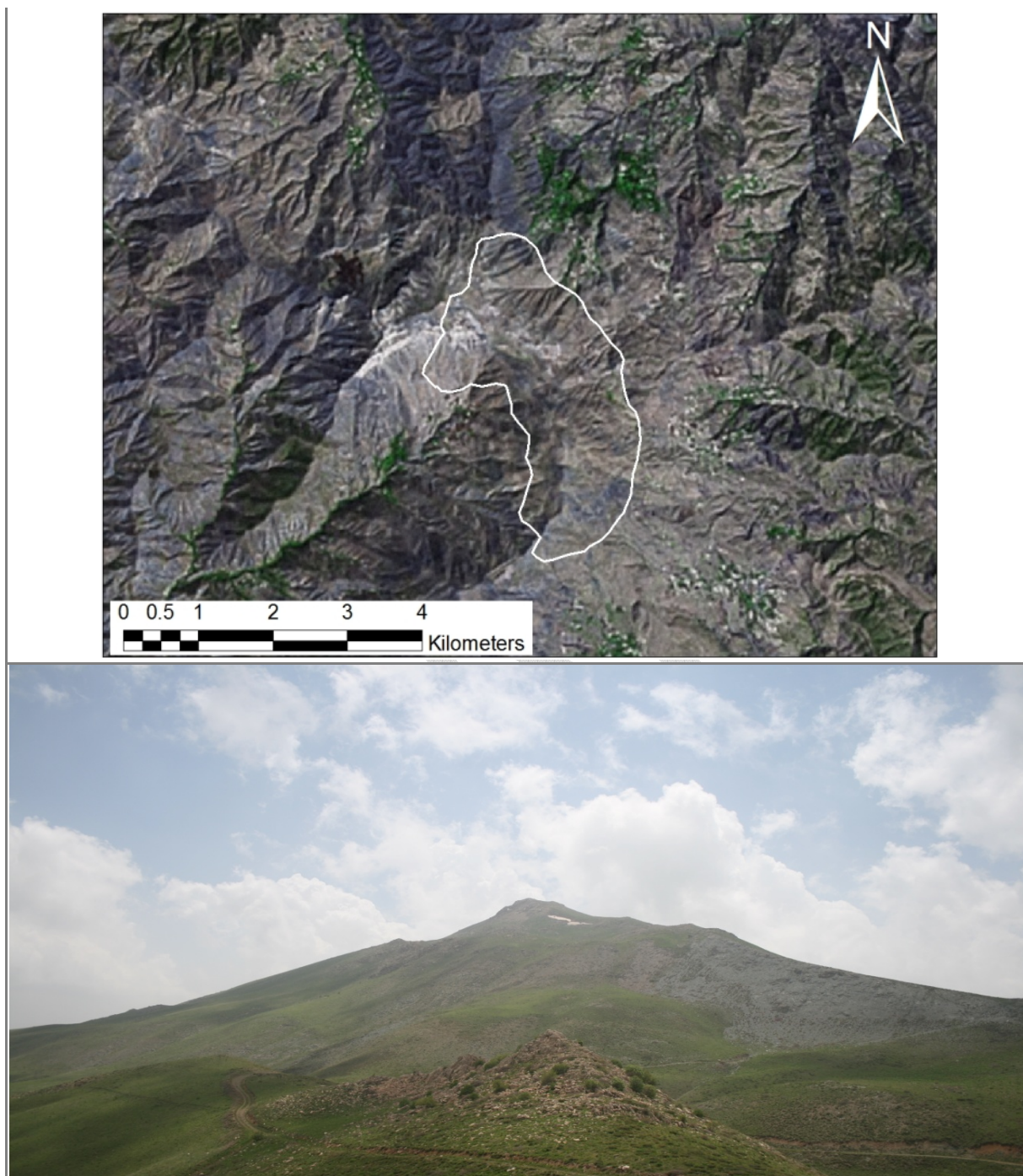
Nature Iraq & Iraqi Ministry of Environment Report

exposure to the east (68-112°). The elevation of this waypoint was 1034m, with 15% of the area non-vegetated.

This site is a key area for plant diversity in the Sulaimani governorate, as evidenced by a merely slightly disturbed ecological condition, generally speaking. Four species of endemic plants can also be found here: *Pisum formosum* (Townsend, V3, p577), *Onosma albo-roseum* (Davis, 1978, p. 364), *Cephalanthera kurdica* and *Symphytum kurdicum*, in addition to *Bromus brachstachys* and *Quercus macranthera*, both of which are rare species in Iraq. It is thus highly recommended to make this region a protected area.

Conservation Issues & Recommendations: While this area is impacted by urbanization (primarily road construction) and grazing, it remains in good condition, as evidenced by the presence of many endemic and rare plants species and several important species of birds. Making this area an environmentally protected area will ensure its conservation and is highly recommended. Should the region be converted to park status, as been proposed numerous times, a more comprehensive survey must be devised and conducted in order to document thoroughly the biological resources of the area. A management scheme should also be developed for the future, with the involvement of local stakeholders. It is additionally recommended that an Environmental Impact Assessments (EIA) study be conducted here to address the recent discovery of new oil fields and determe the impact of oil development in the area.

Gmo Mountain	S33
Summer observations: 29 April 2010	
Admin Area: Sulaimani	IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 35 55 3.83 E 45 u32 56.69	Unprotected area
Area: 667 ha	
Altitude:1500-2164m	
Directional information: The site is located 37 km northwest of Sulaimani city, near the Iraq-Iran border.	



Site Description: This site is a mountain that forms part of the Zagros Mountain Range. It stands at a height of 2062m and is surrounded by foothills and the villages of Sire, Shakraw, Upper Dere and Kulakani. The Little Zab River passes from the southeast through to the northwest of the area. The area was the scene of intense fighting between the armies of Iraq and Iran during the Iraq-Iran war and was abandoned in the 1980s. Several minefields remain in the area today.

Conservation Significance:

Nature Iraq & Iraqi Ministry of Environment Report

Important Criteria	Bird Areas	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species		<i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Oenanthe finschii</i>		7 -Confirmed 4 -Probable 1 -Possible
Important Criteria	Plant Area	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness		<i>Symphytum kurdicum</i> (endemic)	70 plant species were identified at this site.	
C. Threatened habitats		Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include hunting, mining and road construction.	

Birds: Summer total count: 84. Summer species number: 19.

Mammals: No observations were made during the survey. A hunter interviewed at the site reported that wolves *Canis lupus*, Golden jackals *Canis aureus*, Red fox *Vulpes vulpes*, and brown hare *Lepus capensis* have been sighted here.

Plants: One waypoint was visited here - Waypoint 312 (N: 35 54 45.5 E: 45 33 00.8), which is subalpine area with thorn cushion.

Waypoint 312: Over 68 plant species were identified at this waypoint, featuring many species of trees, shrubs, herbs and grasses. The dominant tree was maple *Acer monspessulanum*, the dominant shrub prunus *Prunus arabica*, the dominant herb Colchicum *Colchicum kotschyi* and the dominant grass Bulbous bluegrass *Poa bulbosa*. The habitat was subalpine with thorn cushion; the ecological scale was 4. This waypoint was characterized by a steep inclination (27-45°), eastern exposure (68-112°) and an elevation of 2062m. The geology was volcanic and the soil type was serpentine. 15% of the area was non-vegetated.

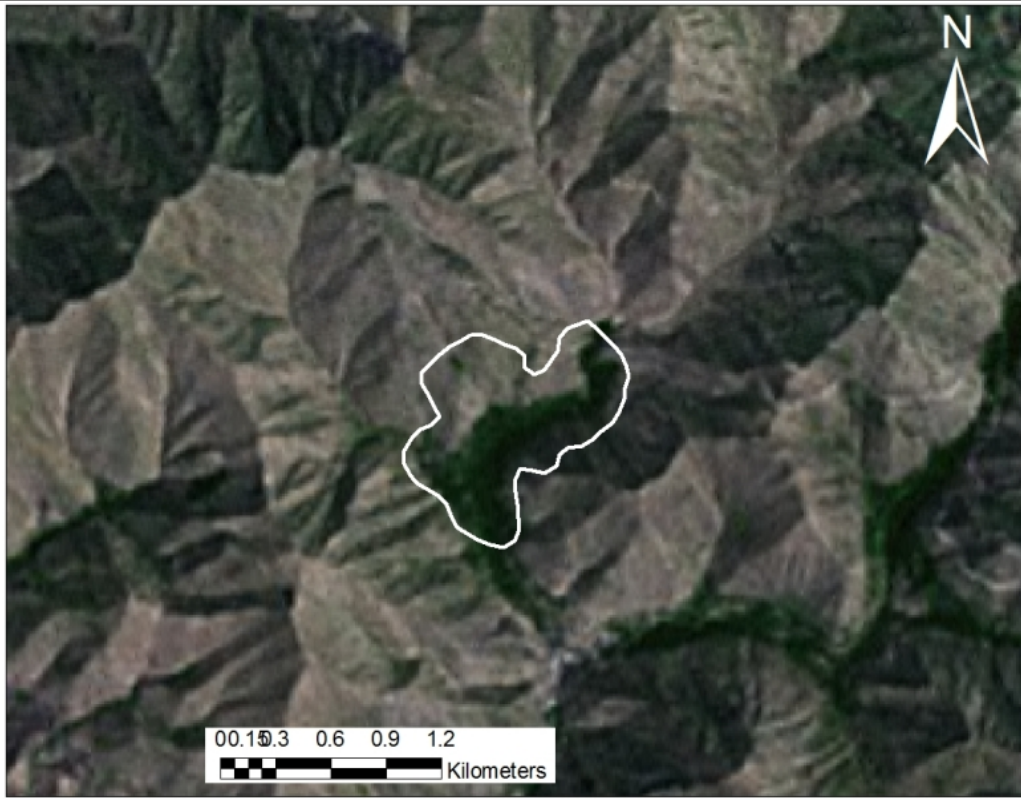
At the time of the visit, the site featured only two plant species of environmental conservation significance: *Scorzonera bulbipes* (endemic) and *Fibigia suffruticosa* (rare).

Conservation Issues & Recommendations: Rock and gravel mining, which was observed on some of the slopes. This as well as hunting activities (in addition to the presence of a hunter, there were many rock hunting hides on the mountain), and the remaining mine fields all constitute threats to this site. Mine clearance needs to occur and education and awareness-raising activities should be conducted in the area to educate hunters.

Awesar	S4B
Summer observations: 1 May 2010	
Admin Area: Sulaimani	IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 35 12 45 E 46 4 41	Unprotected area
Area: 84 ha	
Altitude: 1400-1660m	

Nature Iraq & Iraqi Ministry of Environment Report

Directional information: This site is located to the northeast of Sulaimani on the Iraq-Iran border.



Site Description: This area is dominated by a valley, highlands and foothills, with a covering of aged walnut trees, poplars and springs. It is close to the town of Tawela, with much of the land used by locals for agriculture. Digging wells and newly-constructed homes and roads were observed. The site is also a popular tourist destination during the spring and summer.

Conservation Significance:

Important Bird Areas	Scientific name	Wintering/migration	Summer/ breeding
----------------------	-----------------	---------------------	------------------

Nature Iraq & Iraqi Ministry of Environment Report

Criteria		data	data
A3. Biome-restricted species	<i>Sylvia mystacea</i>		1 -Possible
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Hymenocrater longifrons</i> , <i>Cephalaria syriaca</i> , <i>Cephalanthera kurdica</i> (endemic), <i>Fibigia suffroticosa</i> , <i>Iris germanica</i> , and <i>Orchis colina</i> (locally rare)	106 plant species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include livestock production/grazing, road construction, agriculture and tourism.	

Birds: Summer total count: 157. Summer species number: 32. Eight *Falco naumanni* were seen at the site and this vulnerable species is a probable breeding bird at the site.

Mammals: Wild goats *Capra aegagrus* are seen in the mountains around the Iran-Iraq border. Residents state that Otters *Lutra lutra* are likely to be present. Although no sightings were made during the 2010 visit, the site and area around it is a suitable habitat for Persian squirrels *Sciurus anomalis*, brown hare *Lepus capensis*, wild boar *Sus scrofa*, and members of the Canidae family.

Plants: Two waypoints were visited at this site - Waypoint 314 (N: 35 12 56.5 E: 46 11 09.60), located on the mountain slopes and Waypoint 315 (N: 35 12 58.5 E: 46 11 19.0), on the stream within riparian woodlands.


Waypoint 314: This waypoint is a herbaceous mountain slope with a high percentage of vegetation cover (only 5% of the area was non-vegetated). The ecological scale was 3 (moderately disturbed). The elevation at this waypoint was 1725m, with a steep inclination (27-45°) and the exposure to the east. The geology was sedimentary and the soil type was clay. 88 plant species were identified at this waypoint, where the dominant herb was *Ferulago angulata* and the dominant shrub *Crataegus azorolus*. A small number of *Quercus aegilops* trees also grow here.

Waypoint 315: This waypoint is at a stream within a riparian forest. The forest was predominantly walnut trees *Juglans regia*, which reached heights of over 20m. A wide variety of herb and grass species were found between the trees. The ecology of the area was disturbed, placing it at level 4 on the ecological scale. The slope of the ground was gentle (0-5°), the exposure to the south (158-202°) and the elevation 1679m. The geology and soil type were sedimentary and clay respectively. 25% of the area was non-vegetated. The total number of recorded plant species was 38, with the dominant tree and herb *Juglans regia* and *Ferulago angulata* respectively, in addition to several other types of shrubs and grasses.

Many endemic plants were growing at this site, such as *Cephalanthera kurdica*, *Onosma albo-roseum*, *Scorzonera bulbipes* and *Pisum formosum*. Two rare plant species were found here: *Orchis colina* (Townsend, V8, p302) and *Iris germanica*. Despite the existence of these endemic and rare plants the ecological condition of the site was overall poor, warranting greater care and protection from ecological threats in the area.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Road construction, livestock production/grazing and extensive tourism have disturbed the environment here. Ecological conditions are noticeably healthier on the surrounding mountain slopes however. It is recommended that efforts be focused on protection of the riparian habitats at this site, which can be achieved through an educational campaign aimed at both tourists and residents. The area would also benefit from regulations placed on both tourism and livestock grazing.

Sargalu	S7
Summer observations: 19 May 2010	
Admin Area: Sulaimani	IBA Criteria: A1 and A3 IPA Criteria: Criteria C
Coordinates: N 35 51 1.385 E 45 13 24.011	Unprotected area
Area: 3028 ha	
Altitude: 800- 953m	
Directional information: The site is located 35 km to the northwest of Sulaimani city.	
	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This is a mountainous area characterized by valleys and rocky ridges. Daban Mountain sits at the south of the area, Halaj Mountain to the north. The villages of Sargalu and Bargalu lie in the region between the two mountains. Many small springs, originating in the surrounding mountains, join to form a small stream. The area is also used for agriculture (primarily grapevines) and draws many visitors in the spring and summer months. This area was exposed to hazardous chemicals in the 1980s and was a primary Peshmerge base.


Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		3 -Probable
A3. Biome-restricted species	<i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta tephronota</i> <i>Oenanthe melanoleuca</i> <i>Carpospiza brachydactyla</i> <i>Emberiza melanocephala</i>		2 -Possible 4 -Probable 5 -Confirmed 8 -Probable 2 -Possible 30 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	While this site was not surveyed in 2010 and there is currently insufficient plant data to give a full assessment, The site is located in a critically threatened ecoregion. No plant survey was conducted here in 2010 and there is insufficient data to make a full assessment.	

Birds: Summer total count: 177. Summer species number: 39.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Noise pollution and trash from visiting tourists, hunting, urbanization, sewage pollution and grazing all impact on the ecological health of this area. The site was also subject to chemical weapons attack in the 1980s.

Ahmed Awa	S4A
Summer observations: 24 May 2010	
Admin Area: Sulaimani	IBA Criteria: A1 and A3 IPA Criteria: Criteria C
Coordinates: N 35 17 59 E 46 4 41	Unprotected area
Area: 646 ha	
Altitude: 700-900m	
Directional information: This area is in the Zagros Mountain Range on the Iraq-Iran border, due east of Sulaimani city.	
	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This is a mountainous area located close to the Iranian border, dominated by rocky slopes and wooded valleys. A large spring and waterfall, joining streams coming down from higher up, make up the headwaters of the Zalm Stream, a large fast-moving waterway that flows towards the Tanjero and Darbandikhan rivers. Several villages are situated in the narrow valley. While the area has been known for poor security in the past, it remains a popular tourist spot. The waterfall and upper stream are reached by a narrow gravel road which begins at a large parking area further down the valley. During the spring and summer, many tea shops and other shops line the upper stream below the waterfall.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		3 -Probable
A3. Biome-restricted species	<i>Sitta tephronota</i> <i>Oenanthe finschii</i> <i>Carpospiza brachydactyla</i> <i>Emberiza melanocephala</i>		6 -Confirmed 1 -Possible 1 -Possible 2 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	The site is located in a critically threatened ecoregion. No plant survey was conducted here in 2010 and there is currently insufficient plant data to make a full assessment,	

Birds: Summer total count: 200. Summer species number: 31. Nine *Falco naumani* (VU) was another conservation concern species that was confirmed to breed at the site.

Mammals: based on surveyers' description of the animal, a local reported the killing of an animal similar to the Asiatic cheetah *Acinonyx jubatus* in 2002. A similar account was given by another resident, but it cannot be verified whether the animal in question was a cheetah or Persian leopard *Panthera pardus saxicolor*, as the

Nature Iraq & Iraqi Ministry of Environment Report

animal's physical description given by locals comprised characteristics of both species (such as a slim and narrow abdomen such as that of a cheetah, and a loud roar characteristic of a leopard. Other mammal species that may, according to locals, inhabit the site are: Wild goat *Capra aegagrus*, Brown bears *Ursus arctos* and wild boar *Sus scrofa*.

Interviews conducted with residents also revealed that hunting at this site has increased significantly during 2003, but has since declined as the practice has been officially banned.

Conservation Issues & Recommendations: This area is chiefly impacted by livestock grazing and tourism. Despite security problems in the past the site once again attracts many visitors who picnic in the area, leading to garbage- and sewage-related problems. Shops along the waterway have destroyed or trampled much of the near-stream riparian areas. The northeastern region of the site beyond the waterfall suffers fewer disturbances from tourism as it is close to the border and is a heavily mined area. It is recommended that tourism be regulated here to decrease its impact on the stream and surrounding slopes, and development limitations be implemented in popular areas. Grazing should also be subject to limitations, in order to prevent uncontrolled grazing which causes detriment to the natural habitat.

Hazarmerd	S34
Summer observations: 2 June 2010	
Admin Area: Sulaimani	IBA Criteria: A1 and A3 IPA Criteria: Criteria C
Coordinates: N 35 29 51 E 45 18 42	Unprotected area
Area: 607 ha	
Altitude: 800-1035m	
Directional information: This site is located to the southwest of Sulaimani city, close to the Sulaimani Airport	



Site Description: This is an agricultural area which are dominated by foothills and Baranan Mountain, a mountain ridge that runs roughly east-west. The archaeological site of Hazarmerd Cave is also found here.

Nature Iraq & Iraqi Ministry of Environment Report

Close to the site are the villages of Hazarmerd and Qorkhu, and a sewage-polluted stream. A rough gravel road switchbacks up to the cave, which overlooks the city of Sulaimani.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i> <i>Falco naumanni</i>		5 -Confirmed 6 -Probable
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Sylvia mystacea</i> <i>Sitta tephronota</i> <i>Oenanthe melanoleuca</i> <i>Oenanthe finschii</i> <i>Emberiza melanocephala</i>		4 -Probable 1 -Possible 5 -Confirmed 8 -Probable 2 -Probable 6 -Confirmed
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. No plant survey was conducted in 2010 and there is currently insufficient plant data, a full site assessment cannot be made.	

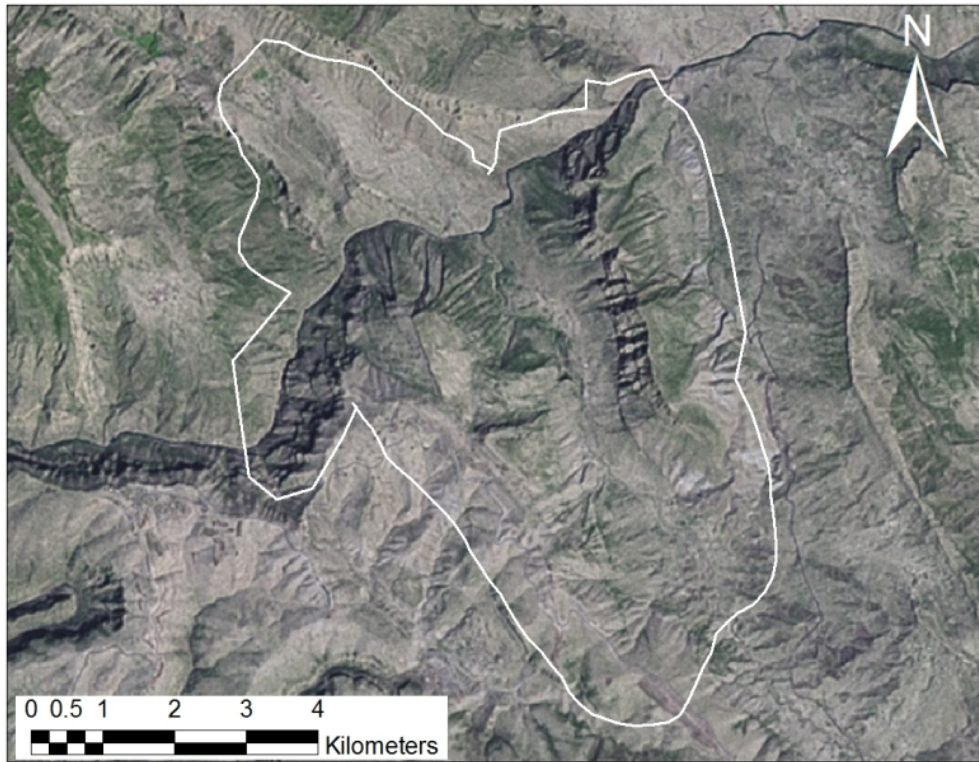
Birds: Summer total count: 160. Winter species number: 35.

Mammals: Bat species use the cave but no comprehensive surveys have been done here.

Conservation Issues & Recommendations: Agricultural intensification, water pollution and urbanization (there are new building projects in the valley below Baranan Mountain as well as road work) all contribute to environmental damage done to the the area. As the site boasts archeological interests it may hold tourism potential.

Barzan Area	E8
Winter observations: 28 Jan 2010; Summer observations: 5 May 2010	
Admin Area: Erbil	KBA Criteria: V IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 36 56 37 E 44 11 44	Unprotected area
Area: 4708 ha	
Altitude: 530m	
Directional information: This site is located 80 km to the northeast of Erbil city	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This is a tribally protected area of mountains covered in oak woodlands with the presence of some streams and rivers. The most important river closed to the site is the Zrara River, which flows from Turkey through Musaka village, joining with the Bekhal and Jundyan Rivers to form the Big Zab River. This area has often been proposed as a National Park area (it is one of the few places in Kurdistan, northern Iraq where it is relatively easy to see Wild goats as the area has a hunting prohibition that has been in place for many decades by the Barzan tribe) and is a popular place for picnickers. A bridge crosses the site near the main access to the survey area and down river there are the remains of a much older bridge. The river is fairly large (approx. 20-30 meters wide) and fast moving.

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (state evidence)
Critically Endangered	<i>Capra aegagrus</i> (12) in summer	Wild goats were observed feeding and resting on

Nature Iraq & Iraqi Ministry of Environment Report

(CR), Endangered (EN) Vulnerable species (VU)	<i>Capra aegagrus</i> (80) in winter	the mountain during the winter, and sighted alongside the mountain stream during the summer.		
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data	
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Oenanthe melanoleuca</i> <i>Emberiza melanocephala</i> <i>Pyrrhocorax graculus</i>	3 11	6 -Probable 2 -Possible 1 -Possible 6 -Confirmed 1 -Possible 2 -Probable 12 -Probable	
Important Plant Area Criteria	List scientific name or ecoregion type as appropriate	Notes (state evidence)		
B. Botanical richness	<i>Pisum formosum</i> , <i>Notobasis syriaca</i> , <i>Cephalaria syriaca</i> , <i>Thymus syriacus</i> (endemics), <i>Bromus brachystachys</i> (locally rare)	92 plant species were identified at this site.		
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include livestock production/grazing, road construction, agriculture and tourism.		

Birds: Winter total count: 299. Winter species number: 38. Summer total count: 186. Summer species number: 48.

Mammals: Winter total count: 84. Winter species number: 2. Mammals species observed: Wild goat *Capra aegagrus* and Persian squirrel *Sciurus anomalus*.

Summer total count: 23. Summer species number: 3. Mammals species observed: Wild goat *Capra aegagrus*, Persian squirrel *Sciurus anomalus* and feral horse *Equus caballus*.

Plants: One waypoint was visited at this site - Way point 316 (N: 36 56 43.3 E: 44 11 46.2), dominated by the river, surrounded by riparian woodland.

Waypoint 316: 90 species were observed at this waypoint. The ecological scale was 4. The dominant tree was oak *Quercus aegilops*, the dominant shrub blackberry *Rubus sanctus*, the dominant grass barley *Hordeum glaucum* and the dominant herb wild mustard *Sinapis arvensis*. The habitat was characterized by river with riparian woodland, surrounded by mountainous woodland. The waypoint featured a moderate slope (6-14°), western exposure (248-292°), sedimentary geology and clay soil. The elevation of the area was 547m and 5% of non-vegetated area.

Despite the disturbed ecological condition (due to the high levels of grazing and agriculture), this site contains many endemic and rare plant species such as: *Notobasis syriaca*, *Pisum formosum*, *Thymus syriacus* (endemics), *Bromus brachystachys* (rare) and *Quercus aegilops* (native).

Conservation Issues & Recommendations: The chief environmental threats at this site were tourism, grazing and agriculture. Overgrazing was evident. A large numbers of insects (locusts) were observed near the river in summer, consuming large quantities of plant material. Residents are interested in turning the area

Nature Iraq & Iraqi Ministry of Environment Report

in to a national park and have historically protected it by banning hunting. However, tourism has lead to the accumulation of garbage, which, in addition to riverside car-washing, possible overgrazing and agricultural impacts, have caused damage to the area's environment.. This survey's key recommendation for the site is to raise awareness amongst residents of the importance of protecting the native flora and fauna of their surroundings. It is also necessary to act on environmental laws for protected areas, with police enforcing, and responding to violations of, this law. Should the area be converted to a park, a more comprehensive survey must be planned and conducted to document thoroughly the biological resources of the area. A management scheme for the future should also be developed, with the involvement of local stakeholders. Note: In the following winter, an outbreak of PRR virus caused high mortality among the wild goat of Barzan killing over 200 of these animals.

Altun Kopri Marsh	E3
Winter observations: 29 Jan 2010	
Admin Area: Erbil	IBA Criteria: A2, A3 and A4i IPA Criteria: Criteria C
Coordinates: N 35 42 57 E 44 7 10	Unprotected area
Area: 1575 ha	
Altitude: 256m	
Directional information: This site is located southwest of Altun Kopri town, 55 km of southeast of Erbil City.	



Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This site is a rare wetland habitat (similar in nature to the marshes of southern Iraq) in Kurdistan created partly by the Dibis Dam downstream, surrounded by hills and farmlands. Residents use the marsh's resources for agriculture and fisheries and new houses have been constructed in the area. The marshlands are fed by the Little Zab River from the northeast of Altun Kopri.

Conservation Significance:

Important Criteria	Bird Areas	Scientific name	Wintering/migration data	Summer/ breeding data
A2. Restricted-range species		<i>Turdoides altirostris</i>	5	
A3. Biome-restricted species		<i>Ammoperdix griseogularis</i>	3	
A4. Congregations				
A4i.		<i>Fulica atra</i>	24100	
Important Criteria	Plant Area	List scientific name or eco-region type as appropriate	Notes (state evidence)	
C. Threatened habitats		Middle East steppe - Vulnerable	This site is located in a vulnerable ecoregion. No plant survey was conducted in 2010 and there is currently insufficient plant data on this site to make a full assessment.	

Birds: Winter total count: 35065. Winter species number: 54.

Mammals: Winter total count: 1. Winter species number: 1. Mammals observed: Golden jackal *Canis aureus*.

Conservation Issues & Recommendations: This site's location south (downstream) of the town of Altun Kopri makes it highly susceptible to sewage and waste pollution from the town. The team also observed people burning and cutting reeds in the river. Instances of bird hunting were also witnessed and electrofishing has been noted in the area in the past. An action plan is needed to regulate overhunting, pollution and electrofishing in this area.

Bahraka	E11
---------	-----

Nature Iraq & Iraqi Ministry of Environment Report

Winter observations: 30 Jan 2010	
Admin Area: Sulaimani	IPA Criteria: Criteria C
Coordinates: N 36 27 13 E 43 48 37	Unprotected area
Area: 3000 ha	
Altitude: 200- 300m	
Directional information:	
Site not delineated	
	

Site Description: This survey area is on the Great Zab River, which flows southwest through the site to reach the Tigris River. It is surrounded by steppes and highlands, with agricultural lands and Mount Dara Mamz to the south. The village of Kharok is northeast of the survey area, Erbil city to the northwest. Gravel mining activities at this site have disturbed the majority of the riparian area.

Conservation Significance:

<i>Important Plant Area Criteria</i>	<i>List scientific name or eco-region type as appropriate</i>	<i>Notes (state evidence)</i>
C. Threatened habitats	Middle East steppe - Vulnerable	This site is located in a vulnerable ecoregion. No plant survey was conducted in 2010 and there is currently insufficient data to make a full assessment.

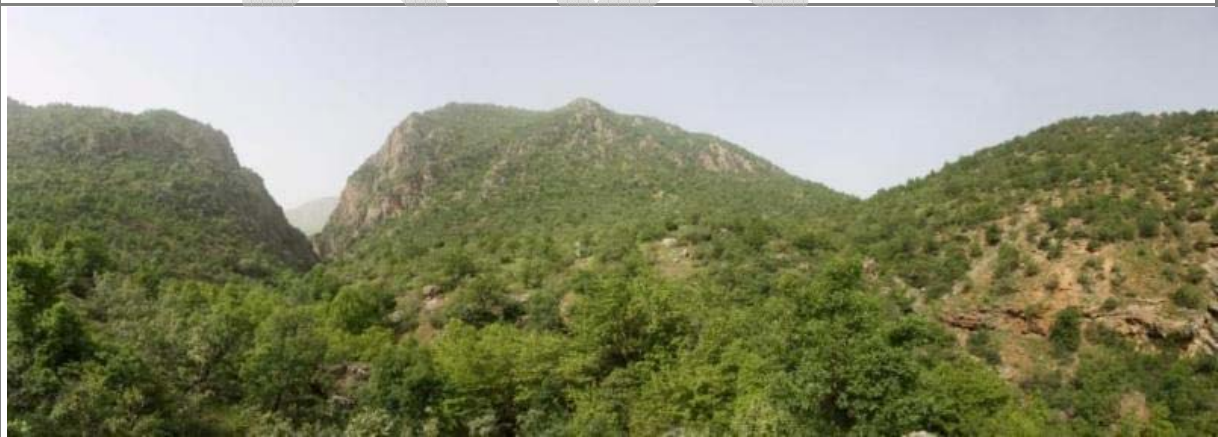
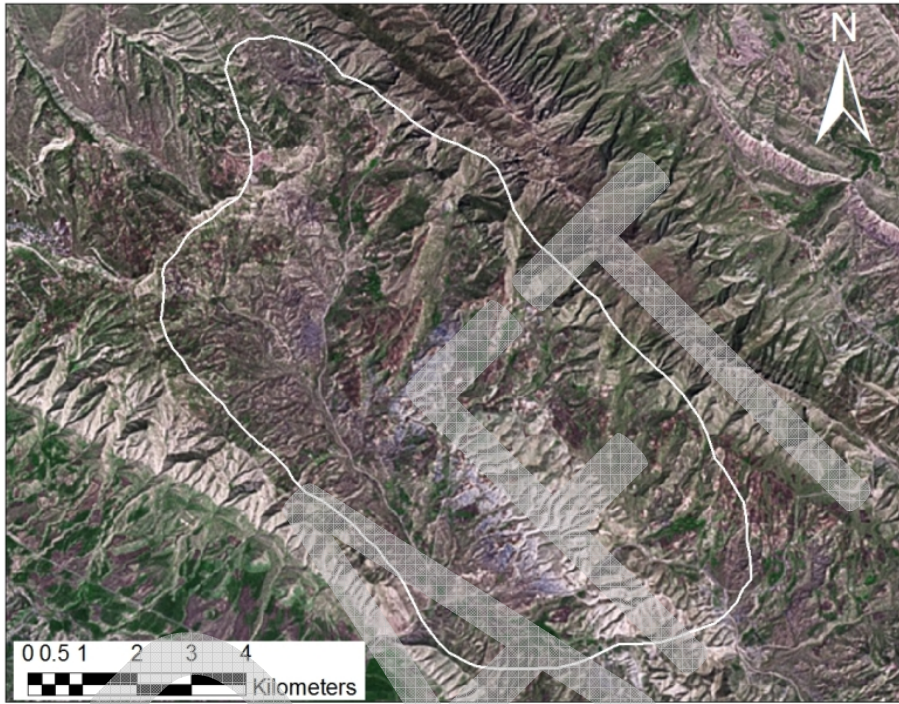
Birds: Winter total count: 409. Winter species number: 29.

Conservation Issues & Recommendations: Gravel mining and intensification of agricultural practices have impacted heavily on the area, in addition to the construction of new homes. It is recommended that a land management scheme be devised and implemented in this area that incorporate better management and protection of the in-stream and riparian habitats of the Big Zab River.

Doli (Valley) Smaquli	E5A
Winter observations: 28 Jan 2010; Summer observations: 6 May 2010	
Admin Area: Erbil	IBA Criteria: A1 & A3 IPA Criteria: Criteria B & C

Nature Iraq & Iraqi Ministry of Environment Report

Coordinates: N 36 21 49 E 44 19 22	Unprotected area
Area: 7027 ha	
Altitude: 1000-1200m	
Directional information: This site is located 30 km NE of Erbil city.	



Site Description: This site is a valley, with several streams that flow through from the mountains in the west to the east. There is a heavy covering of *Quercus* sp, *Prunus* sp and *Pistatia* sp and many species of herbs. The site also features agricultural fields, the construction of a new road and the villages of Tawska, Gorasheri Sarw, Gorasheri Khwarw and Qalasnji Khwarw are nearby.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened	<i>Neophron percnopterus</i>		2 -Pair

Nature Iraq & Iraqi Ministry of Environment Report

species			
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Oenanthe melanoleuca</i> <i>Oenanthe finschii</i>		2 -Probable 3 -Possible 2 -Confirmed 12 -Confirmed 3 -Probable 6 -Confirmed 3 -Confirmed
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Onosma albo-roseum</i> (endemic), <i>Aristolochia paecilantha</i> , <i>Allium chrysantherum</i> (locally rare)	116 plant species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include livestock production/grazing, road construction, garbage/littering, agriculture and picnicking activities.	

Birds: Summer total count: 240. Summer species number: 43. Summer total count: 240. Summer species number: 43.

Mammals: Road kill: 2. Species number: 1. Dead mammals found: Eastern European hedgehog *Erinaceus concolor*.

During interviews conducted at this site, one local recalled the sighting of one Brown bear *Ursus arctos* during the drought, in which the bear descended from the mountain in search of water. He also stated that the Persian leopard *Panthera pardus saxicolor* was known to inhabit the area during the 1990s, prior to the Kurdish civil war of 1994. Other mammal species such as Wolves *Canis lupus* and wild boar *Sus scrofa* are said to inhabit this site.

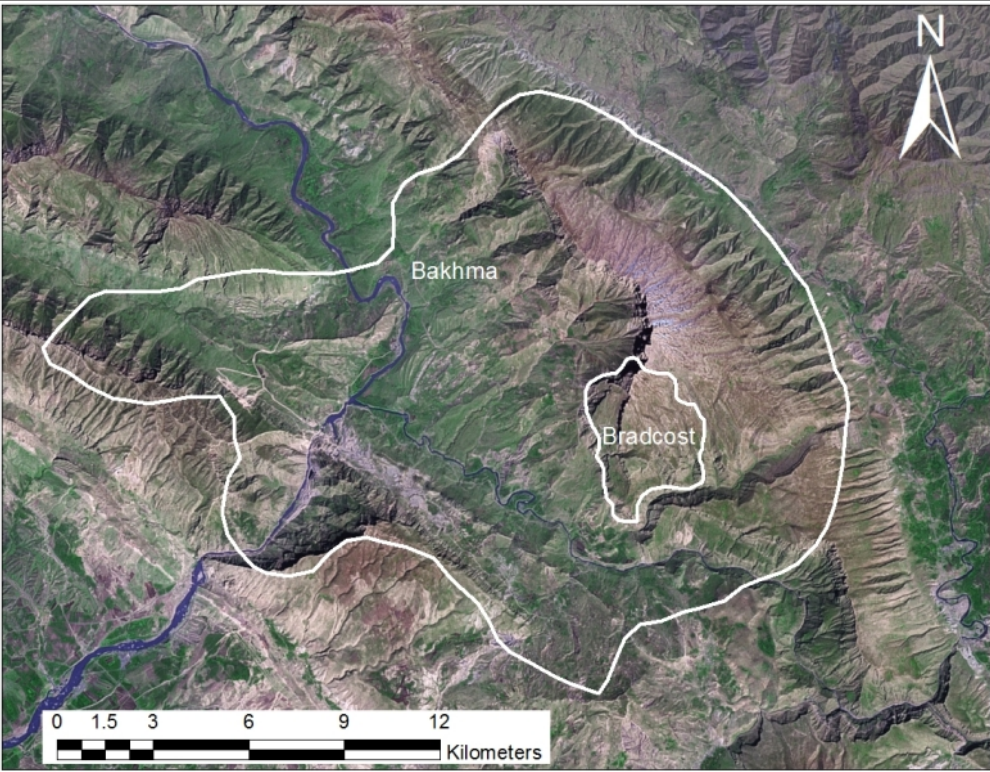
Plants: One waypoint was visited at this site - Waypoint 317 (N: 36 12 51.5 E: 44 19 20.4), which was a mountainous area characterized by open coppiced woodland, with a ground-covering of grass and herb species.

Waypoint 317: Over 120 species were observed at this waypoint. The ecological scale was 4 (very disturbed). The dominant plants were: *Quercus aegilops* (tree), *Crataegus azorolus* (shrub), *Aegilops spp.* (grass), and *Galium verum*. (herb). The area was somewhat steep (15-26°), the exposure was to the north (338-22°) and the elevation was 1206m. The geology and soil type at this waypoint were sedimentary and clay respectively. Only 5% of the area was non-vegetated.

This site constitutes one of the most important in terms of plant diversity and density in Iraqi Kurdistan, with a vegetation covering of approximately 95%. Furthermore, many important plants species were found at this site such as *Onosma albo-rosu*m, *Notobasis syriaca* (endemic), *Aristolochia paecilantha* (Townsend,V4,p2,p777), *Michauxia nuda*, *Allium chrysantherum* (rare)(Townsend,V8,p171) and *Quercus aegilops* (native trees).

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Although livestock production/grazing and changes to nearby land use remain a threat, the ecological condition of this area was found to be only moderately disturbed, with high-density vegetation cover and many important plants species (endemic, rare and native). Such factors render this site one of the important plant areas in Iraqi Kurdistan and as such it is strongly recommended that the necessary steps be taken to protect this area. Limiting of uncontrolled grazing and agricultural expansion and an educational campaign to raise awareness about the environmental significance of this site would assist in its preservation.

Bradost	E18
Summer observations: 7 May 2010	
Admin Area: Erbil	KBA Criteria: V IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 36 42 7 E 44 22 54	Unprotected area
Area: 1246 ha within the Bakhma (E7, IBA004) KBA site (25719 ha)	
Altitude: 1000-1600m	
Directional information: This site is located 62 km NE of Erbil city.	
	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: Bradost site is part of the anticlinal Bradost Mountain Range, which is positioned along a general northwest-southeast inclination towards the Spana Valley. The mountains are higher on the northern bank of the Rawandoz River (Big Zab River), rising sheer to approximately 2,000 meters. The villages of Sarbardok, Upper & Lower Hanara, Rashaqu, Khalan and Bawrkan are nearby. There are minefields in this area.

Conservation Significance:

Key Biodiversity Criteria	Area	Scientific name (count of individuals or pairs if found)	Notes (state evidence)	
Critically Endangered (CR), Endangered (EN), Vulnerable species (VU)		<i>Capra aegagrus</i> <i>Panthera pardus saxicolor</i>	Wild goats are reported by locals and the forestry police. No direct observations were made during the survey. According to the forestry police, a local hunter had sighted a Persian Leopard <i>Panthera pardus saxicolor</i>	
Important Bird Criteria	Bird Areas	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species		<i>Neophron percnopterus</i> <i>Falco naumanni</i>		1 -Possible 1 -Possible
A3. Biome-restricted species		<i>Sylvia mystacea</i> <i>Sitta tephronota</i> <i>Irania gutturalis</i> <i>Oenanthe melanoleuca</i> <i>Oenanthe finschii</i> <i>Emberiza melanocephala</i>		2 -Possible 14 -Confirmed 2 -Possible 8 -Probable 4 -Probable 13 -Confirmed
Important Plant Criteria	Plant Area	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness		<i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Notobasis syriaca</i> (endemics)	112 plant species were identified at this site.	
C. Threatened habitats		Zagros Mountains	This site is located in a critically threatened ecoregion.	

Nature Iraq & Iraqi Ministry of Environment Report

	Forest Steppe - Critical	Threats to this site include livestock production/grazing, garbage/littering, agriculture and picnicking activities.
--	--------------------------	--

Birds: Summer total count: 159. Summer species number: 35.

Mammals: According to internal police officers near the survey site, the following animal species most commonly spotted were: Wild goat *Capra aegagrus* seen on the mountain (sometimes moving in flocks, numbering as many as 30, down the mountain toward the main road), Brown hares *Lepus capensis*, Grey wolves *Canis lupus*, Red fox *Vulpes vulpes*, Persian squirrels *Sciurus anomalis*, Indian crested porcupines *Hystrix indica*, Brown bear *Ursus arctos* (which had been sighted two weeks prior to the survey, although this species is presently low in numbers), Striped hyena *Hyaena hyaena* and Wild cats *Felis silvestris*.

The interviewed officers confirmed that the Eurasian otter *Lutra lutra* inhabits the area, also mentioning that a Persian leopard *Panthera pardus saxicolor* had been sighted by a local hunter in 2008. A shepherd also confirmed the presence of Eurasian otter *Lutra lutra*.

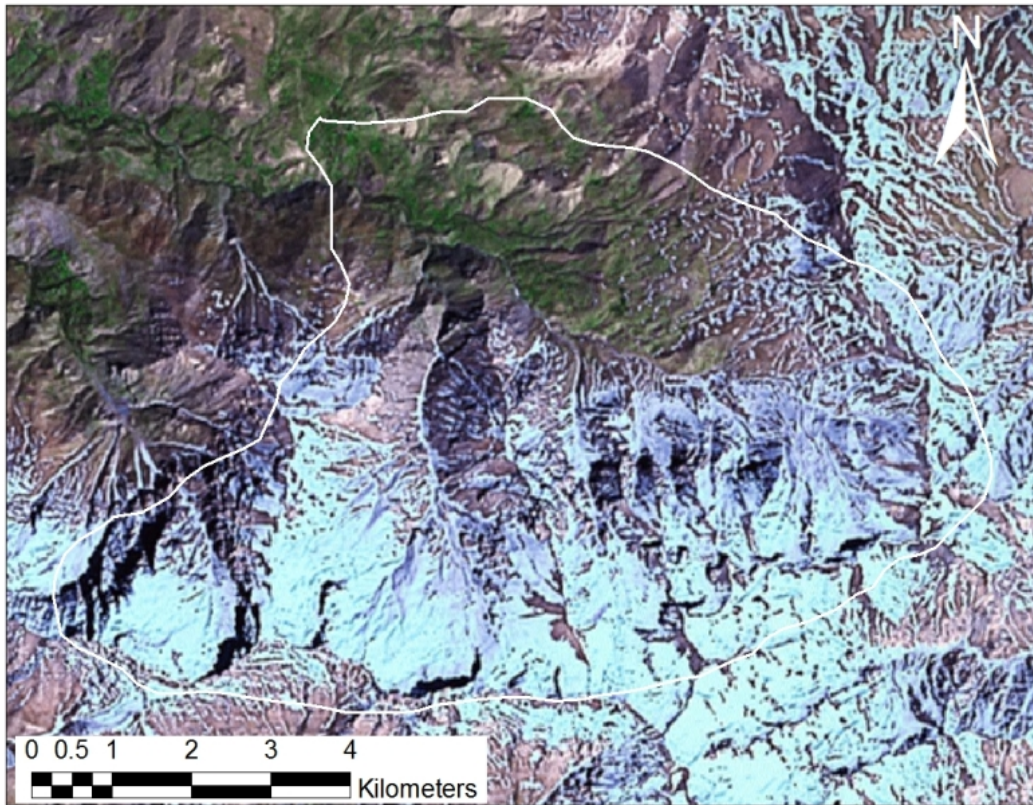
Plants: One waypoint was visited within the site - Waypoint 318 (N: 36.70659 E: 44.37697), which was dominated by open woodland.

Waypoint 318: 121 plant species were identified here. The dominant tree was *Quercus aegilops*, the dominant shrub *Crataegus azorolus*, the dominant herb *Galium verum* and the dominant grasses *Aegilops crassa* and *Hordeum sp.* The ecological condition was moderately disturbed (3). The elevation was 1324m, the slope steep (27-45°) and the exposure to the south (158-202°). The geology and the soil type were sedimentary and clay respectively. Only 15% of the area was non-vegetated.

This site is a key site for plant diversity in Kurdistan, northern Iraq, with a high vegetation coverage percentage and large number of plant species. Many significant plant species grow here, such as *Notobasis syriaca*, *Scorzonera bulbipes*, *Pisum formosum* and *Onosma albo-roseum* (endemics), *Quercus macranthera*, *Fibigia suffruticosa* and *Orchis anatolica* (rare) and *Quercus aegilops* (native).

Conservation Issues & Recommendations: Grazing and hunting pose a major threat to this area, in addition to several minefields. The riparian area along the Rawanduz River (Big Zab) below the mountain has been affected by gravel mining. It is critical that a hunting regulation and proper land use management scheme be devised and implemented for this area. The Nature Iraq KBA survey considers this area as part of the Bakhma IBA site first designated by Mike Evans (1994).

Sakran Mt-Choman Reserve Site	E14
Summer observations: 8 May 2010	
Admin Area: Erbil	KBA Criteria: V IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 36 35 26 E 44 59 10	Unprotected area
Area: 5740 ha	
Altitude: 1000-2000m	
Directional information: This area located on the Iran-Iraq border ? km northeast of Erbil city	



Site Description: This mountainous area is part of the Qandil Range, located in the Choman District. The highest peak at the site, Haji Ibrahim, stands at around 3600m and is surrounded by several other mountains such as Mt. Sakran to the south, Mt. Halgurd to the west and Mt. Gardamn to the north. The mountain peaks are covered in snow year-round. There are several streams and small rivers throughout the area. Villages in the area include Weza, Sakran, Basan, Rezi and Ene. Its location close to the Iranian border makes it an area requiring co-ordination with local government to visit, and still has many minefields. This area has been locally proposed for consideration as a National Park.

Conservation Significance:

Nature Iraq & Iraqi Ministry of Environment Report

Key Biodiversity Criteria	Area	Scientific name (count of individuals or pairs if found)	Notes (state evidence)
Critically Endangered (CR), Endangered (EN), Vulnerable species (VU)		<i>Capra aegagrus</i>	Wild goats are reported by locals. No direct observations were made during the survey.
Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Pyrhocorax graculus</i> <i>Sitta tephronota</i> <i>Oenanthe melanoleuca</i> <i>Emberiza melanocephala</i>		10 -Probable 2 -Probable 4 -Confirmed 6 -Confirmed 9 -Probable
Important Plant Area Criteria	List scientific name or ecoregion type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Cephalaria syriaca</i> , <i>Paronychia kurdica</i> , <i>Astragalus helgurdensis</i> , <i>Cephalanthera kurdica</i> (endemics)	125 species plant species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include agriculture and tourism activities close to the foothills of the mountain.	

Birds: Summer total count: 235. Summer species number: 45.

Mammals: Based on the statements of locals interviewed, mammal species that populate the site are: wild goats *Capra aegagrus*, a large number of brown bears *Ursus acrotos*, wild boars *Sus scrofa*, grey wolves *Canis lupus*, red foxes *Vulpes vulpes*, stone marten *Martes foina*, striped hyena *Hyaena hyaena*, Wild cat *Felis silvestris* and Eastern European hedgehog *Erinacius concolor*. One resident described the sighting of an animal similar to Ruppell's fox *Vulpes rueppellii*. Interviews revealed that hunting is a widespread practice at the site, as evidenced by the hunting of 22 wild goats in the past year. Note: *Vipera raddei kurdistanica*, a viper endemic to the region was observed at the site in the previous (2009) survey of the area.

Plants: One waypoint was visited at this site - Waypoint 319 (N: 36.57410 E: 44.93665), a subalpine area with thorn cushion.

Waypoint 319: Over 135 plant species were identified at this waypoint. The dominant trees were *Quercus aegilops* and *Q. Infectoria*, the dominant shrub *Prunus microcarpa*, the dominant herbs *Geranium tuberosum*, *Fritillaria imperialis* and *Cardaria draba* and the dominant grass *Poa bulbosa*. The habitat was subalpine area with thorn cushion and the ecological condition was moderately disturbed (3). The slope was very steep (45-69°), the exposure to the south (158-202°) and the elevation 2097m. The geology was sedimentary and the soil serpentine,. Only 15% of the area was non-vegetated.

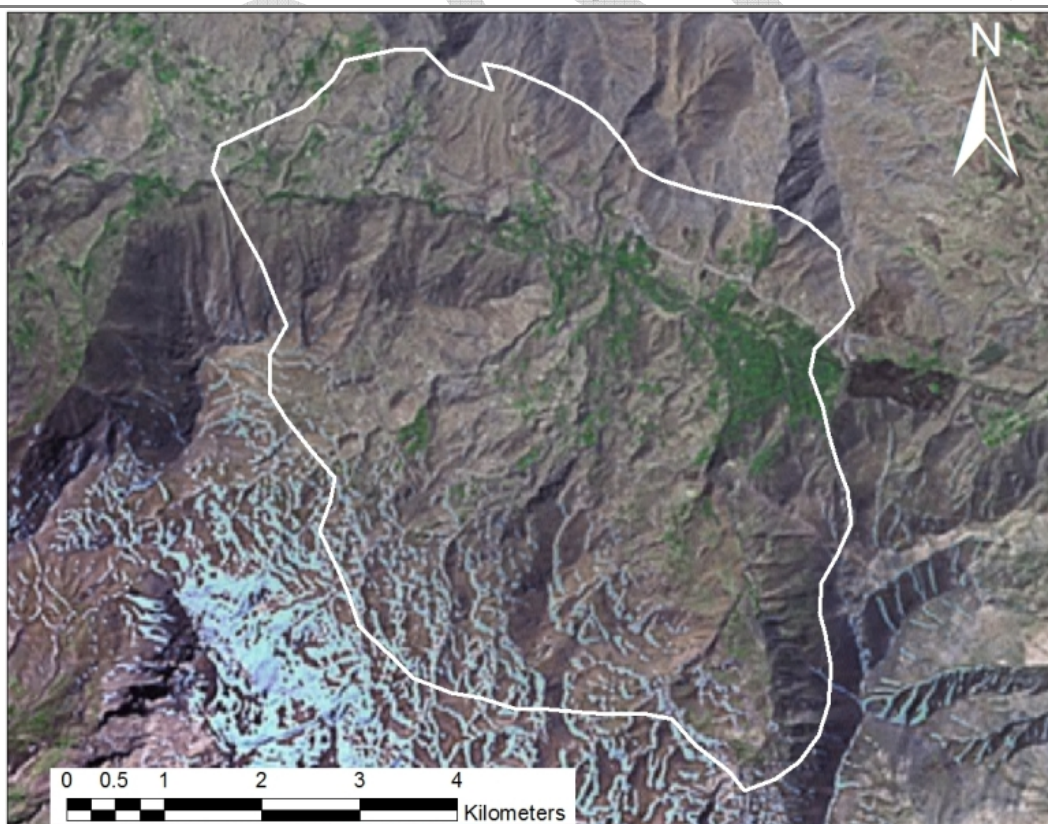
Sakran Mountain is a key site in terms of plant diversity in Iraqi Kurdistan. A wide range of endemic species contribute to the site's importance, such as *Pisum formosum*, *Thymus syriacus* (Davis, Flora of Turkey, 1982, p. 361), *Paronychia kurdica*, *Tulipa kurdica*, *Onosma albo-roseum*, and *Scorzonera bulbipes*. Another factor is the

Nature Iraq & Iraqi Ministry of Environment Report

existence of rare species such as *Aristolochia paecilantha*, in addition to three native species of oak: *Quercus aegilops*, *Q. infectoria* and *Q. libani*. Sakran Mountain is additionally one of the richest areas of flora in Iraq.

Conservation Issues & Recommendations: The moderately disturbed ecological condition of this site, combined with the growth of many rare and endemic plants, make this site a potential candidate for protective status (local governmental efforts have already been made to make this area a national or regional park). The most critical threats to this area are the prevalent mine fields, which are yet to be removed and remain a danger to human and wildlife in the region. Nature Iraq strongly recommends the removal of all mines from the site and to designate it a protected area. Should the region be converted to a park, a more comprehensive survey should be conducted in order to thoroughly document the biological characteristics of the area. An environmental management scheme should also be developed for the future, with the involvement of local stakeholders.

Haji Omran Mountain	E1
Summer Observations: 9 May 2010	
Admin Area: Erbil	IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 36 40 1 E 45 3 0.0	Unprotected area
Area: 3310 ha	
Altitude: 1300-1900m	
Directional information: This site is located on the Iran-Iraq border 103 km northeast of Erbil city	



Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This area is characterized by hills, streams and meadows. It is surrounded by a number of mountains, including Mt. Sakran to the south, Mt. Halgurd to the west and Mt. Gardamn to the north. High levels of plant diversity make this site extremely important area for plantlife in Iraq. The villages of Shiwa Rash, Mawatan, Zinwe and Megula are located at the site. Haji Omran, one of the main border crossings between Iraq and Iran, is also near this site.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Oenanthe melanoleuca</i> <i>Emberiza melanocephala</i>		8 -Probable 10 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Ornithogalum iraqense</i> (endemic) and <i>Iris barnumae</i> (locally rare)	75 species of plants were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include livestock production/grazing, agriculture and tourism. Large numbers of land mines are still found around the mountain's summit.	

Birds: Summer total count: 144. Summer species number: 25.

Mammals: Local residents reported the presense of the following animals at the site: Brown hares *Lepus capensis*, Brown bears *Ursus arctos*, Grey wolves *Canis lupus*, Red foxes *Vulpes vulpes* and the Eurasian otter *Lutra lutra*.

Plants: One waypoint was visited at this site - Waypoint 320 (N: 36.65816 E: 45.03986), a sub-alpine, thorn cushion habitat.

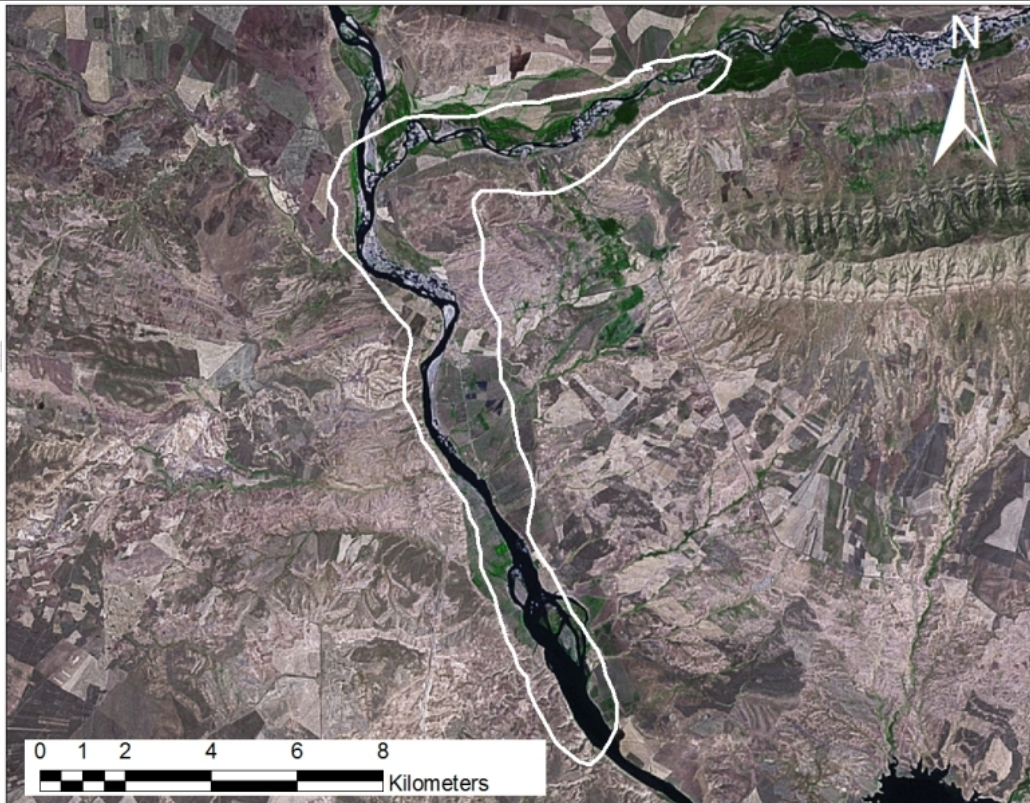
Waypoint 320: As the site is a sub alpine area there is no tree growth at this site. The dominant plants were shrubs and herbs. The dominant shrub species was *Prunus microcarpa* and the dominant species of herb *Geranium tuberosum*. The ecological scale was 3. The area was steep (27-45°), the exposure to the east (68-112°) and the elevation 1893m. The geology of the area was igneous (volcanic) and the soil type was serpentine. 25% of the area was non-vegetated. A total of 90 plant species were identified at this waypoint.

Nature Iraq & Iraqi Ministry of Environment Report

This site is a key site for plant diversity in Kurdistan, as evidenced by its high number of plant species. Four significant plants species are found here: *Scorzonera bulbipes*, *Tulipa kurdica* (endemics), *Hyoscyamus reticulatus* (rare) and *Iris barnumae* (endemic and rare).

Conservation Issues & Recommendations: Grazing, intensification of agricultural activity, new settlements and road construction all impact on this area, in addition to the remaining presence of several uncleared mine fields. A proper land management scheme is required for this area.

Fishkhaboor	D11
Winter observations: 1 Feb 2010	
Admin Area: Dohuk	IBA Criteria: A3
Coordinates: N 37 6 43 E 42 22 60	Unprotected area
Area: 4179 ha	
Altitude: 348m	
Directional information: This site located on the Tigris and Khaboor Rivers along a corridor between the Iraq-Syria border, leading to the Iraq-Turkey border. It is northwest of Dohuk City and includes the region where the two rivers join.	



Nature Iraq & Iraqi Ministry of Environment Report



Site Description: The site is surrounded by foothills and lowlands, narrow riparian strips and contains several gravel mines throughout the area. There is a pontoon bridge, in addition to a newly-constructed bridge, across the river connecting to the Syrian border. Fishkhaboor represents the only Iraqi segment of the Eastern Mediterranean ecoregion. Human disturbance constitutes the main threat to the environment of this site.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i>	2	
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
C. Threatened habitats	Eastern Mediterranean conifer-sclerophyllous-broadleaf forests - Critical	This site is located in a critically threatened ecoregion. A plant survey was not conducted in 2010 and there is currently insufficient data to make a full assessment.	

Birds: Winter total count: 9160. Winter species number: 32.

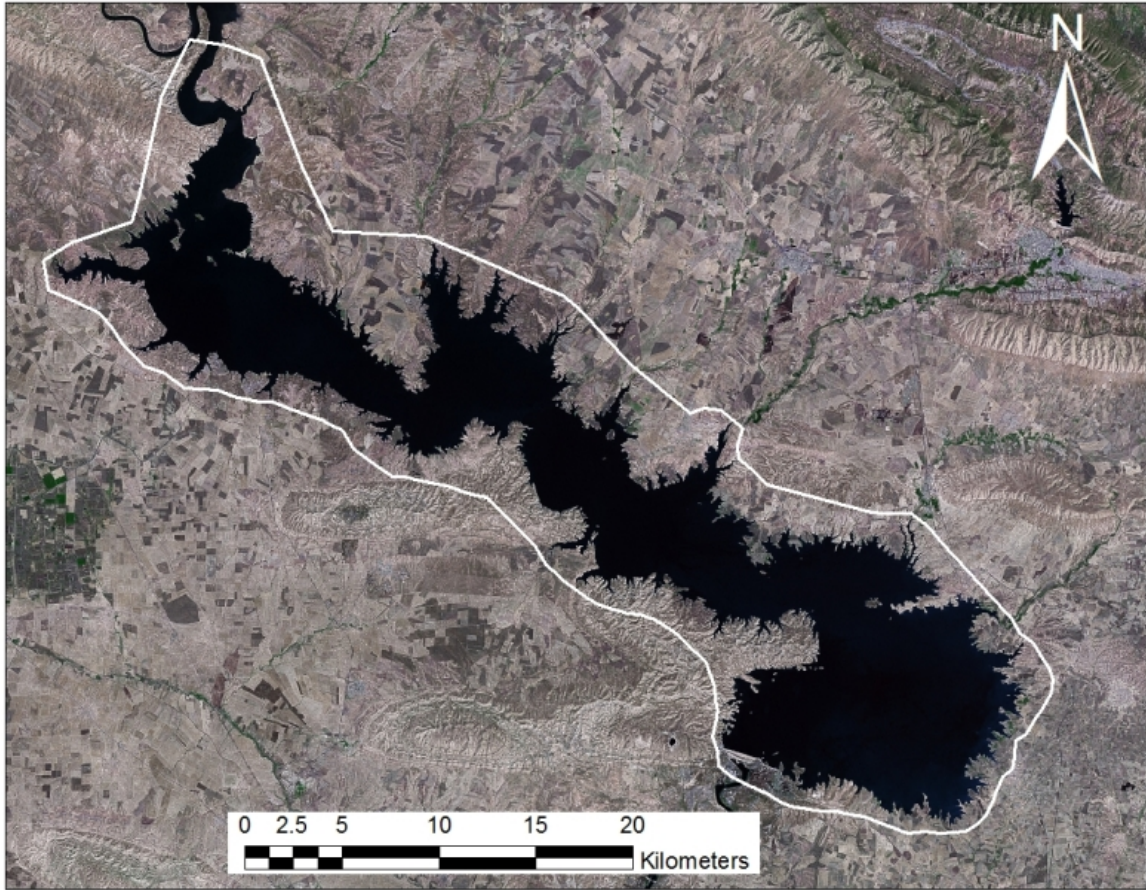
Mammals: Observation of otter *Lutra lutra* tracks along the shore. Grey wolf *Canis lupus*, Red fox *Vulpes vulpes*, and Golden jackals *Canis aureus* are most commonly seen at the site.

Conservation Issues & Recommendations: This site's ecological health is impacted by gravel mining, habitat disturbance, intensification of agricultural activity, garbage/littering, urbanization and remaining minefields close to the area. A proper land use management scheme is required.

Mosul Lake	D10
Winter observations: 2 Feb 2010; Summer observations: 16 May 2010	
Admin Area: Dohuk	IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C

Nature Iraq & Iraqi Ministry of Environment Report

Coordinates: N 36 44 28 E 42 47 10	Unprotected area
Area: 48128 ha	
Altitude: 310m	
Directional information: This area is located SW of Dohuk city.	



Site Description: This site is a large freshwater lake created by the Mosul Dam and located southwest of Dohuk city. There is little human activity other than gravel mining, wheat and barley agriculture and some net fishing. This site is accessed from the water station, which distributes the water from the lake to Dohuk City.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		1 -Passage migrant
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i> <i>Emberiza melanocephala</i>		2 -Probable 2 -Possible
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Silybum marianum</i> , <i>Notobasis syriaca</i> (endemics), and <i>Cicer bijugum</i> (locally rare)	28 plant species were identified at this site.	
C. Threatened habitats	Middle East steppe - Vulnerable	This site is located in a vulnerable ecoregion. Threats to this site include livestock production/grazing, agriculture and fishing.	

Birds: Winter total count: 4167. Winter species number: 25. Summer total count: 171. Summer species number: 24.

Plants: One waypoint was visited at this site - Waypoint 325 (N: 36 46 00.1 E: 42 45 05.3), which was in the steppe area on the east (Dohuk) side of the lake, containing agricultural fields.

Waypoint 325: The dominant plants were *Prosopis farcta* (shrub), *Sinapis arvensis*, *Carthamus oxyacantha* (herbs) and *taeniatherum asperum* (grass). The total number of plant species was 32.

The waypoint featured a gentle slope, eastern exposure, sedimentary geology and clay soil. The ecological scale was 4. The elevation was 327m and 50% of the area was non-vegetated.

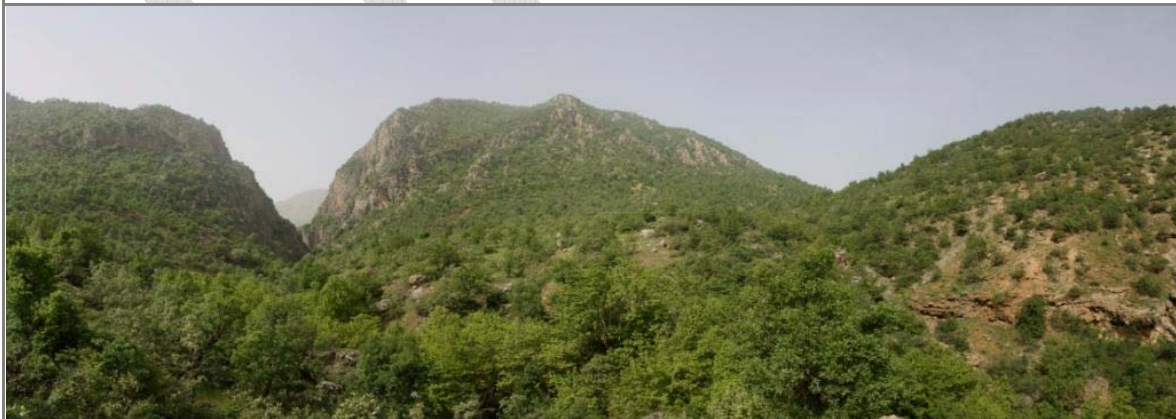
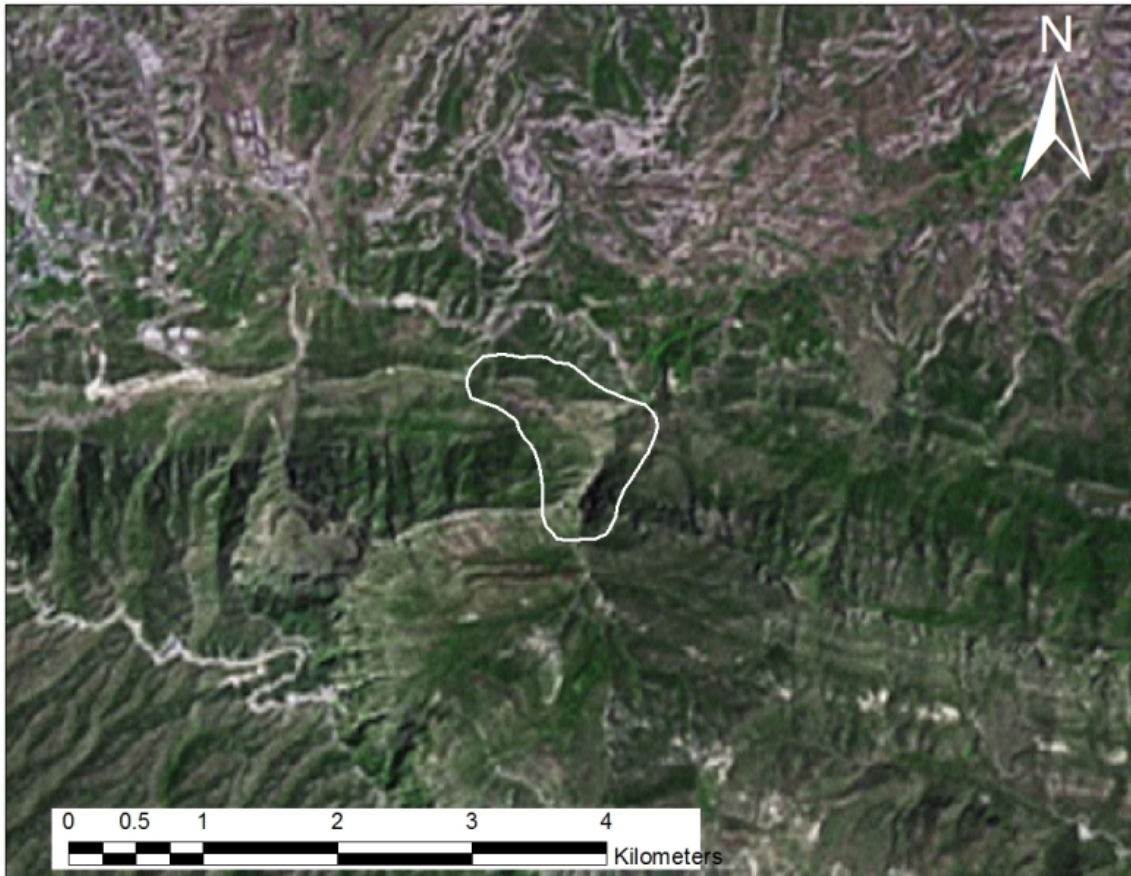
This site is not significant in terms of plant conservation, with the exception of 2 endemic species, *Notobasis syriaca* and *silybum marianum*; and one very rare plant: *Cicer bijugum*.

Conservation Issues & Recommendations: The principle environmental threats at this site were fishing, livestock production/grazing, mining, water pollution and agricultural activities. In addition to the above factors, human disturbance such as car and tractor movement made the vegetation coverage at this site poor. It is imperative that regulations regarding agriculture, grazing, fishing and boating in and around the lake be devised and implemented. Regulations may encompass fishing season periods, quotas and the enforcement of fishing moratoriums to ensure sustainability of the fisheries. Similarly, regulations could include limitations on agriculture and grazing in the surrounding areas and limit the use of agrochemicals. An overall ecological education campaign targeting lake users would assist in increasing people's awareness about this environment.

Garagu	D5
Summer observations: 12 May 2010	

Nature Iraq & Iraqi Ministry of Environment Report

Admin Area: Dohuk	IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 37 1 51 E 43 23 34	Unprotected area
Area: 107 ha	
Altitude: 1028m	
Directional information: This site is approximately 36 km northeast of Dohuk city	



Nature Iraq & Iraqi Ministry of Environment Report

Site Description: This site is located 36km northeast of Duhok city and is dominated by a gorge and mountainous rockbeds. A stream passes through the gorge along the Gara Range. The area is primarily covered by oak forest and a few species of *Platanus*. The villages of Garagu, Babire, Kani Balar, Kala Shikho and Warmel are nearby. It is a popular picnicking site for tourists.

Conservation Significance:

Important Areas Criteria	Bird	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species		<i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Emberiza melanocephala</i>		1 -Possible 1 -Possible 8 -Confirmed 4 -Probable
Important Area Criteria	Plant	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness		<i>Symphytum kurdicum</i> , <i>Pisum formosum</i> , <i>Cephalaria syriaca</i> , <i>Astragalus spinosus</i> , <i>Cephalanthera kurdica</i> (endemics), <i>Quercus macranthera</i> , <i>Linum velutinum</i> , <i>Briza minor</i> , <i>Asyneuma amplexicaule</i> spp. <i>Amplexicaule</i> (locally rare)	130 species of plant were identified at this site.	
C. Threatened habitats		Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include livestock production/grazing, agriculture and picnicking activities	

Birds: Summer total count: 117. Summer species number: 27.

Mammals: According to interviews conducted with local residents, Red foxes *Vulpes vulpes*, Brown hares *Lepus capensis*, Wild boars *Sus scrofa* and Brown bears *Ursus arctos* are known to inhabit this site.

Plants: One waypoint was visited within this site - Waypoint 321 (N: 37 01 52.8 E: 43 23 30.6), which was open, coppiced woodland.

Waypoint 321: A total of 150 plants species were identified. The dominant trees were *Quercus infectoria* and *Quercus aegilops*, the dominant shrub *Prunus microcarpa*, the dominant herbs were from the *Papilionaceae* family and the dominant grasses *Aegilops crassa*, *A. umbellulata* and *Bromus danthoniae*. The ecological scale was 4. The elevation was 1053m. The area was steep (27-45°) and the exposure to the east. The geology was sedimentary and the soil was clay. Approximately 15% of the area was non-vegetated.

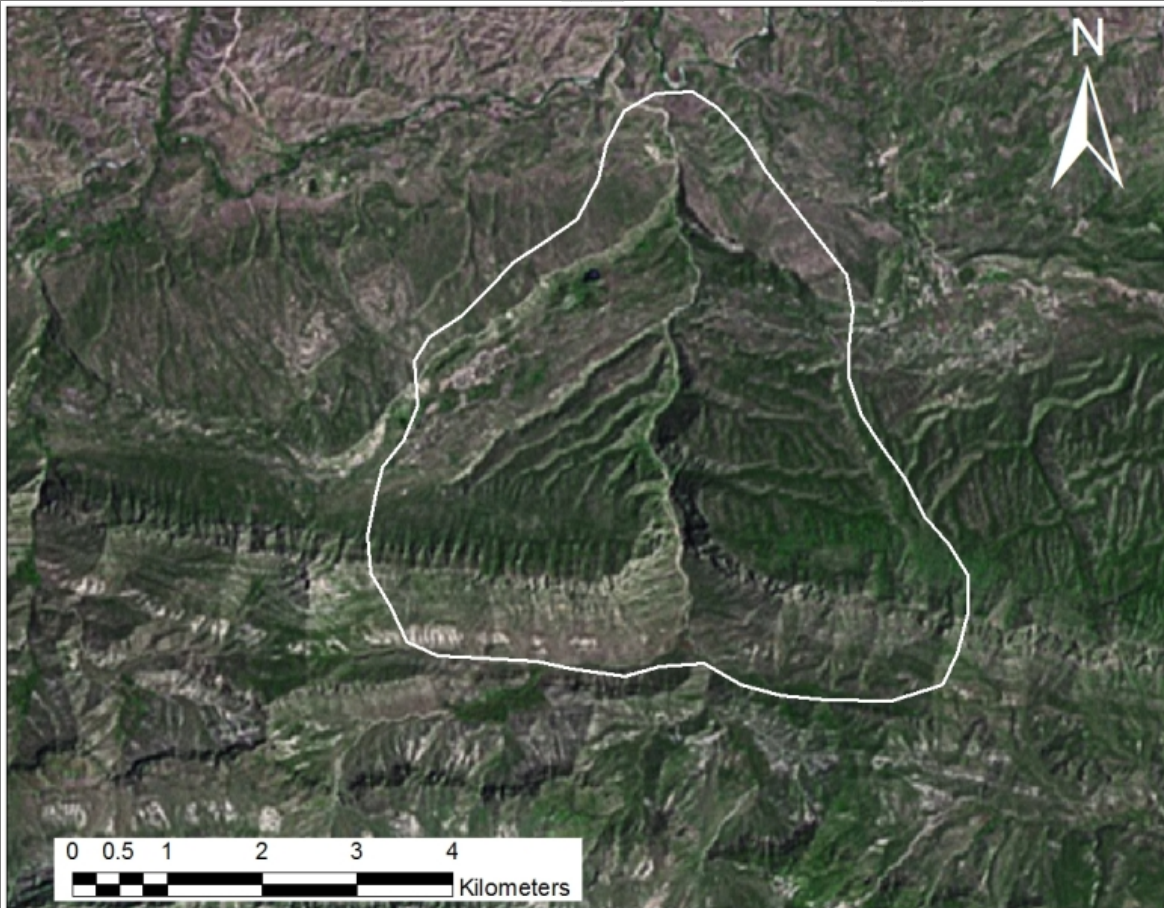
The ecological condition throughout the site was very disturbed, due to, amongst other factors, agricultural and grazing activities. Nevertheless a large number of important plants can be found at this site, many of them endemic: *Pisum formosum*, *Onosma albo-roseum*, *Cephalanthera kurdica*, *Scorzonera bulbipes* and *Astragalus spinosus*. Rare plants such as: *Linum velutinum* (Townsend, V4, p1, p281), *Briza minor* (Townsend, V9, p56), *Orchis anatolica*, *Asyneuma amplexicaule* spp. *Amplexicaule* were also observed. The native species of oak trees (*Quercus aegilops* and *Q. infectoria*) were also present.

Conservation Issues & Recommendations: Human activities have impacted the most on the area. Its proximity to Duhok allows many people to use the area for picnicking, which results in the accumulation of waste and potential sewage problems. Agricultural and grazing activities also constitute significant threats to

Nature Iraq & Iraqi Ministry of Environment Report

the natural habitat. It is thus recommended to promote environmental awareness in the area through an educational campaign aimed at both locals and tourists. Regulations limiting agriculture and grazing areas is also highly recommended.

Ser Amadia	D2A, IBA 003
Summer observations: 13 May 2010	
Admin Area: Dohuk	IBA Criteria: A1 and A3 IPA Criteria: Criteria B & C
Coordinates: N 37 2 34 E 43 32 3	Unprotected area
Area: 2582 ha	
Altitude: 900-1400m	
Directional information: The site is located just northwest of the town of Amadia and 20 km south of the Turkish border.	



Nature Iraq & Iraqi Ministry of Environment Report



Site Description: Ser Amadia is an east-west mountain ridge rising to 2,000m. The southern section of the Amadia valley rises to 1,450-1,550m, 3km west of Amadiya. The site includes rocky cliffs gorges to the south in the area of Sulaf and Geli-e-Mazurka. The treeline is at 1,650 m, with a grassy saddle appearing in the ridge at 1,850 m. The area to the north descends through thin scrub and shrubs to scrub *Quercus* and *Juniperus* forest with a rocky, grassy floor. Numerous streams and springs are situated here, most of which are for irrigating farmlands in the area.

Conservation Significance:

Important Areas Criteria	Bird	Scientific name	Wintering/migration data	Summer/ breeding data
A1. Globally threatened species		<i>Neophron percnopterus</i> <i>Falco naumanni</i>		1 -Possible 53 -Confirmed
A3. Biome-restricted species		<i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Oenanthe melanoleuca</i>		2 -Possible 1 -Possible 5 -Confirmed 17 -Confirmed 5 -Probable
Important Area Criteria	Plant	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness		<i>Symphytum kurdicum</i> , <i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Cephalaria syriaca</i> , <i>Thymus syriacus</i> , <i>Cephalanthera kurdica</i> (endemics), <i>Aristolochia paecilantha</i> , <i>Fibigia suffruticosa</i> , <i>Linum velutinum</i> , <i>Michauxia tobihatchewii</i> (locally rare).	143 plant species were identified at this site.	
C. Threatened habitats		Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion.	

Birds: Summer total count: 474. Summer species number: 39.

Mammals: Summer total count: 2. Summer Species number: 1. Mammals observed: Persian squirrel *Sciurus anomalus*. A resident stated that Persian fallow deer *Dama mesopotamica* had been observed around 4 years ago. Based on interviews and statements taken from residents, the presence of Persian fallow deer *Dama mesopotamica*, a globally endangered species, makes the site a significant area.

Nature Iraq & Iraqi Ministry of Environment Report

Plants: One waypoint was visited at this site - Waypoint 322 (N: 37.00793 E: 43.53652), which was characterized by woodland.

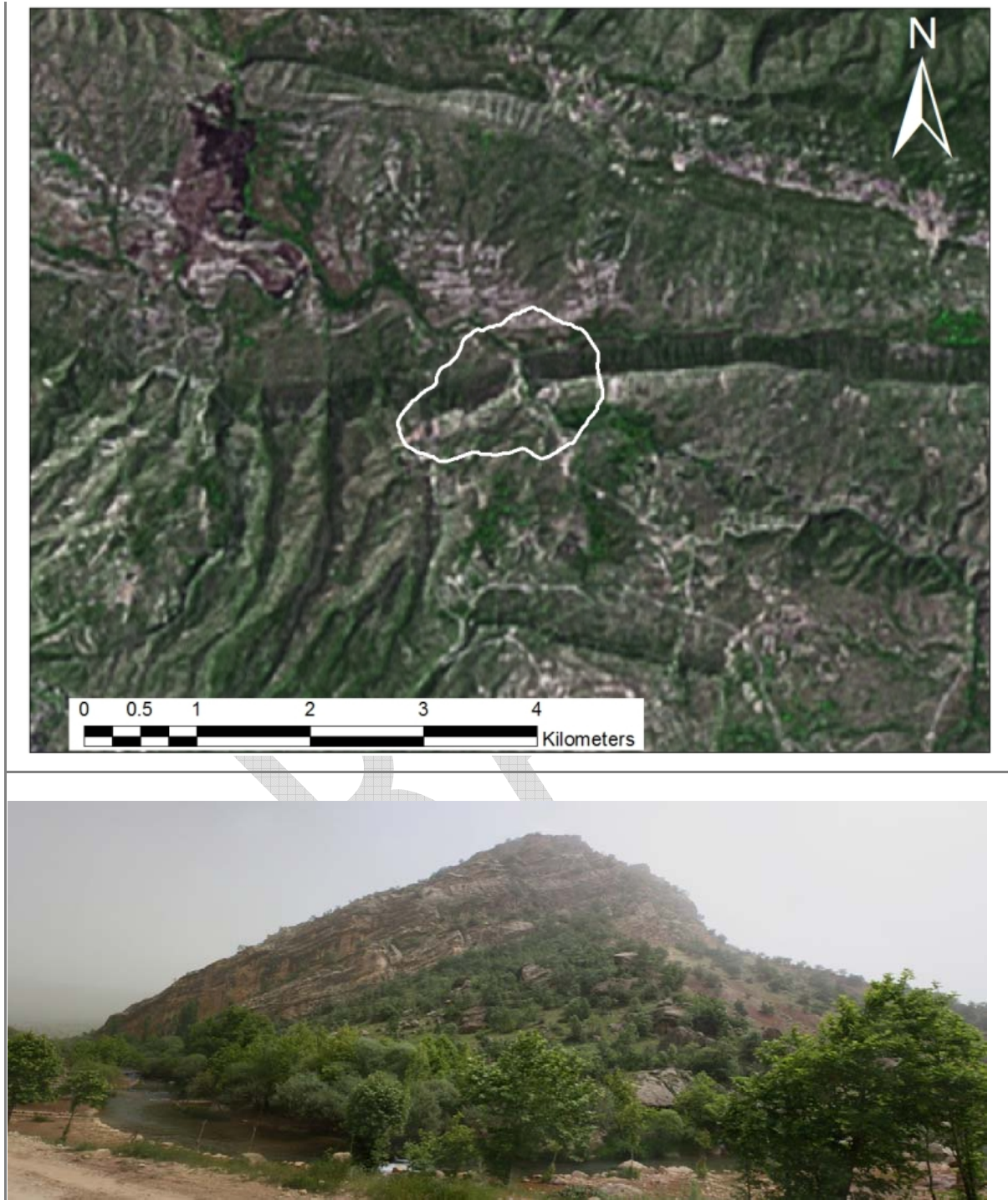
Waypoint 322: A total species number of 160 was counted. The ecological condition was 2 (slightly disturbed). The dominant tree was oak *Quercus aegilops*, the dominant shrub *Prunus microcarpa* and the dominant herb *Gladiolus italicus*. The habitat was characterized by woodland with a ground coverage of herbs and grasses. The elevation was 1046m, the slope steep (27-45°) and the exposure to the west (248-292°). The geology was sedimentary and the soil clay. 5% of the area was non-vegetated.

In addition to the good ecological condition (only slightly disturbed), Ser Amadia is a key site for plant diversity in Kurdistan. One of the many factors that make this site important is the presence of a large number of endemic species, such as *Thymus syriacus*, (Davis, Flora of Turkey, 1982, p. 361) *Cephalanthera kurdica*, *Pisum formosum*, *Symphytum kurdicum* and *Onosma albo-roseum*. Also present are a number of rare species, including *Michauxia tchibatchevii* (this plant was observed for the first time during KBA 2009), *Aristolochia paecilantha* and *Linum velutinumas*, and two native species of oak, *Quercus aegilops* and *Q. libani*.

Conservation Issues & Recommendations: The major threats to the ecology of this site are livestock production/grazing, tourism, water pollution, road construction and agricultural activities. Many important plants (endemics, rare and native) exist in this area, giving it a special significance as eligibility for protected area status. It is recommended that an educational campaign be launched to raise environmental awareness amongst locals and tourists. It is also imperative that regulations be established to control the development and extent of tourism, agriculture and grazing activities at this site.

Chamanke	D18
Summer observations: 14 May 2010	
Admin Area: Dohuk	IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 36 55 30, E 43 26 38	Unprotected area
Area: 166 ha	
Altitude: 900-1000m	
Directional information: This are located 34 km northeast of Dohuk city.	

Nature Iraq & Iraqi Ministry of Environment Report



Site Description: This is a mountainous area, featuring valleys and farmlands. The site also features Gara Mountain, which is dominated by *Quercus* sp. forest. The Mani Maze Stream is used by residents for bottling water for the nearby villages of Meze, Baramuinke, Kharinke and Bebad Islam. It is also a popular tourist destination for residents of nearby Dohuk city.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Poecile lugubris</i> <i>Sylvia mystacea</i> <i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Gymnoris xanthocollis</i> <i>Emberiza melanocephala</i>		1 -Possible 2 -Possible 2 -Confirmed 7 -Confirmed 2 -Probable 4 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Onosma albo-roseum</i> , <i>Cephalaria syriaca</i> (endemics)	112 species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. Threats to this site include picnicking activities and garbage/littering.	

Birds: Summer total count: 95. Summer species number: 31. A conservation concern species seen at the site was the vulnerable (VU) species *Falco naumanni* (18 – Summer, confirmed breeder).

Plants: One waypoint was visited in this location - Waypoint 323 (N: 36.92508 E: 43.44390), which was woodland.

Waypoint 323: Over 127 species of plant were identified at this waypoint. The dominant trees were *Pinus halepensis* and *Quercus aegilops*, the dominant shrub *Prunus microcarpa*, the dominant herb *Hypericum triquetrifolium* and the dominant grass *Hordeum sp.* The ecological scale was 4. The elevation was 1005m, the slope somewhat steep (15-26°) and the exposure was to the west (248-292°). The geology and soil type were sedimentary and clay respectively. 25% of the area was non-vegetated areas.

There are many important plants at this site. Endemic species include *Pisum formosum* and *Onosma albo-roseum* and rare species such as *Linum velutinum* and *Ophrys bornmuelleri*. There are also native species of oak trees (*Quercus aegilops* and *Quercus libani*).

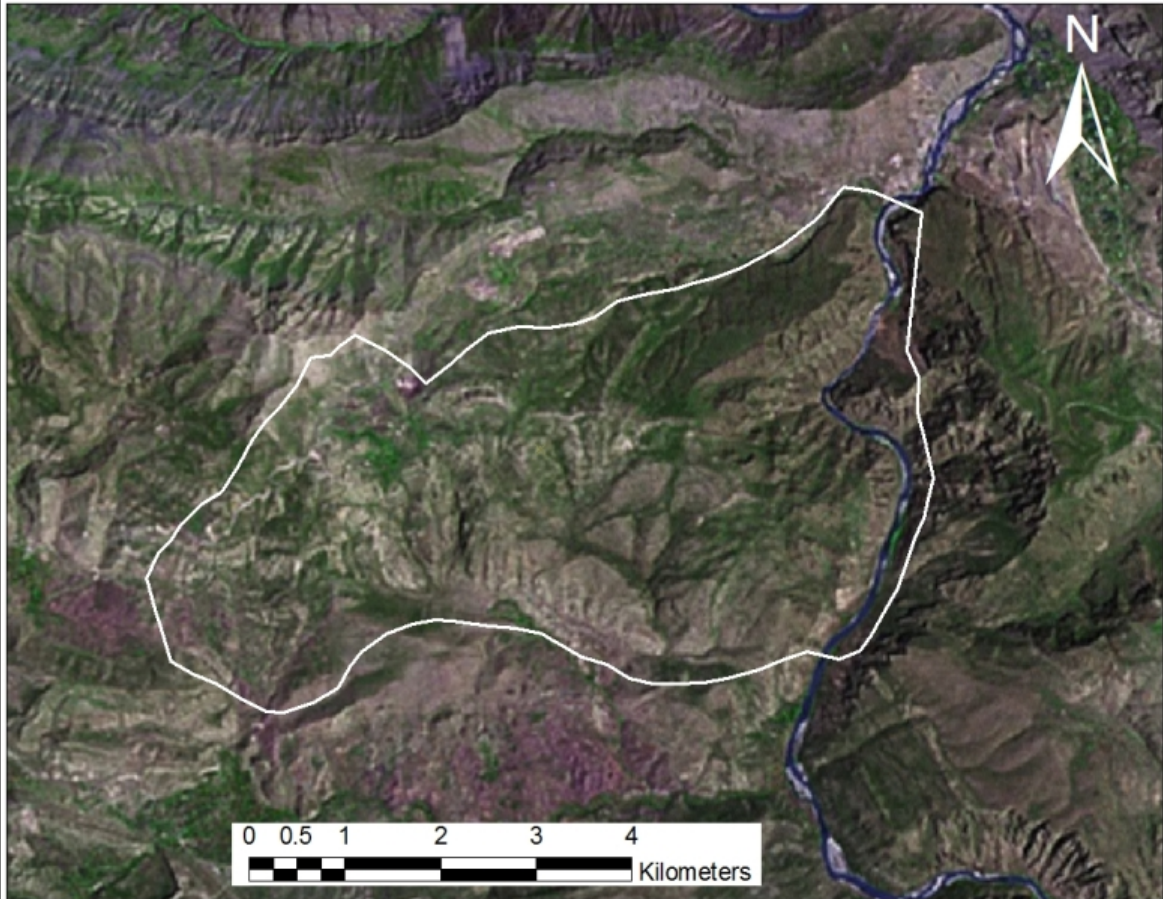
Conservation Issues & Recommendations: Intensification of tourism and agricultural activities have affected the area. It is strongly recommended that recycling units be installed at this site, in addition to signs that can draw locals' and visitors' attention to keeping the environment and water clean in the region. The removal of the minefields in this area is also strongly recommended.

Dure	D16, IBA002
Summer observations: 15 May 2010	
Admin Area: Dohuk	IBA Criteria: A3 IPA Criteria: Criteria B & C
Coordinates: N 37 13 45 E 43 28 46	Unprotected area
Area: 2732 ha	

Nature Iraq & Iraqi Ministry of Environment Report

Altitude: 1000-1543m

Directional information: This site located to the northeast of Dohuk city near the Turkish border, close to the village of Dure.



Nature Iraq & Iraqi Ministry of Environment Report

Site Description: This site was called “Dori Serguza” in Evan (1994). It is an open area of valleys, springs, agricultural fields and open woodland. The Sari Darishk, Sari Zer and Shirani Mountains form a chain close to the site. The villages of Sarzeri, Duskan and Barbuire and an old church are also located in this area. The woodland is dominated by *Quercus*, *Junipers* and *Pinus* trees. The slopes are rocky, with grass and isolated *Quercus* scrub.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/migration data	Summer/breeding data
A3. Biome-restricted species	<i>Sitta neumayer</i> <i>Sitta tephronota</i> <i>Emberiza melanocephala</i>		2 -Confirmed 6 -Confirmed 6 -Probable
Important Plant Area Criteria	List scientific name or eco-region type as appropriate	Notes (state evidence)	
B. Botanical richness	<i>Pisum formosum</i> , <i>Cephalaria syriaca</i> , <i>Paronychia kurdica</i> (endemics), <i>Quercus macranthera</i> , <i>Dianthus asperula</i> , and <i>Gladiolus kotschyanus</i> (locally rare)	108 species were identified at this site.	
C. Threatened habitats	Zagros Mountains Forest Steppe - Critical	This site is located in a critically threatened ecoregion. The site is also threatened by the presence of land mines.	

Birds: Summer total count: 130. Summer species number: 28. The vulnerable (VU) species *Falco naumanni* (2 - probable breeding) was seen at the site in summer.

Mammals: Locals reported the presence of: Wild goats *Capra aegagrus*, Brown bears *Ursus arctos* (which, according to Border Police officers, were sighted 3 days prior to the interview survey), Grey wolves *Canis lupus*, Wild boars *Sus scrofa*, Persian squirrels *Sciurus anomalus* (black-colored variety) and Striped hyena *Hyaena hyaena*.

Plants: One waypoint was visited in the site - Waypoint 324 (N: 37 14 08.9 E: 43 30 40.2), which was an open woodland interspersed with grasses and herbs.

Waypoint 324: Over 120 plant species were observed at this waypoint. The dominant tree was *Quercus aegilops*, the dominant shrub *Crataegus azorolus*, the dominant grass *Hordeum bulbosum* and the dominant herb *Cardaria draba*. The elevation was 1557m. 5% of the area was non-vegetated.

This waypoint was characterized by a moderate slope (6-14°), southern exposure (158-202°), sedimentary geology and clay soil. The ecological status was 3 (moderately disturbed).

There are many important plants at this site. Endemic species include *Paronychia kurdica*, *Pisum formosum* and *Lathyrus boissieri*, and rare species such as *Quercus macranthera*, *Michauxia tchibatchewii* (which has never been sighted in previous surveys), *Gladiolus kotschyanus*, *Orchis laxiflora* (also has never been seen in the previous surveys) and *Linum velutinum*. There are also native species of oak trees (*Quercus aegilops* and *Quercus infectoria*).

Conservation Issues & Recommendations: The ecological condition at this site was moderately disturbed, rendering the area vital for plants as it represents an important habitat for many endemic and rare species. It is recommended that this site be designated a protected area and that a set of regulations be devised and implemented to lessen the impact of grazing, agriculture and tourism on the region. An

Nature Iraq & Iraqi Ministry of Environment Report

educational campaign aimed at raising environmental awareness amongst locals and tourists would aid in the site's protection.

DRAFT

Central Iraq Site Review

This section describes each site visited within central and western Iraq during the 2010 Key Biodiversity Areas survey. It details fauna and flora observations at these sites and waypoints with particular focus given to species and habitats of conservation significance in accordance with KBA/IBA/IPA Criteria. Additional information on mammals at some sites is also included when available as well as information on other fauna either seen “anecdotally” or reported at the sites. Conservation issues and recommendations that are site specific are also provided.

Habbaniya Lake

AN1, IBA 016

Winter observations: 28 Dec 2009; Summer observations: 26 of May 2009

Admin Area: Anbar

IBA Criteria: A1, A3

Coordinates: N33 11 48, E43 27 38

Area: 45390 ha

Unprotected Area

Altitude: 35m

Directional information: Main highways to sites from Baghdad are Baghdad – Falluja – Habbaniya





Site Description: Habbaniya Lake is located southeast of Ramadi, the capital city of Al Anbar Governorate, and west of Baghdad. Habbaniya represents one of the largest water reservoirs in Iraq, receiving excess floodwaters from the Euphrates in the summer through a small canal near Ramadi called Sin Al Dhuban. The canal passes through Al Saglawiya and the calcareous Al Guss hill, which separates the canal from Habbaniya. The excess flood water drains out the southern edge of the lake through a narrow water canal called Al Majarah Canal, which drains the excess floodwater to Bahar Al Milih and the northern part of Razaza Lake in Karbala governorate.

The main habitat of the site is an inland wetland, including Al Habbaniya Lake and its wide, muddy shoreline with a small elevation gain near the southern edge of the lake, surrounded by semi-desert and arid flat areas forming the eastern and southwestern front of the lake featuring with xeric and halophilic desert vegetation. The shore is widely exposed during the winter time when the water levels are reduced to their minimum levels. A few wetland habitats with submerged aquatic vegetation were observed near the Al Majarah water regulation canal, including a limited number of reed beds. The Habbaniyah tourism village is one of the most significant landmarks in the Habbaniya site, located on the southeast edge of the lake (southeast of Ramadi and southwest of Falluja). This habitat features terrestrial vegetation and eucalyptus trees spread out across a wide area, as well as some dense shrubs and thickets.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i>	60 (2009)	
A3. Biome-restricted species	<i>Vanellus leucurus</i>	1 (2010)	4 pair (resident)(2010)
	<i>Alaemon alaudipes</i>	7 (2010)	2 individuals (resident, probable) (2007)
	<i>Ammomanes deserti</i>	4 (2010)	2 individuals (probable) (2010)
	<i>Eremophila bilopha</i>		1 individual (2010)
	<i>Pycnonotus leucogenys</i>	4 (2010)	
	<i>Oenanthe deserti</i>	4 (2009)	

Birds: There were 6036 birds, 49 sp seen in winter. 433 birds, 47 sp seen in summer. The following conservation concern species were noted at the site in winter: *Larus armenicus/michabellis*, *Larus genei*, *Phalacrocorax pygmaeus*, *Hydroprogne [Sterna] caspia*, and *Oenanthe finschii*. The following conservation concern species were noted at the site in summer: *Larus armenicus/michabellis*, *Larus genei*, *Phalacrocorax pygmaeus*, *Vanellus (Hoplopterus) spinosus*, and *Corvus capellanus* (END-race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: None observed during the survey.
- B. Vertebrates: *Reptiles:* Spiny-tailed Lizard *Uromastix aegyptia*, Hoodless Cobra *Walterinnesia aegyptia* and Tessellated Water Snake *Natrix tessellata*; *Amphibians:* Green Toad *Bufo viridis* and Common Frog *Rana ridibunda*.

Nature Iraq & Iraqi Ministry of Environment Report

C. Flora: *Phragmites*, *Typha*, *Achillea*, *Artemisia*, *Acacia* and *Albagi* species are the most widely distributed plant species.

Conservation Issues & Recommendations: During the winter survey it appeared that water shortages are causing an increase of salinity levels. Water stagnation and quality appears also to be an issue in some parts of the lake, so increasing water flow may be important. The Habbaniya tourism village is considered to be the main human factor that impacts on the environment of the site. Summer sees the highest number of visitors and the most serious impact to the site, with large quantities of waste such as cans, plastic containers and bags left behind, which spread rapidly throughout the site, carried by water currents to the lake edges. Several villages on the southern and eastern edges of the lake deposit sewage and other waste into the lake, and a small amount of construction has taken place in the surrounding area. Habbaniya is also used by the military as an air force base. The arid land serves as an airfield for frequent training flights, resulting in widespread noise pollution and a variety of other environmental impacts sufficient to agitate and harm both resident and migrant species.

Water quality studies are essential to understand and determine Habbaniya Lake's viability for supporting both human and animal life. Supplementation of bird data with a focus on non-avian species and populations in the next survey is highly recommended. Future surveyers should also bear in mind the extensive security co-ordination required with civilian and military authorities to access the site.

Threats at the site include: Agricultural expansion and intensification (low-level threat in winter, medium-level threat in summer); over-exploitation, persecution and control (medium-level threat in summer); human activity and disturbance (medium) and pollution (medium in winter - oil spill in one location).

Haditha Wetland & Wahat Al Baghdadi

AN2

Winter observations: 8/1/2010; Summer observations: 27/4/2010

Admin Area: Anbar

IBA Criteria: A2

Coordinates: N33 51 50, E42 31 30

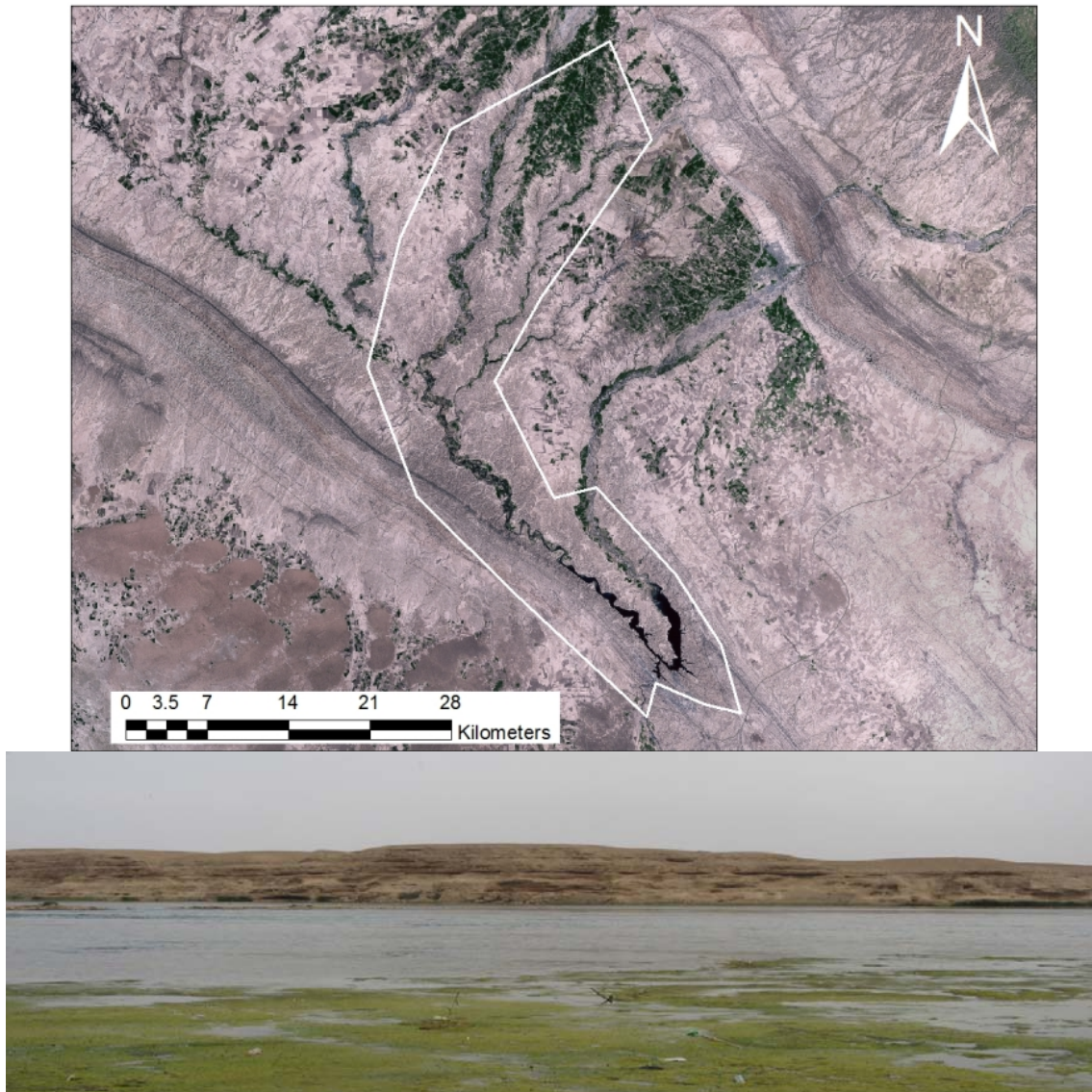
Unprotected Area

Area: 45594 ha

Altitude: 65m

Directional information: From Baghdad : Baghdad – Abu Ghraib – Ramadi – Hit – Baghdadi □

From Ramadi : Ramadi – Hit – Baghdadi



Site Description: The site is situated northwest of Ramadi and Baghdad, located on the main highway leading to Iraq's western border with Syria, Jordan and Saudi Arabia and north towards Mosul. The site encompasses both banks of the Euphrates River in Baghdadi town. It is characterized by dense orchards of date palms on either side of the river, in addition to citrus trees and other fruits. The shores of the Euphrates are grassy and muddy as the river flows towards Ramadi, with occasional rocks rising out of the river in the middle. These are considered an elevated extension of the river matrix, and one of the main rookeries to the resident and migrant waterbirds who reside at the site. There are also a small number of assemblages of submerged vegetation along the riverbank and dense reed beds and marsh habitats, although these are not widely distributed.

A second habitat extending alongside the main highway varies considerably from the riverbank, characterized by desert and semi-arid sandy and open areas with rocky cliffs and scattered vegetation. Date farms and fruit orchards extend as far as the eye can see along the east bank of the Euphrates however, in dramatic contrast to the flat deserts. Northwest of the site and south of Haditha extends one of the most biologically important river valleys in Western Iraq, considered as such due to its unique habitat hosting one of the biggest fish spawnings during the spring months. Protecting the annual fish spawning grounds is a primary conservation issue in the valley of Al Haqlaniya. West of the site is Camp Al Asad, one of the largest Iraqi and American Coalition military bases in Anbar governorate, which regularly deploys troops and military vehicles as roadblocks and checkpoints in the surrounding area.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Vanellus leucurus</i>	3 (2010)	
	<i>Hypocolius ampelinus</i>		3 individuals (probable) (2009)
	<i>Tachybaptus ruficollis</i>	4 (2010)	
	<i>Turdoides altirostris</i>	7 (2010)	
	<i>Pycnonotus leucogenys</i>	6 (2010)	4 pair (resident) (2009-2010)
	<i>Turdoides altirostris</i>	7 (2010)	
	<i>Passer moabiticus</i>	38 (2010)	
	<i>Rhodospiza obsoletus</i>	2 (2010)	

Birds: There were 402 birds and 25 species were seen in summer and 1629 birds of 84 species seen in winter. The following conservation concern species were also observed at the site, though at levels that did not meet the criteria: *Marmaronetta angustirostris*, *Phalacrocorax pygmaeus*, *Larus armenicus/michabellis*, *Larus genei*, *Hydroprogne [Sterna] caspia*, *Aythya nyroca*, *Oenanthe finschii*, *Aquila heliaca*, *Vanellus (Hoplopterus) spinosus* and *Corvus capellanus* (END race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Wide variety of Mollusca and Arthropod species, aquatic and terrestrial insects such as Dragon Flies, Damsel Flies, May Flies, Water Striders, and aquatic Beetles. The presence of Arachnida family species and Scorpionss have been reported by local farmers, further scientific investigation is required to document the total invertebrate biodiversity of Haditha.
- B. Vertebrates: **Reptiles:** Caspian Terrapin, *Mauremys caspica caspica*; **Amphibians:** Many Green Toads (*Bufo viridis*) were observed and heard at the site; **Mammals:** Golden Jackal, *Canus arous* Common Red Fox *Vulpus vulpus*, Indian Crested Porcupine *Hystrix indica*.
- C. Flora: Mainly date-palm trees with other fruits planted beneath under, including pear, grape, Pomegranate, p and apricot. *Phragmites*, *Typha*, *Populus*, *Ziziphus*, *Astragalus*, *Rhanterium*, *Vitis* and *Morus* are the most widely distributed plant species along the river banks.

Conservation Issues & Recommendations: Baghdadadi's habitat is uniquely representative of Western Iraq, and as such is a strong candidate for a nature reserve. Although the Ministry of Environment and Ministry of Agriculture have taken steps towards this, several fundamental issues must first be resolved. Expanding human settlements in the area combined with extensive military activity both pose a threat to the area's environment. Overfishing and illegal hunting are issues of immediate environmental concern. More comprehensive environmental assessments concerning bird and animal populations and water quality are required to gain a complete understanding of the site's habitats. The strong military presence near the site warrants cooperation and communication with both civilian and military authorities to ensure impacts on the remaining natural habitats are minimized.

Anah and Rawa

AN3, IBA 006

Winter observations were made on 29/12/2010; Summer observations were made on 20 Apr 2010

Admin Area: Anbar

IBA Criteria: A1, A2, A3

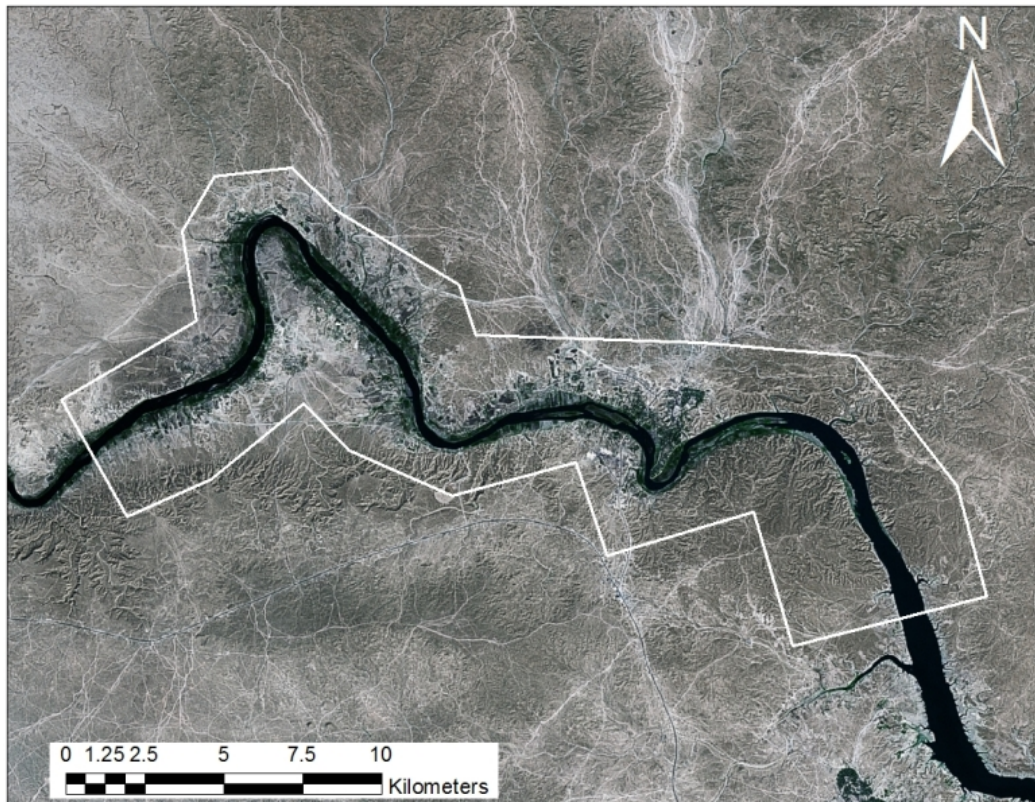
Coordinates: N34 22 37, E42 1 4

Unprotected Area

Area: 17961 ha

Altitude: 42 m

Directional information: From Bagdad : Baghdad – Abu Ghraib – Ramadi – Hit – Baghdad – Haditha – Anah – Rawa; From Ramadi : Ramadi – Hit – Baghdad – Haditha – Anah – Rawa



Site Description: This site is located northwest of Ramadi near the towns of Ana and Rawa, which are situated on opposite banks of the Euphrates River: Rawa on the east bank and Ana on the west, but still east of the main highway leading to Al-Qae'em Township near the Syrian border. The main habitat is an inland river, represented by the Euphrates Valley, surrounded by arid, semi-desert with exposed limestone cliffs. The western edge of the site near Ana features elevated cliffs declining gradually westward into arid steppes filled with halophytic vegetation. The water is shallow along the muddy riverbanks, which are covered in grassy vegetation and date palms, citrus and other fruit orchards. Small, flat islands rise sporadically from the water in the middle of the river, which are important roosting spots for many resident and migrant waders and shorebirds.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Breeding data
A1. Globally threatened species	<i>Acrocephalus griseldis</i>		1 individual (summer breeder) (2010)
A2. Restricted-range species	<i>Acrocephalus griseldis</i>		1 individual (summer breeder) (2010)

Nature Iraq & Iraqi Ministry of Environment Report

	<i>Turdoides altirostris</i>		2 pairs (resident)(probable)
A3. Biome-restricted species	<i>Acrocephalus griseldis</i>		1 individual (summer breeder) (2010)
	<i>Corvus ruficollis</i>		3 pairs (resident breeder) (2010)
	<i>Ammomanes deserti</i>		1 individual (resident)(2010)
	<i>Pycnonotus leucogenys</i>		2 pairs (resident)(2009-2010)
	<i>Turdoides altirostris</i>		2 pairs (resident) (2010)
	<i>Passer moabiticus</i>	41 (2010)	3 pairs (resident) (2010)
	<i>Ammomanes deserti</i>	5 (2010)	

Birds: There were 336 birds of 33 sp seen in winter and 246 birds of 50 sp seen in summer. The following conservation concern species were observed at the site but not in numbers that would meet the criteria: *Aquila heliaca*, *Phalacrocorax pygmaeus*, *Larus armenicus/michabellis*, *Larus genei*, *Oenanthe finschii*, *Vanellus (Hoplopterus) spinosus*, and *Corvus capellanus* (END race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Wide variety of Mollusca and Arthropods species, Arachnida family species and a few Cicadas (Homopteras) insects have been heard near the monitoring location.
- B. Vertebrates: *Reptiles: Laudakia nupta, Mauremys caspica caspica, Hemidactylus persicus*, and *Natrix tessellate*; *Amphibians: Green Toads Bufo viridis*; *Mammals: None observed site.during the survey*
- C. Flora: *Ziziphus, Astragalus, Albagi, Vitis* and *Morus* species are the most widely distributed plant species observed at the site. Many date palm trees with fruitother s beneathunder, such as fig, grape, pomegranate, and apricot.

Conservation Issues & Recommendations: humanH activities such as construction, overfishing, illegal hunting and grazing are the main environmental threats in this area. Numerous fisheries, harbors and boats have accumulated on the riverbanks, and it is urgent that an environmental action plan be devised & implemented at the site in order to assess possibilities for the sustainable usage of its local resources without harm to the biodiversity. Regular field monitoring programs for birds and other fauna is integral to achieving this. The main route leading to the site is heavily occupied by olice national p, Iraqi Army and Sahwat (local support councils in Western and Central Iraq) checkpoints, which monitor for and investigate suspicious activity in the region. Close co-ordination with military and civilian authorities is required to facilitate the survey team's access to the site and the use of survey equipment.

Nekheab district and Hussaniya Oases

AN4

No winter observations due to poor security; Summer observations: 24 April 2010

Admin Area: Anbar

IBA Criteria: A1, A3

Coordinates: N33 25 9, E41 1 17

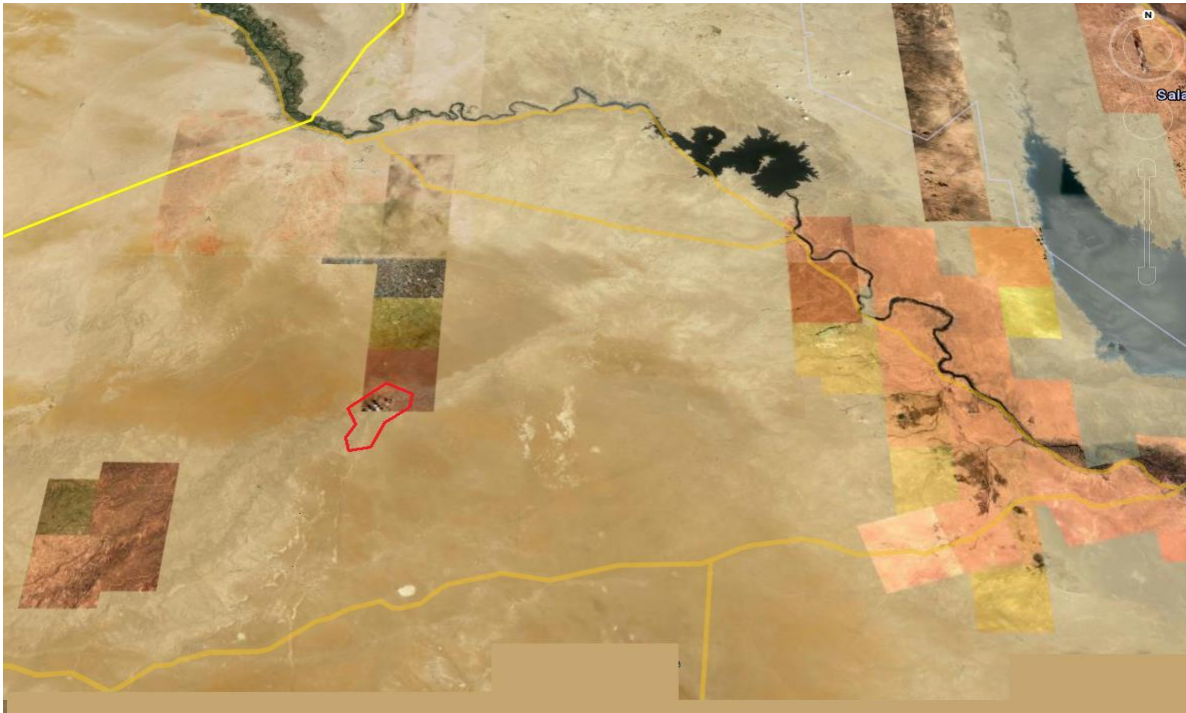
Area: unknown

Unprotected Area

Altitude: 453 m

Nature Iraq & Iraqi Ministry of Environment Report

Directional information: From Bagdad: Baghdad – Abu Ghraib– Ramadi – Hit – Kubeasa – Wadi Amij – Al Hussaniya oases; From Ramadi : Ramadi – Hit – Kubeasa – WadiAmij – Al Hussaniya oases.



Nekheab district and Hussaniya Oases (Google Earth, 2010)



Site Description: The site is situated in one of the main desert habitats in Western Iraq, located southwest of Ramadi in the Nekheab Desert, located between two large desert valleys. Wadi Horan, the larger of the two valleys, extends west towards Saudi Arabia and Wadi Amij, which extends to the northeast toward Kubeasa Township near Hit. The dominant habitats of this site are arid desert and semi-desert regions with halophytic vegetation and limestone hillsides with occasional cliff faces. These slopes are surrounded by a seasonal pool formed by excess flood water caught as runoff by the surrounding hills. The ancient highlands of Wadi Horan were formed by erosion in a previous geological age, and from a distance appear as a typical Iraqi desert ecosystem. Dry streambeds extend into the valley toward the survey site, forming water pathways during the spring and harboring grassy vegetation in the middle of the desert. They also provide good grazing areas and fresh grass for Bedouin camels. The tracks of large herds of camels and sheep with Bedouin shepherds were observed at the site. These herds traditionally roam the area in search of grazing areas and drinking water.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
-------------------------------	-----------------	---------------------------	-----------------------

Nature Iraq & Iraqi Ministry of Environment Report

A1. Globally threatened species	<i>Neophron percnopterus</i>		2 pairs (resident)(2009)
A3. Biome-restricted species	<i>Alaemon alaudipes</i>		4 pairs (resident)(Probable)
	<i>Corvus ruficollis</i>		2 pairs (resident)(2010)
	<i>Ammomanes deserti</i>	1 (2009)	2 pairs (resident)(2010)
	<i>Eremophila bilopha</i>		1 pair (resident)(2009)

Birds: There were 27 birds of 7 species since in summer. Two other conservation concern species were observed at the site include *Alaemon alaudipes* and *Oenanthe finschii*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Some species belonging to the Coleoptera insects order have were observed.
- B. Vertebrates: Reptiles: *Pseudocerastes persicus feldi*; Amphibians: None; observed Mammals: One humped Camelc or Dromedaryd (*Camelus dromedaries*), Domestic Goat (*Capra hircus*) and Fat-tailed sheep (*Ovis aries*).
- C. Flora: Mainly Desertd and semi-desert shrubs and vegetation, consisting largely of *Artemisia*, *Astragalus*, *Achillea*, *Acacia* and *Albagi* species.

Conservation Issues & Recommendations: No direct threat or environmental impacts were observed at this site. The site serves as an excellent natural water source for grazing camels and other cattle,domestic animals while the surrounding cliffs of Wadi Horam constitute a good breeding ground for resident raptor species, the latter which may be affected by large gatherings of caravans near the site to collect water and supplies for days at a time. As there is insufficient data to assess what impact this may have on biodiversity, more detailed field surveys of the site's animal populations are strongly recommended. The site is located deep in the western Anbar desert and is frequently patrolled by both the military and tribal groups. The site's distance from any human settlement with paved roads and numerous critical security concerns makes this one of the most dangerous KBA sites visited. As a consequence, close co-ordination with relevant authorities is vital for accessing and successful surveing of the area.

Augla

AN5, IBA 010

This site was not surveyed by the KBA team for the summer 2009 or winter and summer 2010 surveys in Anbar.

Admin Area: Anbar

Coordinates: N33 55, E41 2

Area: c. 500 ha

Altitude: unknown

Directional information:

Unprotected Area



Google Earth (2010) Image of Augla (AN5)

Site Description: This site is located southwest of Haditha (AN2) in the northwestern region of Iraq. Evans (1994) states that this site forms part of the limestone sand desert plateau of this area. The dominant habitat is composed of deep wadis (valleys) surrounded by shallow depressions that hold water from November to March and carry a rich vegetation. At least three water wells have been drilled at this site, and since c. 1960 part of the area has been cultivated with date and fruit orchards. Nomads also use this region for livestock grazing. Annual rainfall is 100-200mm, mainly in December –February.

Unfortunately this site was not visited for the KBA Survey Program for the following reasons:

- Lack of up-to-date information about the security status of the site or the roads used to access it.
- Difficulty in identifying what authorities are responsible for the area in order to contact them to arrange and coordinate field surveys.
- Lack of experienced guides and maps.
- Repeated warnings from locals that it was not safe to visit the site.

Gasr Muhaiwir

AN6, IBA 012

Winter observations: 31/12/2009; Summer observations: 25/4/2010

Admin Area: Anbar

IBA Criteria: A3

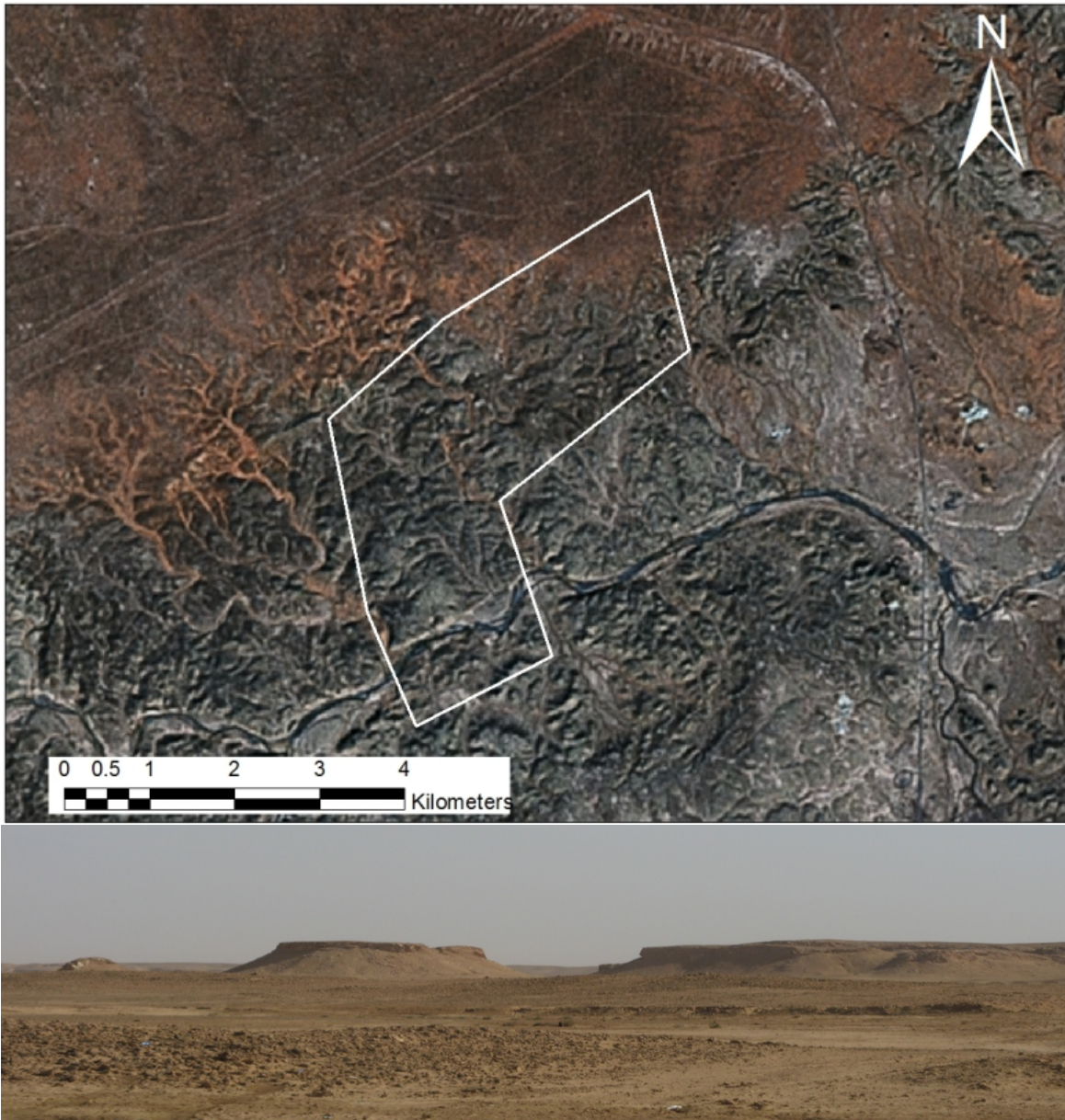
Coordinates: N 33 32, E 41 0

Unprotected Area

Area: 1268 ha

Altitude: 42 m

Directional information: From Baghdad : Baghdad – Abu Ghraib – Ramadi – Hit – Kubeasa – Wadi Amij – Gasr Muhaiwir; From Ramadi : Ramadi – Hit – Kubeasa – Wadi Amij – Gasr Muhaiwir



Site Description: Gasr Muhaiwir is an ancient site of biological and historical importance located in the Western Iraqi desert. It is known for the castle-like ruins, from which the site name is derived, located on the eastern edge of Wadi Horan, the site's main valley that leads towards Iraq's western deserts and the Euphrates River flood plain. The area was also used as a Western Iraq field base by British forces participating in the Arabian Revolution of 1916 against the Ottoman Empire, to provide shelter and supplies to engaged troops, and the tracks of the military caravans remain to the present day.

The site is dominated by desert and semi-desert steppes, with a variety of desert vegetation. In the distance, the rocky valleys and limestone slopes of the Wadi Horan can be clearly seen, a landmark used by Bedouins as a guidepost during desert navigation. Seasonal pools of ground and rainwater are scattered throughout the site, which are difficult to locate during the winter and as such are a popular resting point for migrant birds during their long journey. The extreme temperatures of this site limit the number of organisms it can harbor - while summer days are extremely hot, the temperature gradually drops at night to eventually reach freezing levels during the winter.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Corvus ruficollis</i>		3 pairs (resident)(2009)
	<i>Alaemon alaudipes</i>	9 (2010)	9 pairs (resident)(2009)
	<i>Ammomanes deserti</i> (3)	3 (2010)	3 individuals(resident) (2009-2010)
	<i>Ammomanes cinctura</i>		1 individual (resident)(2009)
	<i>Rhodospiza obsoletus</i> (1)	1 (2010)	1 individual (resident)(2010)

Birds: There were 53 birds of 9 species seen in winter and 11 birds of 8 species seen in summer. The following conservation concern species was noted at the site: *Oenanthe finschii*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Some species belonging to the Coleoptera insects order were observed at the site .The team's guide for the summer survey confirming the widespread presence of the desert Scorpion *Buthus buthus* of the Arachnida family.
- B. Vertebrates: *Amphibians*: None; observed *Mammals*: One humped Camel or Dromedary *Camelus dromedaries*, Domestic Goat *Capra hircus* and Fat-tailed sheep *Ovis aries* were seen in winter. None observed during the summer. survey
- C. Flora: Mainly desert and semi-desert shrubs and vegetation, consisting mainly of *Artemisia*, *Astragalus*, *Achillea*, *Acacia* and *Albagi* species.

Conservation Issues & Recommendations: No serious threats were identified at this site. The site has seen very little human activity in recent decades and appears to retain its original ecology, which can be considered a unique specimen of desert habitat. The KBA summer 2009 survey conducted on 19 May 2009 was considered the first field visit to this IBA since the 1980s, with this report constituting the first up-to-date written documentation on the site's biological status. The site is located near the Wahat Al Hussaniyah site, (AN4) which shares a similar habitat and security issues, concerns thus the same conservation issues and recommendations regarding site AN4 should be applied to this site as well.

Qadissiya or Haditha Dam

AN7

Winter observations: 27/12/2009; Summer observations: 21/4/2010

Admin Area: Anbar

IBA Criteria: A1, A3

Coordinates: N 34 20, E 42 03

Area: 145230 ha

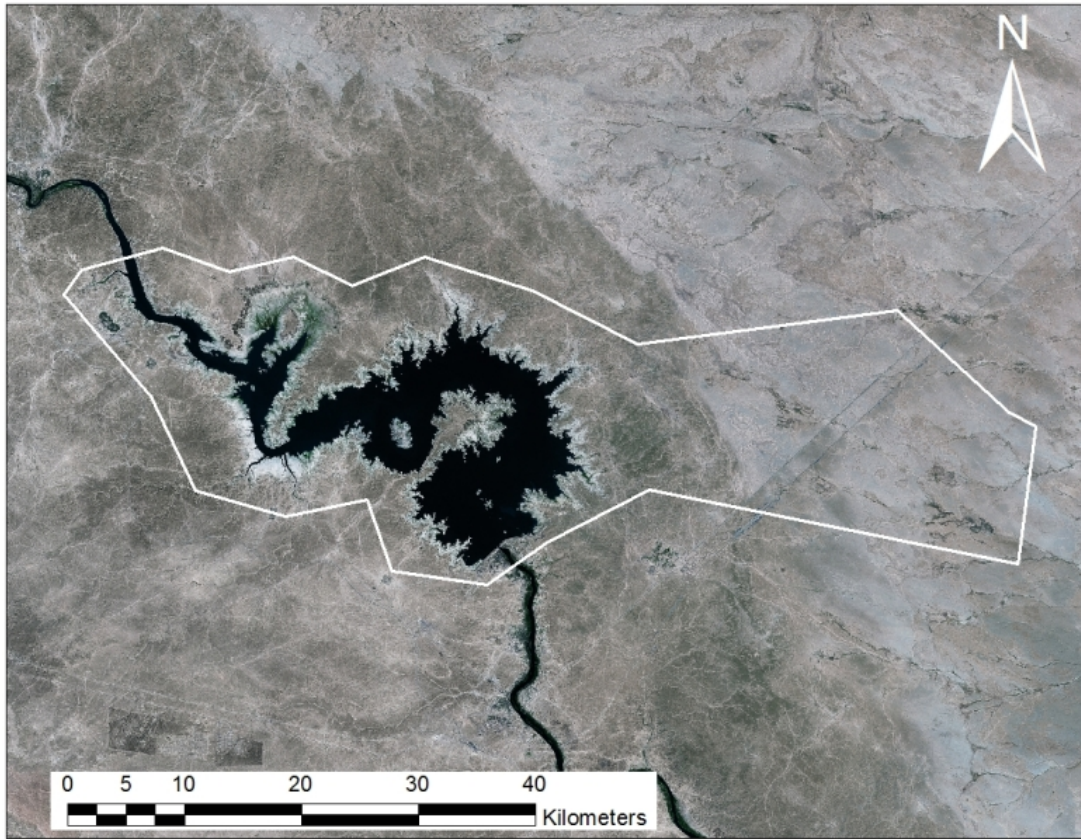
Unprotected Area

Altitude: 18m

Directional information: From Bagdad: Bagdad – Abu Ghraib – Ramadi – Hit– Baghdadi - Haditha – The Dam; From Ramadi: Ramadi – Hit – Baghdadi - Haditha – The Dam

Qadissiya or Haditha Dam

AN7



Site Description: Qadissiya or Haditha Dam is one of the most important strategic industrial facilities in Northwest Iraq, located on the Wadi Haditha in the Euphrates Valley. The towns of Anah and Rawa lie to the northwest and Haditha to the southeast, following the river towards Ramadi. The dam has been functioning since the 1980s, providing andes electricity to Iraq’s western regions. Unfavorable weather (conditions of strong wind and heavy dust) prevented the team from reaching the lake (reservoir) during the winter survey and an alternative area just south of the dam (N34 11 15.9, E42 22 47.7) was selected. The vast majority of birds observed were made on the lake. The site remains tightly protected by the army, who did not allow the team to bird watch around the dam area. Moreover, other parts of the lake that are not secured by the army are difficult to access due to the poor security condition.

The summer team was able to survey m of the lake. The lake freshwater was formed by the construction of the dam, and is an extension of the Euphrates River floodplain and, according to dam officials, measures 155 km in length and 4 km in width, gradually shrinking to a width of 17 m at the western input-end of the lake. The inland wetland habitat created by this artificial lake features a muddy shore mixed with sand and gravel and lined with date-palm trees, which are more common in

Nature Iraq & Iraqi Ministry of Environment Report

the downstream area. Haditha Lake is smaller by comparison to other bodies of water in Western Iraq, such as Tharthar Lake and Habbaniya. The lakeshore holds some pockets of fresh grass and vegetation, which are the best spots for waders and shorebirds to dwell, while several gravel islands also appear near the eastern lakeshore. The habitat downstream is characterized by a moderately wide river (30-40 m) downstream of the dam with thick reed vegetation covering the banks. This continues along the river until it reaches Haditha and Baghdadi, while a small number of date-palm trees and fruit farms are also distributed along both riverbanks. The wetland area is surrounded by various desert habitats including arid steppes and dry sandy slopes, which provide a wide spectrum of potential flora and fauna habitats.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		1 pair (resident)(2009)
A3. Biome-restricted species	<i>Ammomanes deserti</i>	6 (2010)	
	<i>Pycnonotus leucogenys</i>		2 individuals (probable)(2009)

Birds: There were 656 birds of 30 species seen in winter of 2010 and 74 birds of 21 species seen in summer. Additional conservation concern species were noted at the site: *Oenanthe finschii*, *Larus armenicus/michabellis*, *Larus genei* and *Phalacrocorax pygmaeus*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: the site appears to be a good habitat for a wide range of invertebrate species, particularly aquatic insects, arachnids and benthic.
- B. Vertebrates: *Reptiles*: Dice Snake *Natrix tessellate* and Caspian Pond Turtle *Mauremys caspica caspica*; *Amphibians*: None observed during the site; *survey Mammals*: Golden Jackal *Canus aureus*.
- C. Flora: Large diversity of wild and commercial plantings, mainly date palm trees and fruits such as grape, apricot, pear, fig and Morus, in addition to vegetable plantings. Wild vegetation consisted of *Phragmites*, *Typha*, *Populus*, *Eucalyptus*, *Morus*, *Halaxylon*, *Zizphus*, *Astragalus*, *Alhagi* and *Acacia* species.

Conservation Issues & Recommendations: The site is a unique habitat with a wide spectrum of biodiversity in Western Iraq. Little biological data has been collected about the dam site, and what natural history records do exist lack information about main bird species to be found at the site. As is the case with industrial facilities many environmental hazards represent a threat to local wildlife, such as the absence of a fish ladder in the dam to allow breeding fish to reach the open lake water and river upstream in order to migrate and spawn, causing a high rate of fish mortality. This may be affecting water bird populations as well.

High levels of industrial pollution and disturbance caused by machinery coupled with the heavy output of cold water from the dam result in environmental impacts downstream of the lake. In addition to boat disturbances and illegal fishing methods (poison and electroshock, fishing) many nearby towns direct their untreated waste and sewage into the water, resulting in the deterioration and destruction of many natural habitats along the river. Cattle grazing, also impacts on the area's habitats. These factors combined pose a serious impediment to bird and other wildlife habitation at this site.

Further field surveys, with specific focus on animal populations and water quality, are recommended to make better assessments of the lake and downstream ecosystems. Logistically, the site is under the jurisdiction of several civilian and military agencies. Officially the site is managed by the Ministry of Electricity of Western Iraq, but security duties responsibilities are that of the National Iraqi Army. Close co-ordination with all relevant officials will continue to be necessary to arrange and gain access to the site.

Hawejat Albu Alwan and Ramadi Marshes

AN8, IBA 016

Winter observations: 9/1/2010; Summer observations: 22/4/2010

Admin Area: Anbar

IBA Criteria: A1, A2, A3

Coordinates: N33 28 31, E43 16 5

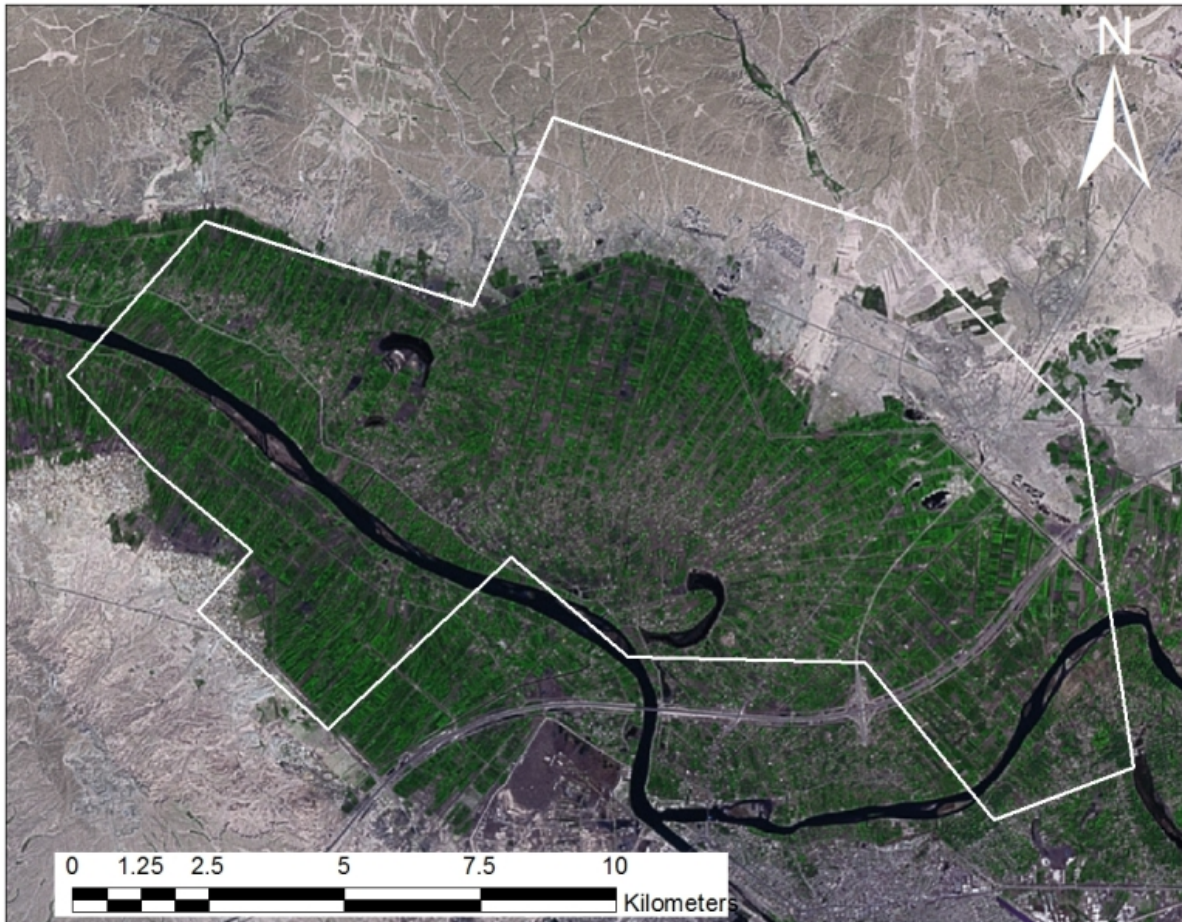
Unprotected Area

Area: 74019 ha

Altitude: 42 m

Directional information: From Bagdad : Baghdad – Abu Ghraib – Ramadi – Hawijat Albu Alwan □

From Ramadi: Ramadi – Al Grishy – Hawhijat Albu Alwan.



Site Description: The site is dominated by marshland with dense reed beds and typhus vegetation with submerged aquatic plants mixed with date palms trees with fruit orchards and vegetables

Nature Iraq & Iraqi Ministry of Environment Report

plantations cultivated beneath. Albu Alwan is the name of the Arabian tribe from which the site derives its name, who inhabit this area northeast of Ramadi on the Euphrates. The word “Hawhija” means marshland, with the unique species and habitat of this site in Western Iraq being similar to the large marshy ecosystems in the south of their country. The depth ranges from 2 to 5 m on the both banks of the Euphrates River. There are a small number of wheat and corn fields, interspersed with some uncultivated areas of halophytic thickets. The site also holds many suitable spots for resident and migrant bush warblers and songbirds.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Acrocephalus griseldis</i>		1 pair (probable)(2009-2010)
A2. Restricted-range species	<i>Acrocephalus griseldis</i>		1 pair (probable)(2009-2010)
	<i>Turdoides altirostris</i>	2 (2010)	9 individuals (resident, probable) (2009-2010)
	<i>Tachybaptus ruficollis</i>	2 (2010)	
A3. Biome-restricted species	<i>Vanellus leucurus</i>	15 (2010)	2 pairs (probable)(2010)
	<i>Pycnonotus leucogenys</i>	6 (2010)	4 pairs (resident)(2009-2010)
	<i>Acrocephalus griseldis</i>		1 pair (probable)(2009-2010)
	<i>Turdoides altirostris</i>	2 (2010)	4 pairs (resident)(2009-2010)

Birds: There were 1330 birds of 54 species seen in winter of 2010 and 360 birds of 52 species seen in summer. The following conservation concern species were observed at the site but not in sufficient numbers to meet the criteria: *Marmaronetta angustirostris* (GT), *Phalacrocorax pygmaeus*, *Vanellus leucurus*, *Larus genei*, *Vanellus (Hoplopterus) spinosus*, *Aquila heliaca* (GT), *Corvus capellanus* (END race), and *Pycnonotus leucogenys*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Dense populations of aquatic and terrestrial invertebrates were observed, including Hexapods, Arachnids, Dragonflies with many nymphs attached to the reed leaves, groups of water striders (*Giridae* family) and Boatmen Beetles that belong to the Aquatic *Coleoptera* species. Additional specimens included *Hemipteras* and *Hymenopteras* insect orders, such as Squash Bug, Stink Bug and Chinch Bug. Wasps, ants and honey bees were observed flying around the site with *Lepidoptera* species dwellers such as Painted Lady and Admiral Butterflies.
- B. Vertebrates: *Reptiles*: Dice Snake *Natrix tessellate*, Caspian Turtle *Mauremys caspica caspica*, and Persian Gecko *Hemidactylus persicus*; *Amphibians*: Green Toads *Bufo viridis*; *Mammals*: None observed during the survey.
- C. Flora: Date palm trees, fruit, vegetables, wheat and barley are the main commercial plantings at the site, in addition to wild vegetation species such as *Phragmites*, *Typha*, *Populus*, *Eucalyptus*, *Morus*, *Zizphus* and *Astragalus*.

Conservation Issues & Recommendations: Modern agricultural methods and the use of pesticides and insecticides may represent environmental threats to the area. Several other human activities impact on the site such as overfishing (through use of illegal poison and electrofishing methods), fish

Nature Iraq & Iraqi Ministry of Environment Report

breeding in artificial pools, grazing and increasing urban expansion. In the absence of an environmental management action plan to preserve this site, these factors will continue to wreck serious and unimpeded detriment. A more comprehensive field survey is strongly recommended for the future. Although the site's location north of Ramadi is quite secure co-ordination with local officials is necessary for successful access to and surveying of the site.

Western Edge of Tharthar Lake

AN9, IBA 007

Winter observations: 1/1/2010; Summer observations: 23/4/2010

Admin Area: Anbar

IBA Criteria: A3

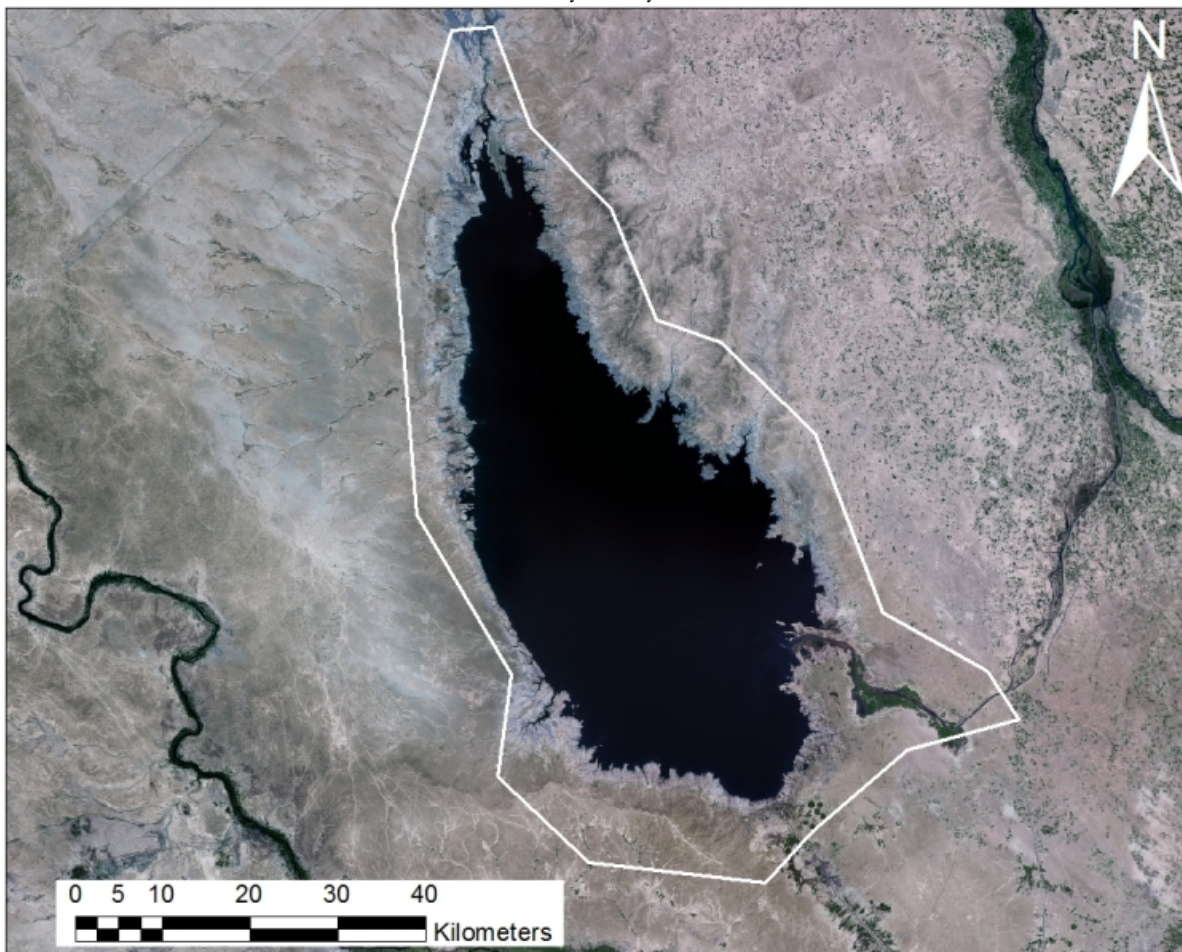
Coordinates: N 33 41, E 43 18

Unprotected Area

Area: 340,600 ha

Altitude: 40m

Directional information: From Bagdad: Baghdad – Abu Ghraib – Ramadi – Hit – Al Gazally Valley – The site; From Ramadi: Ramadi – Hit – Al Gazally Valley – The site.



Nature Iraq & Iraqi Ministry of Environment Report

Site Description: Tharthar Lake is the largest artificial reservoir in Iraq, located between the Tigris and Euphrates Rivers about 120-140 km northwest of Baghdad. Other waterbodies such as Dukan, Darbandikhan and Mosul Lake lie to the north, Himreen and Shari in central Iraq, Qadissiya to the west and Habbaniya and Razaza in the southwest. In contrast to these other bodies, Tharthar Lake is triangular in shape. The lake is very deep, reaching up to 70 m in depth in the center. In former times it was used to collect flood and excess rain water from the Tigris River via a narrow canal near Samara called Tharthar Canal, while a second canal connected it to the Euphrates near Al Dhlu'e'a town, north of Baghdad and east of Ramadi. Several other valleys also flow into the lake from the north and west. The lake has a weak food chain and is low in nutrients (Evans 1994), and the dry steppes and pastures surrounding it maintain semi-desert vegetation. Tharthar Lake is bordered by limestone hills on the southwest that gradually lead in to a sandy and muddy shoreline with areas of fresh grassy plants, creating a suitable habitat for resident and migrant waders and shorebirds. Large tracts of arid, uncultivated land surround the lake in an arc to the north. Many biologically rich locations, many of which remained undiscovered until the present survey, are found throughout the area - particularly in winter. Wadi al Gazalli is situated on the western edge of the lake and represents the main valley through which the lake may be accessed, featuring contains open steppes that are used by Bedouins for livestock grazing and other activities. Halophytic or xerophytic desert plants are the dominant vegetation found at this site.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Breeding data
A3. Biome-restricted species	<i>Cursorius cursor</i>		1 pair (probable)(20109)
	<i>Alaemon alaudipes</i>		3 individuals (probable)(2009-2010)
	<i>Ammomanes deserti</i>	2 (2010)	

Birds: There were 12099 birds of 53 species seen in the winter of 2010 and 142 birds of 26 species seen in the summer. The following conservation concern species were noted at the site but not in sufficient numbers to meet the criteria: *Phalacrocorax pygmaeus*, *Hydroprogne [Sterna] caspia*, *Crex crex*, *Larus armenicus/michabellis*, *Larus genei*, *Vanellus (Hoplopterus) spinosus*, *Oenanthe finschii*, *Streptopelia turtur*, *Marmarometta angustirostris* (GT), *Circus macrourus* (NT), *Limosa limosa* (NT) and *Corvus capellanus* (END race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Large accumulations of *Mollusca* and large groups of mosquito spp were observed at the site.
- B. Vertebrates: *Amphibians*: None observed during the survey; *Mammals*: Common Wolf *Canus leopus* has reportedly been chased and hunted in the semi-desert area surrounding the lake.
- C. Flora: Desert and semi-desert xerophilic and halophytic vegetation. *Haloylon*, *Achillea*, *Ziziphus*, *Albagi* and *Acacia* species were the dominant plant species in the site.

Conservation Issues & Recommendations: Tharthar Valley and Lake remain one of the most important wetlands in Iraq and the Middle East. The lake itself attracts large numbers of migrant birds and waterfowl every year and the surrounding steppes are represent suitable wintering habitats for many desert species. conservationC and protection plans are thus crucial for the biological future of the site; although.A few environmental impacts, were detected during the survey it is important to quickly identify any such problems. Electrofishing is rendered impossible by the lake's depth, as and as such is not a threatwith nets the only viable tool for catching fish. The site's remote location posesresents security difficulties for civilian scientific expeditions, and a more comprehensive survey

Nature Iraq & Iraqi Ministry of Environment Report

of the site will require close co-ordination with the national police and army to reduce the danger visitingsto the site.

Al Rahaliya and Razaza Lake

AN10

Winter observations: 30/12/2009; Summer observations: 28/4/2010

Admin Area: Anbar

IBA Criteria: A1, A3

Coordinates: N 32 46, E 43 27

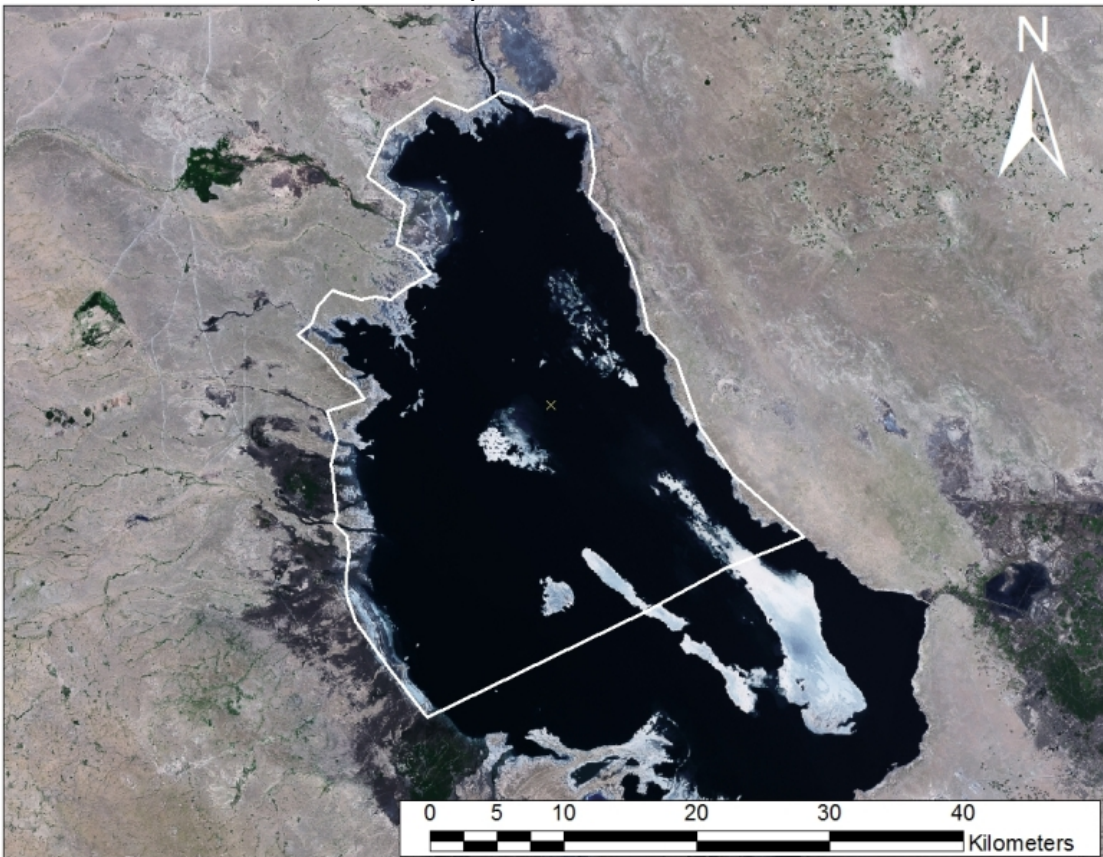
Unprotected Area

Area: 156234 ha

Altitude: 37m

Directional information: From Bagdad: Baghdad – Abu Ghraib – Falluja – Habbaniya – The site;

From Ramadi: Ramadi – Falluja – Habbaniya – The site



Survey areas at site AN10 (Google Earth, 2010), See ME5 GIS Map in South Site Review section for additional delineations



Nature Iraq & Iraqi Ministry of Environment Report

Site Description: Al Rahaliya a small town located southeast of Ramadi and Falluja and south of Habbaniya lake. It is positioned on the western bank of Arazaza lake, a deep saline shallow water basin constructed in 1970s as a second reservoir (after Al Habbaniya) to hold excess water from Euphrates River during the flood seasons. It is connected to Habbaniya by a narrow canal known as Nadhim Al Majarra, that runs from the northern edge of Arazaza through semi-desert flat areas to the southern edge of Habbaniya. The semi-desert flat areas are dominated by xerophytes and halophytic vegetation and have been recently planted with date palm trees and fruit orchids close to Al Rahaliya. The lake is characterized by very high levels of salinity, which has increased over the past ten years and suffered from the general decrease in water levels of the Euphrates River, resulting in very dry summers.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Chlamydotis macqueenii</i>	1 (2010)	
A3. Biome-restricted species	<i>Alaemon alaudipes</i>	2 (2010)	
	<i>Ammomanes deserti</i>	2 (2010)	1 individual (Possible)(2009-2010)
	<i>Oenanthe deserti</i>	1 (2010)	
	<i>Rhodospiza obsoletus</i>	1 (2010)	

Birds: There were 79 birds of 19 species seen in winter of 2010 and there were 21 birds of 10 species seen in summer. The following conservation concern species were noted at the site: *Larus armenicus/michabellis*, *Larus genei*, and *Oenanthe finschii*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Large accumulations of *Mollusca* and large groups of *Culicidae* family (mosquitoes) were observed at the site.
- B. Vertebrates: *Reptiles*: Mesopotamian Spiny-tailed Lizard *Uromastyx loricatus*; *Amphibians*: None observed during the survey.; *Mammals*: Indian Grey Mongoose *Herpestis induardsi*.
- C. Flora: Desert and semi-desert xerophilic and halophytic vegetation. *Haloylon*, *Achillea*, *Ziziphus*, *Alhagi* and *Acacia* species were the dominant plant species at this site, besides date palm trees and *Eucalyptus*.

Conservation Issues & Recommendations: This site has retained the majority of its natural habitat and has not been affected by many human activities for at least the last decade. The site's desert and semi desert arid areas around Al Rahaliya represent one of the largest hunting and chasing fields for Macqueen's Bustard however, with one of the biggest hunting competitions of Maqueen's Bustard taking place here in the winter of 2009. Falconry, wintering Saker Falcons and Peregrine Falcons in particular, is a popular practice here. These factors require a Ministry of Environment and local Anbar environmental directory action plan to regulate these activities and preserve the site's biodiversity. The site's location southeast of the Habbainiya army training fields necessitate close co-ordination with relevant authorities to access and survey the site.

Sabkhat Albu Garis

AN11

Winter observations: 31/12/2009; Summer observations: 26/4/2010

Admin Area: Anbar

IBA Criteria: A3

Coordinates: N34 41 54, E41 13 9

Unprotected Area

Area: 9819 ha

Nature Iraq & Iraqi Ministry of Environment Report

Altitude: 42m

Directional information: From Bagdad: Bagdad – Ramadi – Hit – Baghdadi – Haditha - Anna – Al Qa'em - The site; From Ramadi: Ramadi - Hit – Baghdadi – Haditha- Anna – Al Qa'em - The site.



Site Description: This site is located northwest of Ramadi in the far west of Anbar Governorate and north of Al Qae'em, the closest city to the Iraq–Syria border. The site has a very limited number of accessible roads leading to it, with no actually accessible entrance to the site (the team drove overland into the area). The site accumulates rain and floodwater from December to February, which form a shallow seasonal pool extending between the shared monotonic habitat between Syria and Iraq. The site features a second dominant habitat of desert and semi desert arid areas, vegetated with naturally growing spring flora during April-May to form one of the largest grazing steppe areas in Western Iraq, known as Sheeb Albu Garis.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A3. Range-restricted species	<i>Corvus ruficollis</i>		2 individuals (probable)(2009)
	<i>Ammomanes deserti</i>	5 (2010)	1 individual (2009)
	<i>Oenanthe deserti</i>	1 (2010)	

Nature Iraq & Iraqi Ministry of Environment Report

	<i>Rhodospiza obsoletus</i>	2 (2010)	
--	-----------------------------	----------	--

Birds: There were 57 birds of 12 species seen in winter of 2010 and 47 birds of 13 species seen in summer. The following conservation concern species was noted at the site: *Oenanthe finschii*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: None observed during the survey.
- B. Vertebrate: *Reptiles*: None observed during the survey; *Amphibians*: None observed during the survey; *Mammals*: None observed during the survey.
- C. Flora: Desert and semi-desert xerophilic and halophytic vegetation consisting mainly of *Halolylon*, *Achillea*, *Albagi* and *Acacia* species.

Conservation Issues & Recommendations: The site represents another remote, well-preserved natural habitat disturbance. It appears to have been largely undisturbed for the past ten years, or more as no human activities were observed at the site or even on both roads leading to it. Vast quantities of cattle graze here in the summer, with a wide range of spring grasses and other vegetation making this site a prime grazing spot far-west Iraq. Due to security concerns the furthest margins of the site could not be reached, so more comprehensive surveying is recommended for the future. The site's remote location in unsecured areas renders it very dangerous to reach and require co-ordination with Ministry of Environment and security officials (border security in particular) to access and survey the site.

Rutba and Al Massad Gazelles Reserve

AN12

The site was added to the KBA program the summer 2010 survey, observations made on 29/4/2010

Admin Area: Anbar

KBA Criteria: V

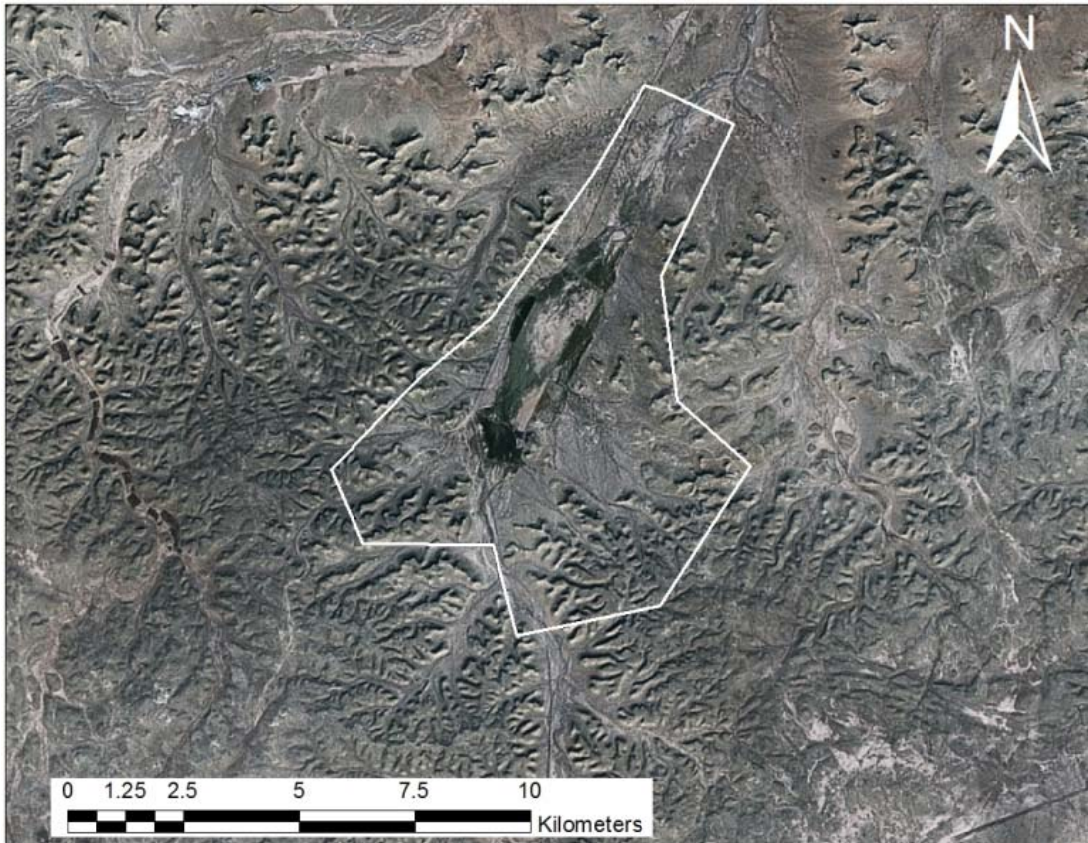
Coordinates: N 32.908279, E 40.220617

Protected reserve (IMOA) for gazelle

Area: 600 ha

Altitude: 43 m

Directional information: From Bagdad: Baghdad – Ramadi – Hit – Baghdadi – Haditha - Anna – Al Qa'em - The site; From Ramadi: Ramadi - Hit – Baghdadi – Haditha- Anna – Al Qa'em - The site.



Site Description: This site is located in the far west of Iraq, 1.6 km southeast of Rutba, the town nearest the Iraqi–Jordanian border. The site features the Massad Natural Reserve, the largest reserve for gazelles in Iraq, with several fenced areas constructed for gazelle-raising from 1972–1974 in and near Al Massad region. The reserve covers an area of low ground that receives excess rain and flood water from December–February and is well-vegetated with spring grasses that provide natural sustenance for the gazelle population. The reserve is controlled by the Ministry of Agriculture.

The reserve is surrounded by desert – and semi-desert arid areas with low hills rising from the eastern and southern fronts of the reserve. Reserve facilities such as rangers' homes and reception halls are

Nature Iraq & Iraqi Ministry of Environment Report

built on the western edge of the reserve. The reserve employs sustainable grazing techniques, whereby the land is divided in to four sectors that are grazed on a rotational basis throughout the seasons.

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (what evidence you have)
V1. Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Gazella subgutturosa</i>	800 (maintained within an enclosure by the IMOA)

Birds: There were 65 birds of 17 species seen in the summer of 2010. No species with conservation significance were observed except for *Falco naumanni* (VU), but there were not in sufficient numbers seen to meet the criteria.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: None observed during the survey.
- B. Vertebrate: *Reptiles:* Turkish Gecko *Hemidactylus turcicus*, Mesopotamian Spiny-tailed Lizard *Uromastix loricatus*, Field's horned viper *Pseudocerastes persicus fieldi*, and Desert Monitor *Varanus griseus*; *Amphibians:* None observed during the survey; *Mammals:* 800 Goitered Gazelle *Gazella subgutturosa* were observed. Al Massad Natural Reserve rangers reported observing the following species within the reserve range: Common Wolf *Canis leopus*, Stripped Hyena *Hyena hyena*, Golden Jackal *Canis aureus*, Ruppel's Sand Fox *Vulpus ruppeli* and Wildcat, most of which are reported but rarely seen.
- C. Flora: Desert and semi-desert Xerophilic and Halophytic vegetation, consisting mainly of *Artemisia*, *Haloylon*, *Rhanterium*, *Salsola*, *Ephedra*, *Atriplex*, *Agathophora*, *Achillea*, *Albagi* and *Acacia*.

Conservation Issues & Recommendations: This site remains largely unknown to most of the Iraqi public, so its environment remains well protected from human interference from nearby Rutba and the surrounding area. This site requires much more extensive research of its flora and fauna. The site also witnessed extensive combat action from 2004 to 2007 and as such co-ordination with the Iraqi Army and police is highly recommended to facilitate survey teams' movement and research.

Samara Dam & Wetlands

SD1, IBA 008

Winter observations: 12/23/2009; Summer observations: 4/10/2010

Admin Area: Salah Aldin

IBA Criteria: A2, A3

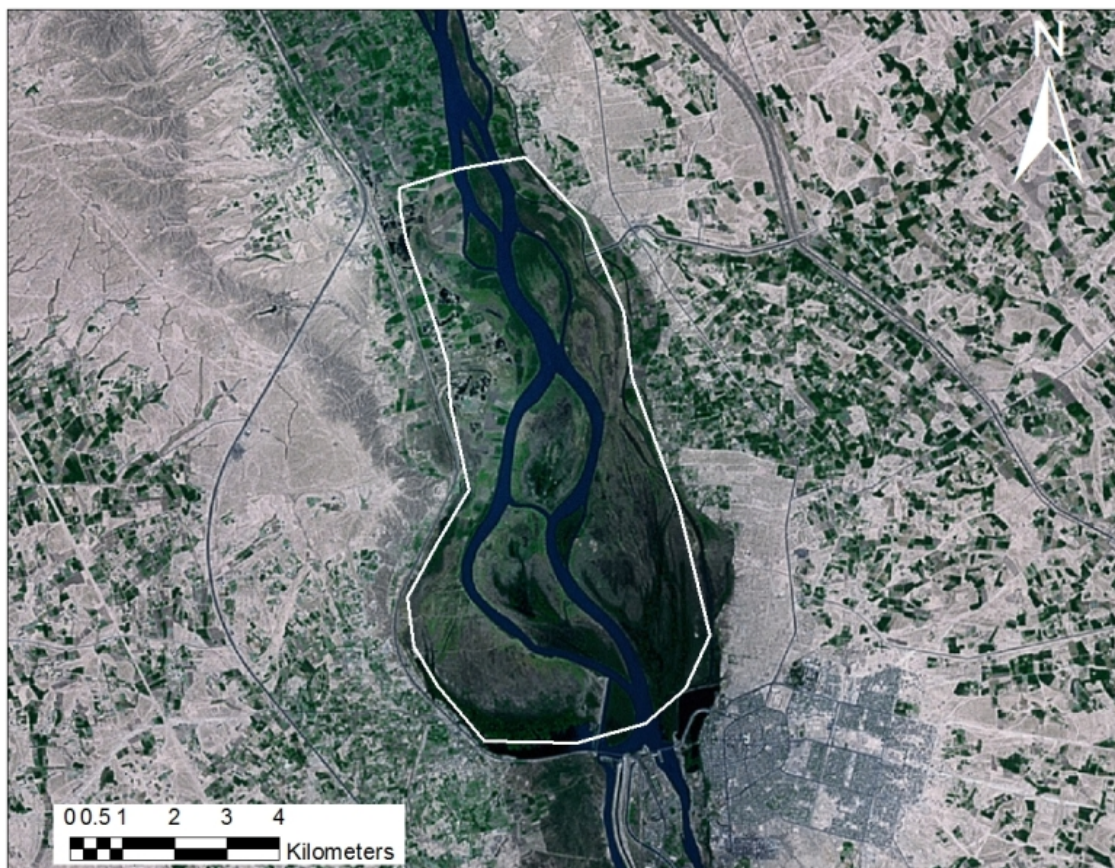
Coordinates: N 11 33, E 50 68

Unprotected Area

Area: 4470 ha

Altitude: 45m

Directional information: From Bagdad: Baghdad – Tarmiya – Balad – Samara; From Salah Adin: Tikrit – Al Dour - Al Ashiq Palace – Samara



Site Description: Samara Lake is located northwest of Baghdad and southeast of Tikrit, the capital city of Salah Ad Din governorate. The site is a medium-size open lake above the Samara Dam on the Tigris River, near Aldour town north of Samara City. The dam regulates the water flow toward Al Tharthar Lake through the Samara (Tharthar) Canal, which extends from Al Dhloee'a town towards the southeast edge of Tharthar Lake. The dense marsh habitat of reed beds and submerged aquatic vegetation are the main features of the landscape upstream from the dam, attracting a significant number of migratory waterfowl and raptors each year. Part of the site extends northwest alongside the main highway towards Tikrit, and is characterized by the same wetland habitat on the eastern side. To the west it transforms into an arid steppe covered with scattered xerophytic vegetation and a few fields of wheat, corn and date palm trees.

The wetland adjoining the lake is bordered by a thick reed carpet that made it difficult to delineate the two from one another. The side closer to Tikrit features dense reed beds that continue along the river banks, in addition to scattered shrubs and thickets with an underlying gravel matrix. Archeological relics from the Abbasid dynasty are found close to the site, including Malewat, the ancient Samara

Nature Iraq & Iraqi Ministry of Environment Report

mosque and the Al Ashiq palace to the west. Hunting and fishing is prohibited in the area around the dam, which has likely to have proven encouraging for duck populations in this area.

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>	6 (2010)	4 pairs (probable)(2009-2010)
	<i>Hypocolius ampelinus</i>		1 pair (probable)(2010)
	<i>Turdoides altirostris</i>	3 (2010)	1 individual (probable)(2010)
A3. Biome-restricted species	<i>Pycnonotus leucogenys</i>	8 (2010)	4 pairs (resident)(2009-2010)
	<i>Turdoides altirostris</i>	3 (2010)	1 individual (probable)(2009)
	<i>Passer moabiticus</i>	12 (2010)	21 pairs (resident)(2009-2010)

Birds: There were 2747 birds of 70 species since in winter of 2010 and 389 birds of 42 species seen in summer. The following conservation concern species were noted at the site but not in sufficient numbers to meet the criteria: *Marmaronetta angustirostris*, *Aythya nyroca*, *Coracias garrulus*, *Phalacrocorax pygmaeus*, *Circus macrourus*, *Larus genei*, *Larus armenicus*, *Pycnonotus leucogenys*, *Hypocolius ampelinus*, *Corvus capellanus* (END race), and *Oenanthe finschii*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: mainly insects *Odonata* and *Lepidoptera* species.
- B. Vertebrate: Reptiles: Caspian Terrapin *Clemmys caspia*; Amphibians: Individual Green Toads *Bufo viridis*; Mammals: None observed during the survey although the site, appears to be ideal habitat for wild canines such as Golden Jackals *Canis aureus* and Common Red Foxes *Vulpus vulpus*. Water Buffalo *Bubalus bubalus* were seen crossing through some marshy areas near the site.
- C. Flora: Mainly *Phragmites*, *Typha*, *Tamarix*, Sedge, Populous, Eucalyptus, date palm, fig, *Morus*, citrus trees, *Ziziphus*, pear, apricot, grape and watermelon.

Conservation Issues & Recommendations: This site is held under strict military supervision due to the current security situation and sees very little human activity (with a few exceptions), which has contributed to its environmental preservation. Although further surveying will be vital to gaining a deeper knowledge of this site's habitats and the threats they face, several environmental impacts were identified, including overfishing, (and use of electro-fishing) sheep grazing, increased construction and disturbances caused by military vehicles and troop training exercises throughout the area. More comprehensive surveys and water quality studies are highly recommended for this site, as well as increased communication with relevant authorities to ensure greater access to the site in the future.

As the lake is guarded by the Iraqi army, who forbid any fishing activity (though the presence of electro-fishing equipment seen in winter indicates otherwise) this may help the fish assemblage to flourish, but the site needs active environmental management and more research in order to estimate the stock health and capacity to support fishing activity in a sustainable manner.

Nature Iraq & Iraqi Ministry of Environment Report

Winter observations: 12/22/2009; Summer observations: 4/9/2010

Admin Area: Salah Aldin

KBA Criteria: V

IBA Criteria: A1, A3

Coordinates: N 17 2, E 10 59

Unprotected Area

Area: 340,600 ha

Altitude: 38m

Directional information: From Bagdad: Baghdad – Tarmiya – Balad – Samara – Tikrit – Al Owja – Al Debae'e – the site. From Tikrit: Tikrit – Al Owja – Al Debae'e – the site.

See AN9 GIS Map



Site Description: This area is near the northern region of Tharthar is almost identical in habitat to that of the Tharthar's western edge (AN9). Variations including gravel hillsides covered in grass near the lake and a number of flat, sandy near-islands attached to the lake shore extending out into the middle of the lake distinguish this site from west Tharthar. The biggest differences however are the wide areas of open, arid steppe and cultivated areas of wheat and corn near the Al Debe'e steppes that also harbor scattered halophyte vegetation and is considered one of the most important grazing areas not only in Salah Ad Din but Iraq as a whole. While these are invaluable for cattle, they are also considered the main wintering grounds for many threatened species of migrant birds and mammals such as Saker Falcon *Falco cherrug*, Houbaras or McQueen's Bustards *Chlamydotis macqueenii*, Sociable Lapwings *Vanellus gregarius*, Sociable Plover *Chettusia gregaria* and (at least previously) Arabian Oryx *Oryx leucoryx* (see the AN9 site review for more details). This habitat dominates the landscape of the north and northeast rib of Tharthar Lake.

Poor security conditions did not allow the field team to cover most of the targeted area during the winter visit. The coordinates of the initial winter survey point were N33 48 19.3, E43 28 37.0, which is located in the southeastern area of the lake.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>		
Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Limosa limosa</i>	30 (2009-2010)	
A3. Biome-restricted species	<i>Vanellus leucurus</i>	2 (2010)	5 individuals (resident)(2009)

Nature Iraq & Iraqi Ministry of Environment Report

	<i>Cursorius cursor</i>		2 pairs (resident)(2009)
	<i>Alaemon alaudipes</i>	2 (2010)	
	<i>Ammomanes deserti</i>	3 (2010)	
	<i>Rhodospiza obsoletus</i>	1 (2010)	

Birds: There were 2958 birds of 54 species seen in winter 2010 and 662 birds of 46 species seen in summer. The following conservation concern species were noted at the site but not in sufficient numbers to meet the criteria: *Marmaronetta angustirostris* (GT), *Circus macrourus* (GT), *Coracias garrulus* (GT), *Phalacrocorax pygmaeus*, *Larus genei*, *Larus armenicus*, *Pterocles alchata*, *Oenanthe finschii*, and *Corvus capellanus* (END race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: None observed, during the survey although the site appears to be good habitat for terrestrial and aquatic insects, spiders and scorpions.
- B. Vertebrate: *Reptiles:* Euphrates Softshelled Turtle *Rafetus euphraticus* (EN), *Hemidactylus turcicus*, and Mesopotamian Spiny-tailed lizard *Uromastyx loricatus*; *Amphibians:* none observed during the survey; *Mammals:* Golden Jackal *Canus aureus* and Common Red Fox *Vulpus vulpus*.
- C. Flora: Mainly wheat and corn fields near the site, with scattered xerophytic vegetation such as *Atrémisia*, *Alhagi*, *Achillea* and *Acacia*.

Conservation Issues & Recommendations: The main harbor of the lake is located here, and as such there are many fishermen, boats and fishing gear present. This is the main point of departure for fish to be sold in the local markets in Tikrit. Fishermen were generally observed to be using legal fishing nets. The lake has a great depth, reaching levels of nearly 80m at some points, which renders illegal fishing procedures such as electro-fishing largely useless. Human impacts on the lake appear relatively minimal (particularly given the lake's size) although overfishing remains a threat, one that may become more severe in the future. It is therefore urgent to establish fishing regulations for the site in addition to a broader environmental action plan. It is also recommended that fish and water quality surveys be carried out in the future.

The vast size of the surrounding steppes also warrants further field surveys to uncover new biological sites that may hold a number of globally important species. Such surveying will require the cooperation and assistance of both the national Iraqi police and army and local authorities to facilitate access and mobility for future survey teams.

Mahzam

SD3, IBA 007

Winter observations: 21/12/2009; Summer observations: 11/4/2010

Admin Area: Salah Aldin

IBA Criteria: A2, A3

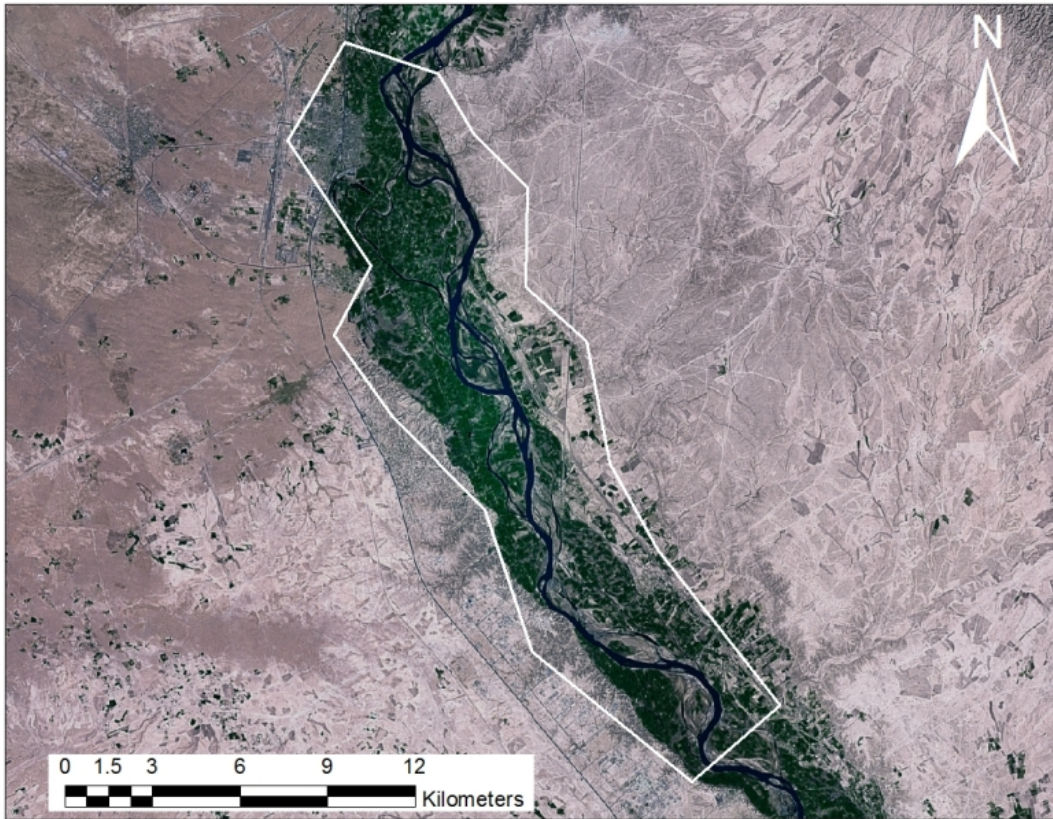
Coordinates: N 50 56, E 39 14

Area: 14757 ha

Unprotected Area

Altitude: 89m

Directional information: From Bagdad: Baghdad – Tarmiya – Balad – Samara – Tikrit –Mahzam
 From Salah Ad Din: Tikrit –Mahzam



Site Description: The site includes Al Alam district and constitutes two homogeneous habitats split on opposing banks of the Tigris River. It is located northeast of Baghdad and Tikrit, the capital of Salah Ad Din governorate, and east of the main highway towards Beji town and Mosul to the north. The local landscape features dense fruit and date-palm orchards scattered amongst bush and thickets. The land is arid and fenced in by elevated rocky cliffs that extend along the western bank of the Tigris to Tikrit. This area represents a typical breeding habitat for many resident species of raptor, such as the Common Kestrel. It was formerly a colony of the critically endangered Northern Bald Ibis (Armesto, Boehm, & Bowden, 2006, p 12), although the survey team was unable to confirm this due to security concerns.

There are many fruit and vegetable (largely grape) farms distributed throughout the site. Bushes and shrubs thin out as the riverbanks turn to stone and gravel with thick *Populus* trees lining both sides. The eastern arm of the Tigris River is similar in habitat to Al Mahzam, although the Al Alam region is characterized by date-palm trees and fruit orchards planted above wheat and barley fields. There are a

Nature Iraq & Iraqi Ministry of Environment Report

few stony islands near the Al Mahzam riverbank, with scattered *Tamarix* plants providing good rookeries and roosting spots for resident Herons and Waders. A number of gravel mines are also located on the Al Mazam riverbank.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Turdoides altirostris</i>		1 individual (probable)(2010)
	<i>Hypocolius ampelinus</i>	1 (2010)	
A3. Biome-restricted species	<i>Pycnonotus leucogenys</i>	18 (2010)	
	<i>Turdoides altirostris</i>		1 individual (probable)(2010)
	<i>Vanellus leucurus</i>	5 (2010)	1 pair (resident)(2009)
	<i>Passer moabiticus</i>	62 (2010)	10 pairs (resident)(2009)

Birds: There were 1828 birds of 120 species seen in summer of 2010. The following conservation concern species were noted at the site but not in numbers sufficient to meet the criteria: *Coracias garrulus* (GT), *Circus macrourus* (GT), and *Falco vespertinus* (probable first record for Iraq).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Snails and slugs species were observed throughout the site, with a wide spectrum of aquatic and Terrestrial insects such as Dragon flies, Demoiselle Flies, Ants, Wasps, Honey Bees, Coleoptera species such as Ground Beetles and Boatman Beetles and Hemiptera species such as Water striders. Species of spider were noticed on many *Populus* trunks.
- B. Vertebrate: *Reptiles*: Persian Geko *Hemidactylus persicus*; *Amphibians*: Green Toads were heard calling in the thickets during sunset; *Mammals*: Golden Jackal *C. aureus* and Indian Crested Porkupine *Hystrix indica*.
- C. Flora: Predominantly grape orchids, in addition to fig, pear, apricot, pomegranate, date-palm and other fruits. Wheat and barley are grown on the Al Aalm side. *Populous*, *Tamarix*, *Eucalyptus*, *Ziziphus* and *Morus* have also been identified in the site.

Conservation Issues & Recommendations: Extensive agricultural activity at this site results in some level of disturbance and destruction of habitat. Water pumping stations and electrical generators located on either side of the river provide water and electricity to the neighboring towns of Mahzam and Al Alam, causing noise and industrial pollution (oil and fuel spills, air pollution) in the site. Gravel mining, which is largely unregulated in Iraq, is likely to impact on the diversity of fish and invertebrates and the overall water quality though disruption of spawning beds and rearing areas. Gravel mining and the associated introduction of toxins and physical changes to the aquifer will result in the damage of riparian habitats as well.

The riverbank area between Tikrit and Mahzam is a popular picnic spot in spring and summer, resulting in a great deal of garbage, much of which is carried away by the water current and accumulates on the banks and may pose a serious threat to the local habitat. Illegal fishing practices are employed in the area to some extent, primarily poison and occasionally electro-fishing. An environmental protection scheme and environmental regulations, particularly in regard to fishing, are recommended to preserve the natural state of this site.

Although the security situation in this region has dramatically improved, some threats remain. Co-ordination with local authorities such as police or local councils (Al Sahwat) will be an effective way to reduce any danger faced by future surveying teams.

Abu Dalaf and Shari Lake

SD4 , IBA 009

Winter observations: 24/12/2009 ; Summer observations: 12/4/2010

Admin Area: Salah Aldin

IBA Criteria: A2, A3

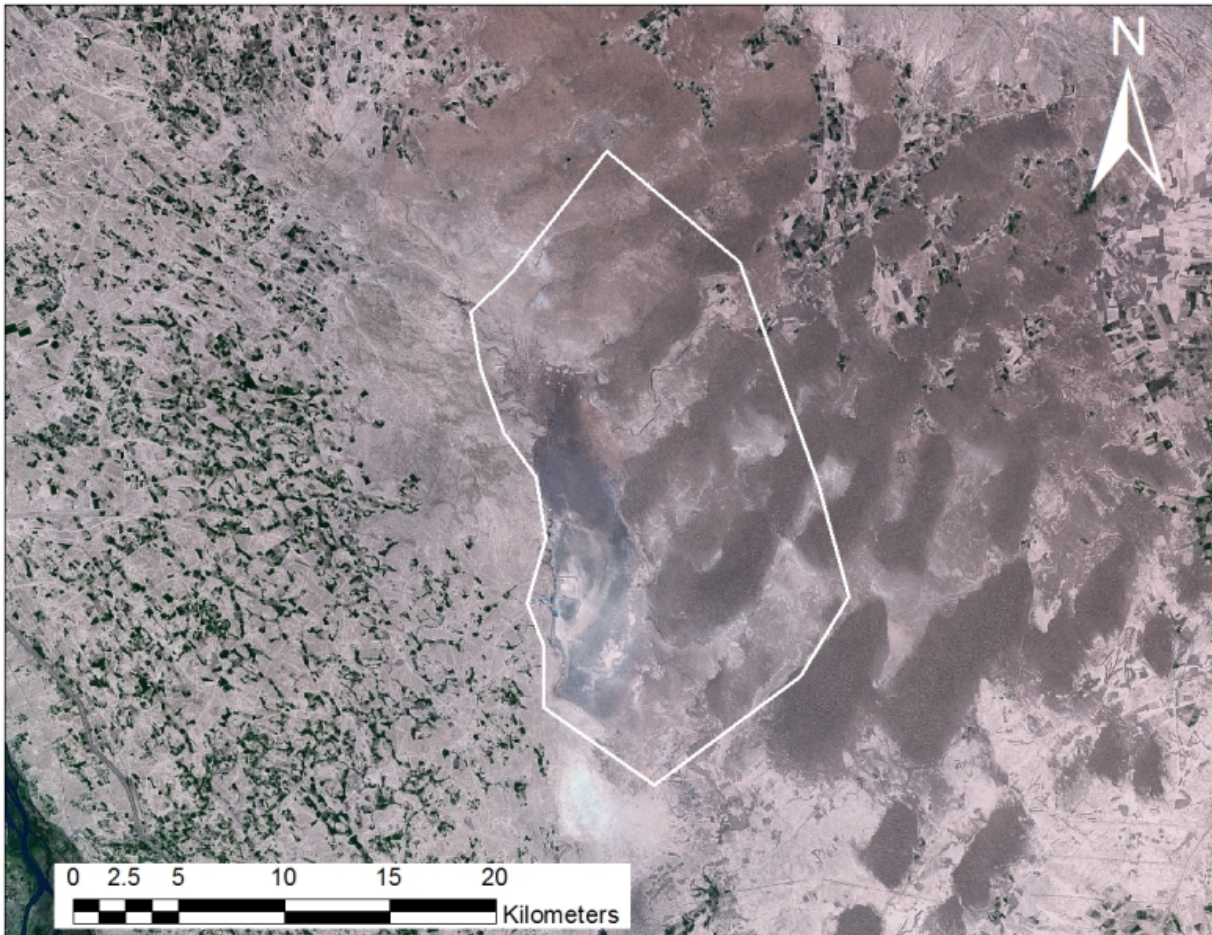
Coordinates: N 21 32, E 51 27

Unprotected Area

Area: 32776 ha

Altitude: 123 m

Directional information: From Baghdad: Baghdad – Tarmiya – Balad – Samara – Aldour – Abu Dalaf
From Salah Ad Din: Tikrit - Samara – Al Dour – Abu Dalaf



Site Description: The site is located northeast of Baghdad and southeast of Tikrit and Al Dour town. The site is composed of farmlands, marshes and open sandy steppes. The first point surveyed was an area along the Al Resasi River, a narrow branch of the Tigris River south of Al Dour, an area split between two habitats: the first consisting of thick reed beds and farmland extending towards

Nature Iraq & Iraqi Ministry of Environment Report

Samara along the western bank; the second on the eastern side of the river containing open tracts of arid land with scattered halophytic vegetation (predominantly *Populus* and *Tamarix*) and sporadic agricultural fields. The ancient “Wall of Shnass”, which dates from the Abbasid dynasty, is also found in the area.

The second point was near the ancient Abbasid mosque of Abu Dalaf, one of the many archaeological traces of ancient civilizations that once flowered here. The area’s steppe habitat is dominated by xerophytic plants. Several date-palm orchards extend eastward near Samara, and can be seen from a noticeable distance away.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>	1 (2010)	
	<i>Turdoides altirostris</i>	2 (2010)	
A3. Biome-restricted species	<i>Pycnonotus leucogenys</i>	2 (2010)	1 individual (probable)(2009-2010)
	<i>Turdoides altirostris</i>	2 (2010)	
	<i>Passer moabiticus</i>	24 (2010)	7 individuals (probable)(2009)

Birds: There were 527 birds of 50 species seen in winter 2010 and 55 birds of 15 species seen in summer. The following conservation concern species were noted at the site though not in numbers sufficient to meet the criteria: *Falco naumanni* (GT), *Coracias garrulus* (GT), *Phalacrocorax pygmaeus*, *Larus gene*, and *Corvus capellanus* (END-race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Vertebrate: *Reptiles*: Spiny-tailed Lizard *Uromastyx aegyptia*; *Amphibians*: None observed during the survey; *Mammals*: Water Buffalo *Bubalus bubalus*
- B. Flora: The first point surveyed consisted largely of *Phragmites*, *Typha*, *Tamarix*, *Populus* and *Eucalyptus*. The second point was poorly vegetated, with the exception of xerophytic plant species such as *Albagi* and *Astragalus*, and date-palm orchards.

Conservation Issues & Recommendations: Agriculture, cattle grazing and changing habitats due to industrial farming were the only threats identified at the site’s two main observation points. A detailed fauna survey is advised to identify the most habitats of conservation concern in the area. Security issues prevented the far east/west margins of the site from being surveyed, a factor that remains an obstacle to comprehensive surveying in the region. The team was advised by the Iraqi national police officers accompanying them to proceed with their work quickly and carefully to avoid any security mishap, as this site was one of the more dangerous areas visited in the Central Iraq.

Jallet Albu Ajeel

SD5

Winter observations: 20/12/2009; Summer observations: 8/4/2010

Admin Area: Salah Al Din

IBA Criteria: A1, A2, A3

Coordinates: N 37 48, E 47 57

Area: 16000 ha

Unprotected Area

Altitude: 98m

Nature Iraq & Iraqi Ministry of Environment Report

Directional information: From Bagdad: Baghdad – Tarmiya – Balad – Samara – Tikrit – Albu Ajeel – Jallet Albu Ajeel From Salah Ad Din: Tikrit -Albu Ajeel – Jallet Albu Ajeel.



Site Description: This site is located east of Tikrit city and the main high way between Salah Ad Din and Kirkuk. The area is dominated by arid steppe habitat, with sandy arid areas bordering on a large number of wheat and corn fields. Circular irrigation is used to cultivate the many farms either side of the highway. In former times the site was a traditional spot for Houbara “Macqueen” Bustard *Chlamydotis macqueenii* hunting and Saker Falcon *F. churrgae* trapping during the winter and autumn migration of the both species.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Chlamydotis macqueenii</i>	1(2010)	
A2. Restricted-range species	<i>Hypocolius ampelinus</i>		1 pair (probable)(2010)
A3. Biome-restricted species	<i>Cursorius cursor</i>		1 individual (probable)(2010)
	<i>Ammomanes deserti</i>		1 individual (propbale)(2010)
	<i>Bucanetes githagineus</i>		1 pair (probable)(2010)
	<i>Pycnonotus leucogenys</i>	2 (2010)	2 pairs (probable)(2010)

Nature Iraq & Iraqi Ministry of Environment Report

	<i>Passer moabiticus</i>	19 (2010)	
	<i>Rhodospiza obsoletus</i>	1 (2010)	

Birds: There were 315 birds of 29 species seen in winter of 2010 and 335 birds of 56 species seen in the summer. The following conservation concern species were noted at the site but did not have numbers sufficient to meet the criteria: *Circus macrourus* (GT), *Coracias garrulus* (GT), *Oenanthe finschii*, *Pterocles alchata*, *Larus armenicus*, and *Corvus capellanus* (END-race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: The site appears to be favorable habitat for a wide spectrum of desert and semi-desert insects and invertebrates, such as Spiders and Scorpions.
- B. Vertebrate: *Reptiles:* Spiny-tailed Lizard *Uromastix aegyptia*; *Amphibians:* None observed during the survey; *Mammals:* Common Red fox *Vulpus vulpus* and Euphrates Jerboa *A.euphratica*.
- C. Flora: *Tamarix*, *Populus*, *Eucalyptus*, *Alhagi* and *Astragalus*, were the main species observed, in addition to date-palm orchards.

Conservation Issues & Recommendations: The site constitutes one of the main economic and agricultural areas in not only Salah Ad Din, but all of Iraq, with artificially-irrigated fields of corn, wheat and barley covering many hectares of the area. (Al Dabbagh, 1998) Human urban and industrial expansion, hunting, farming and overgrazing are the main impacts on this site. Large herds of Fat-tailed sheep grazing at the site. These also contribute to its disturbance, as does the Salah Ad Din - Kirkuk highway and Albu Ajeel Oil Field, one of the region's main fields, is located northeast of the site causing heavy smoke and pollution at the site.

Houbara *Chlamydotis macqueenii* hunting and Saker falcon *Falco cherrug* trapping impact the species numbers at the site. Several large hunting companies dedicated to Houbara and Saker Falcon hunting and trapping are located southeast of the area.

Himreen Lake

DY1

Winter observations: 10/2/2009; Summer observations: 2/5/2010

Admin Area: Diyala

IBA Criteria: A2, A3

Coordinates: N34 11 35, E45 00 11

Area: 28766 ha

Unprotected Area

Altitude: 42m

Directional information: From Bagdad: Baghdad – Baquba – Kana'an - Baladroze – Jalula'a – Hemreen Lake From Diyalal: Baquba – Kana'an - Baladroze – Jalula'a – Hemreen Lake



Nature Iraq & Iraqi Ministry of Environment Report

Site Description: Himreen Lake is one of the main lakes of Iraq located approximately 150 km northeast of Baghdad, just beyond the Himreen hills chain. The lake was created by the Himreen dam on the Diyala River, which flows from the Iranian mountains and Iraqi Kurdistan. The lake lies in the northeast of Diyala governorate, close to the Himreen district of Diyala on the Baquba–Shahraban–Khanaqeen highway and the Iraq–Iran border. The lake is rectangular in shape, with the Himreen dam on the southwestern edge in Al Soudor area. The site is well protected by both the Iraqi Army and national police. The lake is well-known for its diversity of birdlife.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>	2-16 (2009-2010)	2 individuals(Probable)(2010)
A3. Biome-restricted species	<i>Passer moabiticus</i>		2 individuals(Probable)(2010)

Birds: There 347 birds of 48 species seen in winter of 2010 and 126 birds of 13 species seen in summer. The a few conservation concern species were noted at the site, though not enough to meet the criteria but indicates that the site requires further study: *Marmaronetta angustirostris* (GT), *Aquila clanga* (GT), *Aquila beliiaca* (GT), *Larus genei*, and *Larus armenicus*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Vertebrate: *Reptiles:* Spiny-tailed Lizard *Uromastix aegyptia*; *Amphibians:* None site; observed during the survey *Mammals:* None observed during the survey.
- B. Flora: *Phragmites*, *Typha*, *Tamarix*, *Populous*, *Eucalyptus*. *Albagi*, *Astragalus* and date-palm and fruit orchards.

Conservation Issues & Recommendations: This Lake is an important water reservoir in Central Iraq, with a favorable habitat for several threatened birds species, such as the Lesser White-fronted Goose (a group of 37 individuals of this species were found in the Baghdad market and the seller indicated that they has been trapped in Himreen Lake). Locals report that the hunting and trapping of Waterfowl is common in the lake area and extensive Houbara “Macqueen” Bustard *Chlamydotis macqueenii* hunting was observed close to the site. The site is also considered one of the most important for Falcon trapping, particularly the Peregrine Falcon *Falco peregrines* and Barbary Falcon *Falco pelegrinoides*.

Baquba Wetland

DY2, IBA011

Not visited in 2010

Admin Area: Diyala

Coordinates:

Area: unknown

Altitude: unknown

Unprotected Area

This site was listed as one of the important bird areas in Iraq and the Middle East (Evans, 1994) but unfortunately the site has been not visited by the NI/MoE Teams. The team tried to reach and survey the site, but the Iraqi national police advice recommended to not visit the site due to the critical situation and the general security conditions of the site, which do not allow for free scientific work especially because the site is large and not vast especially since).

Attariya Plains

DY3, IBA 013

Winter observations: 12/1/2010; Summer observations: 3/5/2010

Admin Area: Diyala

IBA Criteria: A2, A3

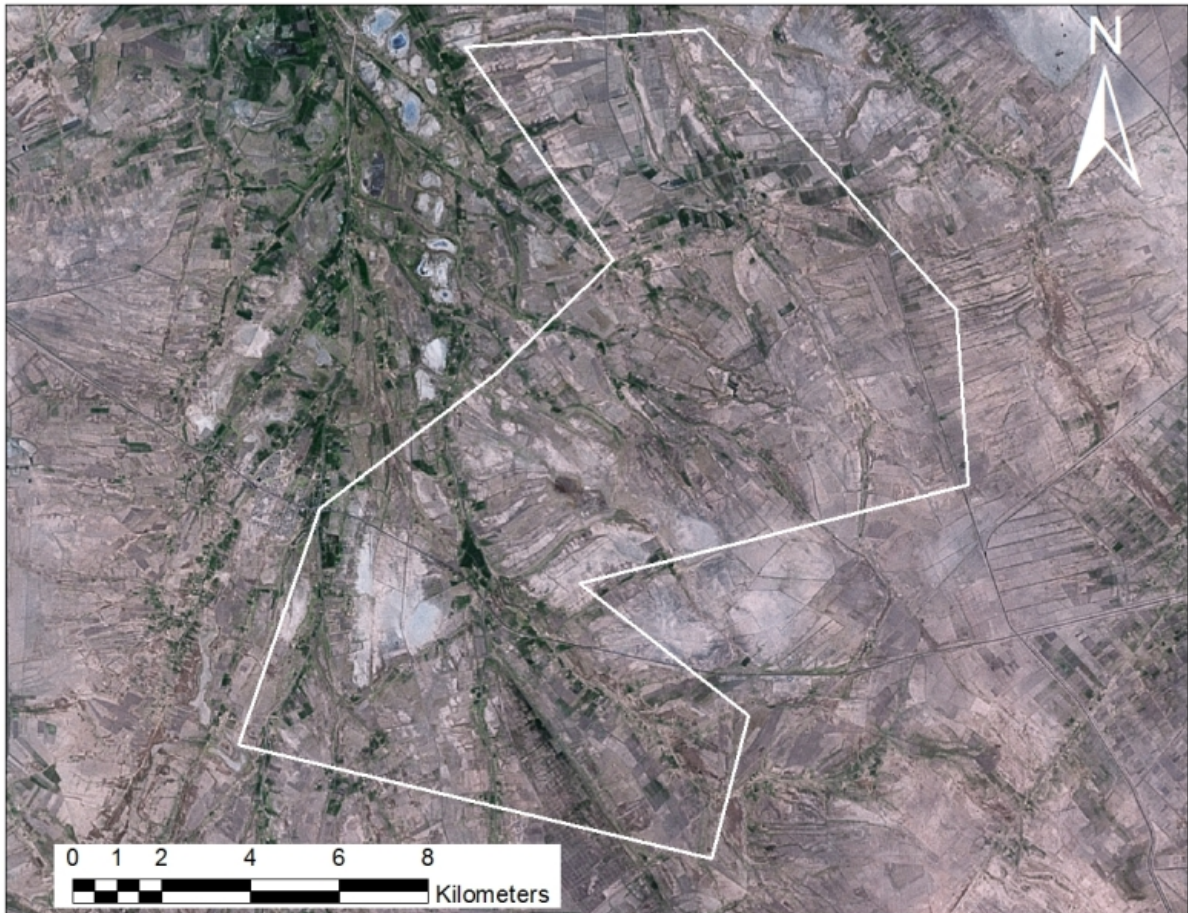
Coordinates: N 31 41, E 45 47

Area: 15455 ha

Unprotected Area

Altitude: 12 m

Directional information: From Diyala: Baquba – Kana'an - Baladroze – Attariya plains. From Bagdad: Baghdad – Sha'b- Jedadat Al Shat – Al Khalis – Baquba – Kana'an -Baladroze – Attariya plains.



Site Description: The site is a combination of grassy, arid steppes and uncultivated open land dotted with shrubs and seasonal pools bordered by reeds and *Typha* vegetation. There are a small number of farms and orchards throughout the site, consisting mainly of citrus and date-palm trees irrigated from the many branches of the Tigris River that pass through the site.

Nature Iraq & Iraqi Ministry of Environment Report

The site is located east-northeast of Baghdad and southwest of Baquba, the capital city of Diyala governorate in eastern Iraq near Kana'an and Baladroz, where the habitat is dominated by dense date-palm, citrus and other fruit orchards. Towards the southern end of the site the landscape changes to open steppes featuring farming habitats and halophytic and xerophytic plants, namely *Acacia* and *Albagi*.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Hypocolius ampelinus</i>		1 pair (Probable)(2010)
A3. Biome-restricted species	<i>Vanellus leucurus</i>	1 (2010)	
	<i>Pycnonotus leucogenys</i>	5 (2010)	3 pairs (resident)(2010)
	<i>Passer moabiticus</i>		5 individuals (Probable)(2010)

Birds: There were 342 birds of 30 species seen in winter of 2010 and 137 birds of 18 species seen in summer. The following conservation concern species were noted at the site though not in numbers sufficient to meet the criteria: *Coracias garrulus* (GT), *Larus genei*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Wide diversity of terrestrials observed, with a large distribution of Arachnid and Mollusca species
- B. Vertebrate: *Amphibians*: None observed during the survey.
- C. Flora: *Phragmites*, *Typha*, *Salix*, *Acacia*, *Albagi*, *Ziziphus*, *Eucalyptus* and *Populus*, in addition to commercial species such as date-palm trees, fig, pomegranate, apricot, berry, pear, cape apple. Fields of wheat and barley are cultivated beside the road.

Conservation Issues & Recommendations: Agriculture impacts most heavily on the environment of this area. Many currently uncultivated steppes face exploitation for farming purposes as local farmers require more land for irrigation and livestock grazing, meaning that habitat destruction through human interference is a rising threat to these ecosystems. An environmental management plan to conserve the local habitat is strongly recommended for both the site itself and the surrounding region.

Baladroz is the site of the annual falcon hunt of Houbaras *Chlamydotis macqueenii*, primarily by Saker Falcon *Falco cherrug*, and other species such as Barbary Falcon *Falco pelegrinoides* and Peregrine Falcon *Falco peregrines*. The area is considered to be one of the main winter habitats for these prey species in the region. Global hunting regulations to combat overhunting are recommended to be implemented both here and other main hunting regions in Iraq.

This site is located in Diyala governorate and is the most geographically close IBA to Baghdad (Evans, 1994). Unstable security conditions will still require close co-ordination with local authorities and the military for future field surveys.

Mandli

DY4

Summer observations: 4/5/2010

Admin Area: Diyala

IBA Criteria: A3

Nature Iraq & Iraqi Ministry of Environment Report

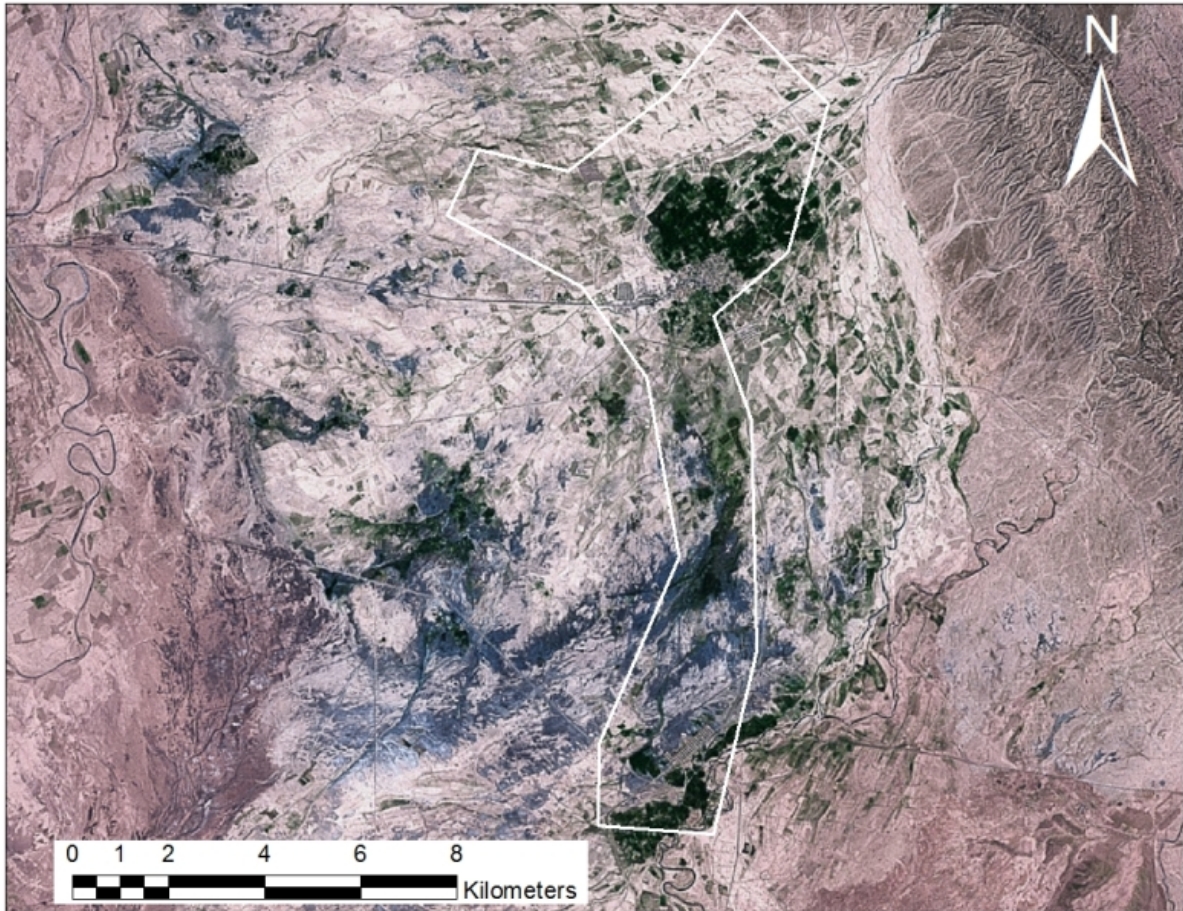
Coordinates: N 04 06, E 27 38

Area: 4890 ha

Altitude: 27m

Unprotected Area

Directional information: From Diyala: Baquba – Kana'an - Baladroz – Mandli. From Baghdad : Baghdad – Sha'b- Jedadat Al Shat – Al Khalis – Baquba – Kana'an - Baladroz – Mandli



Site Description: The site is located approximately 5 km from the Iraq-Iran border and considered the easternmost town in Iraq. The site was witnessed extensive fighting and was heavily bombed during the Iraq-Iran War, which destroyed much of its natural habitat and dramatically changed the biological characteristics of this unique environment.

The site is located beneath a rocky extension of the Himreen hills on the eastern edge of the site, which form part of what is considered to be the natural border of Iraq. Below them are open steppes with flat, sandy terrain covered in xerophytic and halophytic vegetation with occasional fresh and salty seasonal pools. Dense fields of date-palm trees are planted alongside fruit orchards and vegetable fields near the old city of Mandalit to the south. A line of sandy cliffs pass through the site and are

Nature Iraq & Iraqi Ministry of Environment Report

considered to be prime breeding grounds for resident raptors such as the Saker Falcon *Falco cherrug*, Barbary Falcon *Falco pelegrinoides*, Common Kestrel *Falco tinnunculus* and most likely the Lesser Kestrel *Falco naumanni*.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Pycnonotus leucogenys</i>		5 pairs (resident)(2009-2010)
	<i>Passer moabiticus</i>		2 individuals (probable)(2010)

Birds: There were 52 birds of 13 species seen in summer of 2010. The following conservation concern species were noted at the site but not in numbers sufficient to meet the criteria: *Coracias garrulus* (GT), and *Vanellus (Hoplopterus) spinosus*.

Other important wildlife and flora (including rare, threatened/endemic species):

- Invertebrates: The site appears to be suitable habitat for wide range of insect species, mainly *Odonata*, *Hymenoptera*, and *Lepidoptera*.
- Vertebrate: No observations during the survey.
- Flora: Date-palm and other fruit orchards such as orange, lemon, fig, apricot, pear and others. Wild plant species include *Acacia*, *Albagi*, *Ziziphus* and small amounts of *Phragmites* in some places.

Conservation Issues & Recommendations: Extensive environmental damage caused by the Iraq-Iran War can still readily be seen in the area. The war destroyed and changed almost every habitat present. Large numbers of date palm trees have been removed or died from the heavy bombings the site sustained during the war or as a result of military construction projects at the site. Iran has recently constructed more dams to block and redirect all river branches that cross the border into Iraqi territory through Mandli, which has significantly harmed local farming communities due to water shortages and caused major environmental damage. Ongoing dam construction on the Iranian side of the border contributes to the increased dehydration of the site. The area has long been used for grazing, which may also contribute to its deterioration.

The sites location in Diyala governorate near the Iranian border requires special security co-ordination to access. Co-operation with local officials and military authorities will continue to be a requirement for future survey teams to safely carry out their work.

Jadriyah and Umm Al Khanazeer Island

BG1, IBA 015

Winter observations: 13/1/2010; Summer observations: 13/6/2010

Admin Area: Baghdad

KBA Criteria: V
IBA Criteria: A2, A3

Coordinates: N 16 31, E 22 36

Unprotected Area

Area: 1 ha

Altitude: 64m

Directional information: From Baghdad only: Baghdad areas landmarks and Al Jadriyah, University of Baghdad complex, Al Jadriya bridge towards Saydiya and Bae'a



Site Description: The site is located inside Baghdad, the capital of Iraq, southeast of the city center on a tongue-shaped extension off the Rasafa side of the city facing the Karkh side, caused by an oxbow of the Tigris River. The University of Baghdad is located in the site and as such as an area familiar to many Iraqis. In the past the site was densely covered with date-palm trees and citrus and other fruits and vegetables, as well as thick brush that made movement around the area very difficult.

The site now consists of two homogenous habitats: one in Rasafa on the east side of the river called Jadriyah and the other in Karkh on the west side known as Umm Al Khanazeer Island, so named for the large wild boar population that once lived there. The area's original habitat was date-palm orchards and farmland with dense thickets, prior to the construction of the University in the 1960s. Today the site is predominantly urban with little of the original habitat left, although pockets are still found on the southern and western edges of the campus. The western part of the Jadriyah site along the Tigris River has been converted into an artificial pool for tourists, with water from the Tigris obtained through water regulators that pump in a continuous stream of water. These are blocked until

Nature Iraq & Iraqi Ministry of Environment Report

the water becomes shallow or evaporates during the summer, exposing submerged vegetation that serves as a good environment for migrant waterfowl and waders.

A zone of uncultivated arid land extends to the northeastern edge of the site, where there is year-round agricultural activity and many vegetable fields. Dense orchards of date-palm trees are found here, although they are more common in the Doura district of Baghdad across the river, near the southern edge of the site (but outside the survey area).

Conservation Significance:

Key Biodiversity Area Criteria	Scientific name (count of individuals or pairs if found)	Notes (what evidence you have)	
V1. Critically Endangered (CR), Endangered (EN) Vulnerable species (VU)	<i>Rafetus euphraticus</i> (EN)	Euphrates Softshelled Turtle	
Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Hypocolius ampelinus</i>		2 individuals probable)(2010)
	<i>Turdoides altirostris</i>	7 (2010)	3-6 pairs resident)(2009-2010)
	<i>Tachybaptus ruficollis</i>	4 (2010)	
A3. Biome-restricted species	<i>Pycnonotus leucogenys</i>	15 (2010)	25 pairs (resident)(2009-2010)
	<i>Turdoides altirostris</i>	7 (2010)	9 pairs resident)(2009-2010)
	<i>Passer moabiticus</i>		2-7 individuals (probable)(2009-2010)

Birds: There were 1397 birds of 61 species seen in winter fo 2010 and 954 birdes of 44 species seen in summer. The following conservation concern species were noted at the site but not in numbers sufficient to meet the criteria: *Marmaronetta angustirostris* (GT), *Phalacrocorax pygmaeus*, *Larus genei*, *Larus armenicus*, *Vanellus (Hoplopterus) spinosus*, and *Corvus capellanus* (endemic race).

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Various species of snails and slugs were observed at the site. A wide range of insects of various orders and families were also observed, such as ants, wasps, flies, beetles, butterflies, moths, cicadas, grasshoppers, crickets and others. Other invertebrate species such as spiders and scorpions were also found. Second grade and graduate biology students of the university conduct an annual insect survey here.
- B. Vertebrate: *Reptiles:* Various lizard and Geckosg *Hemidactylus* spp. and snakes and vipers were discovered. observed Caspian Terrapin *Clemmys caspia* and Euphrates Softshelled Turtle *Rafetus euphraticus* (EN) have also been seen and reported roaming in the site, which will require additional surveys to properly catalog; *Amphibians:* Green Toads *Bufo viridis* breed at the site and, with many specimens in various life stages collected from the site; *Mammals:* The following species are confirmed to inhabit the site, based on direct observation or analyzingisof tracks: Long-eared Hedgehog *Hemiechinus auritus*, Indian Grey Mongoose *Herpestes edwardsi* and Common Red Fox *Vulpus vulpus* breed at the site.; Golden Jackals *Canus aureus* various species of bat anda wide variety of old world rats and mice are also found here
- C. Flora: Predominantly date–palm trees and *Populus*, *Eucalyptus*, *Albezæa*, *Ziziphus*, *Phragmites*, *Typha*,

Nature Iraq & Iraqi Ministry of Environment Report

Morus, *Sedge* citrus trees such as lemon, orange, grape, fig, pear, grape apple, and apricot, trees in addition to many other plant species.

Conservation Issues & Recommendations: The site is a crowded area of Baghdad and filled with human activity and construction work, which lead to continuous impact on the environment and animal habitats at the site. No environmental management plan exists for this site, and as such only small undisturbed areas remain and its biodiversity has suffered extensively throughout. It is necessary to devise and implement a conservation plan for the site as quickly as possible it is an important bird habitat that could prove suitable for educational programs, tourism and ornithological studies, given its open land and close proximity to the University. Such actions are strongly recommended and must be taken in order to halt the decline of this region's environment and to conserve what biodiversity still remains.

Abu Habba

BG2, IBA 014

Not visited

Admin Area: Baghdad

Coordinates: unverified

Area: unknown

Altitude: unknown

Unprotected Area

The is an IBA site identified by Evans (1994) but unfortunately the site was not surveyed for the following reasons:

- The site is located in a politically unstable area. The team could not visit the site due to dangerous conditions and the decision was made to delay the survey until it is more secure.
- Based on local reports the site has changed dramatically since Evans surveyed it in 1994. GPS co-ordinates and logistics information from Evans was not clear, which could result in confusion in the field if approached without sufficient preparation.

Huweija Marshes and Beaji

KK1, IBA005

Winter Visit: 25/12/2009 ; Summer Visit: 13/4/2010

Admin Area: Kirkuk

IBA Criteria: A1, A3

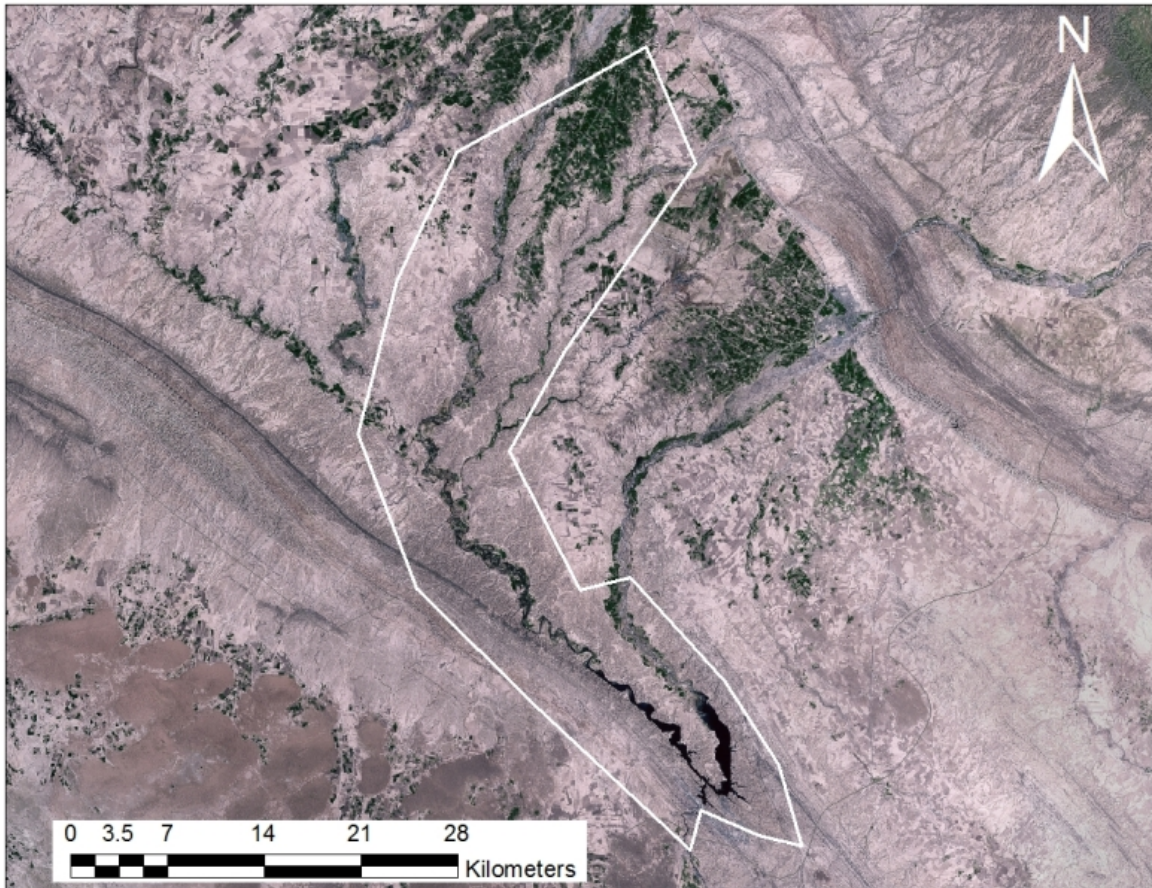
Coordinates: N 34 58 36, E 44 00 08

Area: 74019 ha

Unprotected Area

Altitude: 154 m

Directional information: □ From Tikrit: Tikrit – Al Alam – Al Meabdi – Zegatoon – Huweija. □ From Baghdad: Baghdad – Al Khalis – Al Edheam – Al Douz - Zegaton –to the site



Site Description: The site is located southwest of Ta'mim/Kirkuk governorate and extends into the northeast sector of Salah Ad Din governorate near Baiji town on a narrow river branch of the Tigris toward Al Hawija town in Kirkuk governorate. The site is filled with shallow, marshy pools lined with dense reed beds, with water levels gradually declining to the south as the reeds follow the riverbanks and extend along a stretch of semi-desert steppes with halophytic and xerophytic vegetation. The site's main road crosses the Himreen Hills, which extend into the site as the rocky hills flatten into marshland. A small number of irrigated wheat and corn fields are located close to the road. A strategic oil pipeline passes directly across the site, which may be a potential environmental hazard for local wildlife.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i>		1 pair (resident)(2010)
A3. Biome-restricted species	<i>Ammoperdix griseogularis</i>		3 pairs (resident)(2010)

Nature Iraq & Iraqi Ministry of Environment Report

	<i>Oenanthe finschii</i>		1 pair (probable)(2010)
--	--------------------------	--	----------------------------

Birds: There were 690 birds of 27 species seen in winter of 2010 and 139 of 38 species seen in summer. The following conservation concern species were noted at the site but not in numbers sufficient to meet the criteria: *Falco naumanni* (GT), *Coracias garrulus* (GT), *Pycnonotus leucogenys*, *Phalacrocorax pygmaeus*, *Larus armenicus*, *Larus genei*, *Vanellus (Hoplopterus) indicus*, *Oenanthe finschii*, and *Passer moabiticus*.

Other important wildlife and flora (including rare, threatened/endemic species):

- A. Invertebrates: Suitable Habitat for The site is a semi-terrestrial and aquatic insectal orders, primarily *Odonata* and *hemiptera*.
- B. Vertebrate: *Reptiles*: *Nupata Agama A. nupata*; *Amphibians*: None observed during the survey; *Mammals*: Golden Jackal, *C. aureus*.
- C. Flora: *Phragmites*, *Albagi*, *Acacia*, *Ziziphus*, *Haloxylon* and *Astragalus*, in addition to a small number of scattered *Eucalyptus* trees.

Conservation Issues & Recommendations: The large strategic oil pipeline transporting that runs through the site's crude oil from Kirkuk to Jehan Harbor in Turkey, and suffers from many leaks, which produces chronic environmental damage to the wildlife and their habitat throughout the site. The team unfortunately could not investigate this further as they were prevented from proceeding further into the site by the Kurdish Pesh Merga (permissions are needed from the Pesh Merga authorities to survey the area) and the extent of the pipeline's impact remains unknown. Coordination with the military and civilian officials in the area (both Kurdish & Arab) is urgently required to address these impacts, starting with arrangements to enable the team to successfully complete their survey of the site. Low-scale agricultural activities have also impacted slightly on the habitat of the site.

South Site Review

This section describes each site visited within southern Iraq during the 2010 Key Biodiversity Areas survey. It details fauna and flora observations at these sites and waypoints with particular focus given to species and habitats of conservation significance in accordance with KBA/IBA/IPA Criteria. Occasionally information on mammals at some sites is also included when available. Conservation issues and recommendations that are site specific are also provided.

Jabal Senam

BR1

Winter fauna observations: 1/28/2010; spring plant observations: 27/3/2010; summer fauna observations: 6/13/2010

Admin Area: Basrah

IPA Criteria: Criteria B and C

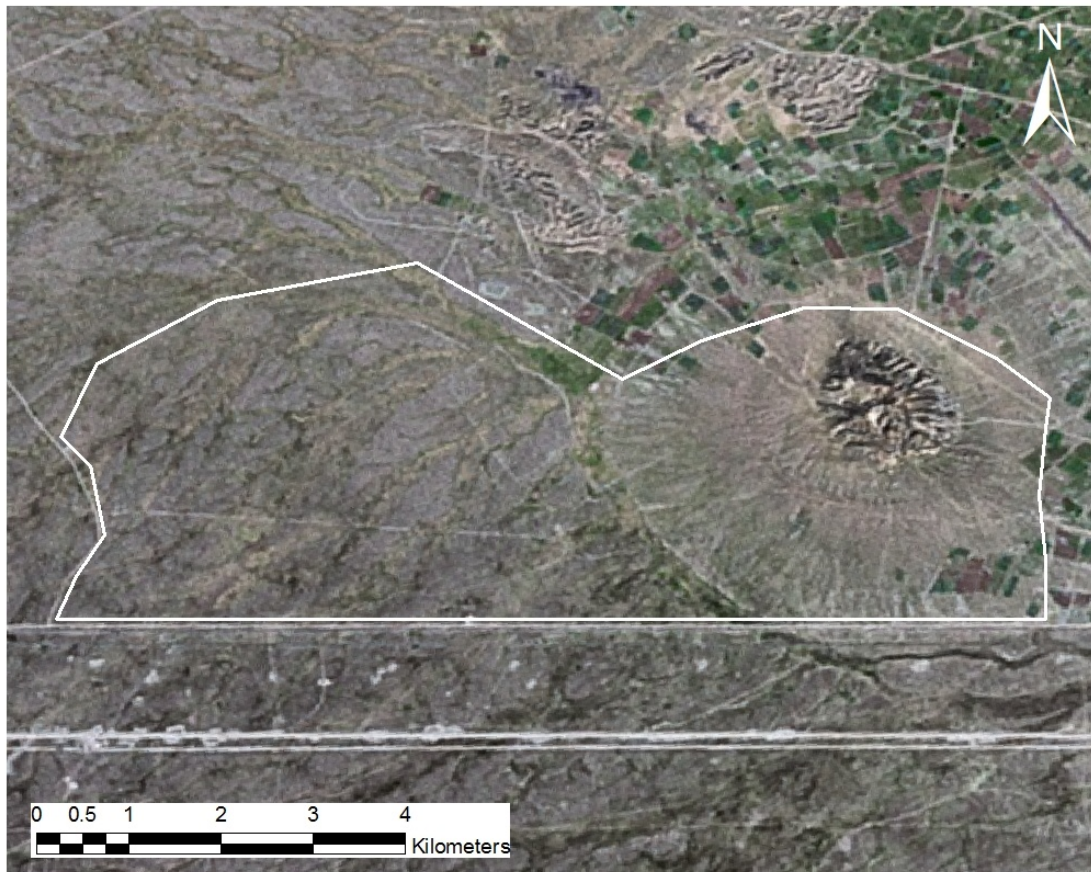
Coordinates: N 30 7 28, E 47 37 38

Unprotected Area

Area: 2917 ha

Altitude: unmeasured

Directional information: the site is located about 50km southwest of Basrah city, close to the Iraqi-Kuwaiti border



Panoramic picture of Jabal Senam area

Nature Iraq & Iraqi Ministry of Environment Report

Site Description: This is a new site for the KBA program. It is an isolated mountain in the desert, surrounded by steppe habitat. During the winter 2010 survey the land was covered by low plants of various types. The area is close to the Kuwaiti border, with a US Army camp and a border station nearby. The military does not permit anyone to hike up the mountain itself, thus only the base of the mountain and surrounding area was surveyed. No changes were found in comparison to the winter survey during the summer 2010 visit. The area is used for extensive livestock grazing and is surrounded by agricultural fields.

Conservation Significance:

Important Plant Area Criteria	List Scientific name or Ecoregion type as appropriate	Notes (State evidence)
B. Botanical richness	<i>Astragalus spinosus</i> (endemic)	90 plant species were identified.
C. Threatened habitats	Gulf Desert and Semi-Desert (PA1323)-Critical	This site represents an outstanding example of either the ecoregion itself and the habitat type (desert-desert shrub). It is located in a critically threatened ecoregion and is also under the threat of agriculture, livestock grazing, garbage/littering, oil extraction and air pollution.

Birds: Winter total count: 141. Winter species number: 8. Summer total count: 46. Summer species number: 6. Important observations in winter were: Long-legged Buzzard *Buteo rufinus*, Greater Hoopoe-Lark *Alaemon alaudip*, Crested Lark *Galerida cristata*, White Wagtail *Motacilla alba* and Spanish Sparrow *Passer hispaniole*. Important observation in summer was: Pin-tailed Sandgrouse *Pterocles alchata* and Barn Swallow *Hirundo rustica*. Based on the survey, this site is not extremely rich in diversity. There are, however, several bird species of conservation concern, and the faunal team expect that further important species will be found upon further visits and observation.

Plants: One waypoint was visited at this site. Waypoint 20 (N: 32 23 37.3E: 47 23 14.2) is a desert-desert shrub habitat. The site was rated as 4 on the ecological scale, as it is very disturbed by grazing activities, garbage, oil extraction and air pollution. 90 plant species were observed in this waypoint, with the dominant species being *Rhanterium epapposum*, *Mesembryanthemum nodiflorum*, *Convolvulus cephalopodus*, *Astragalus spinosus* and *Stipagrostis plumosa*. The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 40%.

This area was identified as an IPA (Important Plant Area), as it is a botanically rich site with many plant species. While most of the identified plants are common in Iraq, several rare species were also found.

Conservation Issues & Recommendations: The unique environment of this mountain warrants further scientific survey, but unfortunately is hindered by the security issue of a US Army base positioned at the mountain's peak. US Army personnel do not allow anyone to visit the mountain or the area around it. It is important not only for its diverse range of plants but also for birdlife. Although no bird species of conservation concern were observed around the mountain base area, this habitat appears to be a potentially important area for the migration of Raptors, Passerines and Houbara Bustards.

Coordination with security forces in this area for future surveys is necessary to facilitate the team's access to the entire site and learn more about the faunal and avifaunal species here. Coordination with Kuwaiti authorities to plan a cross-border conservation program at this area is also recommended.

Kteibaan

BR2

Winter fauna observations: 1/27/2010; no spring plant observations made at this site; summer fauna observations: 6/17/2010

Admin Area: Basrah

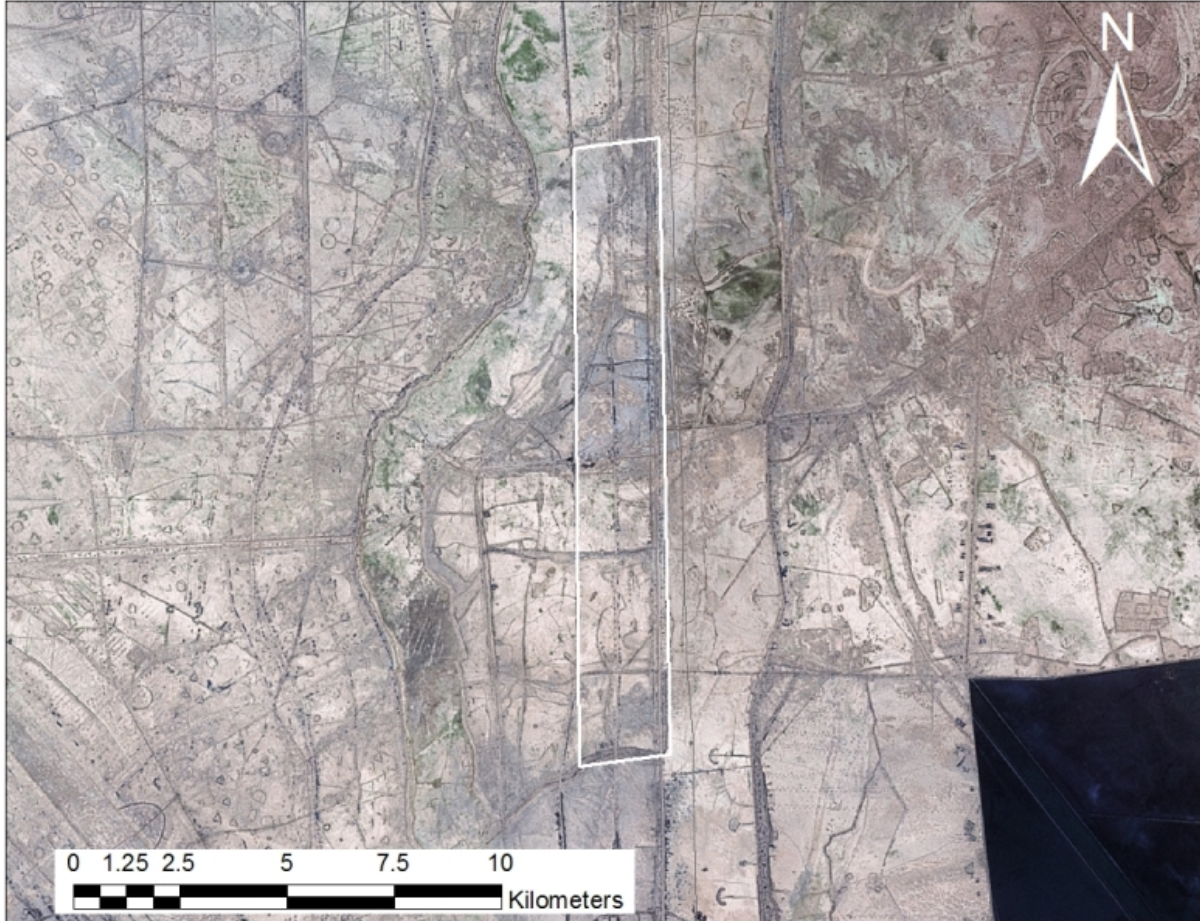
Coordinates: N 30 42 30, E 48 1 38

Unprotected Area

Area: 29789 ha

Altitude: unmeasured

Directional information: this site is located approx. 30km northeast of Basra, on the Iranian border.



Panoramic view of Kteibaan area

Site Description: This is a new site for the KBA program. It is located on the Iraq-Iran border, east of Basra city. Plant coverage in this area is poor as it is predominantly salt-based land. A large body of water with no plant covering lies on the Iranian side. Large flocks of Flamingos were found at this wetland. No changes were found in comparison to the previous survey during the summer 2010 visit, Flamingos were still present. This site may be an important area for this species of bird, as it is a protected area between the Iraq-Iran border.

Conservation Significance:

Nature Iraq & Iraqi Ministry of Environment Report

Birds: Winter total count: 3317. Winter species number: 14. Summer total count: 375. Summer species number: 9. Key observations in winter included: *Phoenicopterus roseus*, *Phalacrocorax pygmaeus*, *Phalacrocorax carbo*, *Pycnonotus leucotis* (a biome-restricted species), *Hirundo rustica* and *Anthus spinoletta*. Key observations in summer included: *Phoenicopterus roseus*, *Platalea leucorodia*, *Chroicocephalus genei* and *Hydroprogne caspia*. This site harbors a strong congregation of Waterfowl, Flamingos in particular. The Flamingo faces serious environmental threats in waterbodies throughout Iraq. Wherever it has been observed it is threatened by severe hunting and human disturbance. This site also has a significant congregation of Gulls spp. Some Spoonbills were also observed at the site, having evidently been attracted by the source of water and safety of the area.

Mammals and other fauna: No mammal or other fauna were observed in winter or summer. As there is only a border police station in the area, information on other fauna is difficult to obtain here.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This site is very important for its considerable populations of Flamingos and other Gull species. Its position between the Iraq-Iran border renders it difficult to access and provides a greater degree of protection for birdlife. It is recommended that an educational campaign targeting the area's Border Post staff be launched to raise environmental awareness. It is also recommended that lines of communication be opened with the relevant related Iranian authorities to devise a conservation plan for this important region.

Kharanj

BR3

Winter fauna observations: 1/28/2010; no observations for summer conducted.

Admin Area: Basrah

IBA Criteria: A3

IPA Criteria: B & C

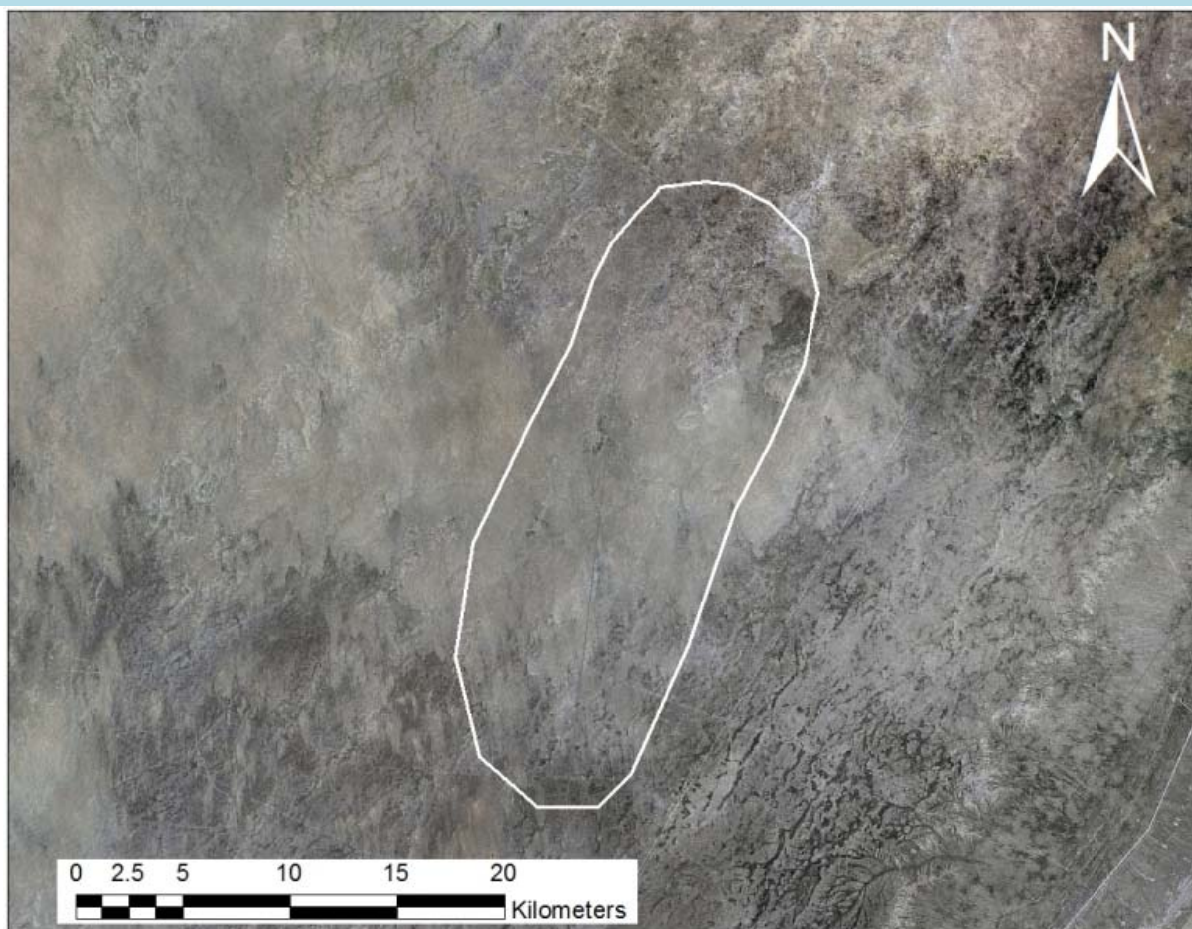
Coordinates: N 29 23 33, E 46 34 53

Area: 28737 ha

Unprotected Area

Altitude: unmeasured

Directional information: This is a new KBA site located in the extreme south of Iraq, close to the Iraq-Kuwait-Saudi triangle borders.



Part of the panoramic picture of the northern view of the site.

Site Description: This is a new KBA site located in the extreme south of Iraq close to the Iraq-Kuwait-Saudi triangle borders. It is located to the north of an abandoned oilfield at the end of a paved road (Kharanij Way). It is desert habitat with low grass and shrub vegetation. Sand dunes are scattered throughout the area. No human activity was observed here, except for a small number of Bedouin camel drivers and boarder guards.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Ammomanes deserti</i>	4	
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
B. Botanical richness	<i>Astragalus spinosus</i> (Endemic)	The identified plants are 27 species.	
C. Threatened habitats	Arabian Desert and East	This site is located in a critically	

Nature Iraq & Iraqi Ministry of Environment Report

	Sahero-Arabian Shrublands - Critical	Xeric	threatened ecoregion and is also very disturbed due to the remains of military weapons and mines, grazing activities and smoke emitted from the nearby gas separation station, causing soil and air pollution.
--	--------------------------------------	-------	--

Birds: Winter total count: 10. Winter species number: 6. Key observations include: Pin-tailed Sandgrouse, Rock Pigeon, Long-legged Buzzard *Buteo rufinus* and *Ammomanes deserti*. A full and accurate assessment cannot be made of this new site until further surveys are conducted. It may, however, be an important area for the migration of Raptors

Mammals and other fauna: Only one skeleton and tail of a Spiny-tailed Lizard were found in the area. The site may be important for desert mammals, particularly small rodents, lizards and desert snakes.

Conservation Issues & Recommendations: This site appears to be unrich in biodiversity, but requires further research and surveying to determine whether certain threatened species of bird are present here, such as the Golden/Imperial Eagle or other Raptor species of conservation concern. It may also harbor important varieties of Passerines. The team was informed that Houbara birds were formerly observed and hunted in this area.

Al-Lehais

BR4

Spring botany observations: 6/4/2010.

Admin Area: Basrah

IPA Criteria: Criteria B and C

Coordinates: N30 36 21 E46 31 45

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located 88km northwest of Basra city.

Site not delineated



Panoramic photo of the northern view of Al-Lehais.

Site Description: This site is desert area with sparsely-growing shrubs. A gas separation station is located close to the site, causing major air and soil pollution. A paved road leading to the gas station runs close to the area. The area is scattered with the remains of Iraqi military weapons from the first Gulf War.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Ecoregion type as appropriate	Notes (State evidence)
B. Botanical richness		<i>Astragalus spinosus</i> (Endemic)	The identified plants are 27 species.
C. Threatened habitats		Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and is also very disturbed by the remains of military

Nature Iraq & Iraqi Ministry of Environment Report

		weapons and mines, grazing activities and smoke emitted from the nearby gas separation station, causing soil and air pollution.
--	--	---

Plants: One waypoint was visited at this site. Waypoint 32 (N: 29 24 20 E: 46 36 13) was characterized by sparsely vegetated (predominantly herbaceous) habitat.

The site was rated as 4 on the ecological scale as a result of severe disturbance from livestock grazing, the remains of military weapons and mines, and soil and air pollution from smoke emitted from the nearby gas separation station. 27 plant species were observed in this waypoint, with the dominant species being *Astragalus spinosus* and *Cornulaca aucheri*. The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 60%.

Conservation Significance: All the identified plants are common in Iraq. Regulations regarding the use of newer, more environmentally friendly technology should be devised and applied to the operators of the gas separation station to reduce pollution levels. Co-ordination with the Ministry of Environment is required to clear the area of mine fields and military weapons.

Baghdadiya, South

CM1

Winter fauna: 1/20/2010; spring plant observations: 15/3/2010; summer fauna observations: 5/7/2010

Admin Area: Thi Qar

KBA Criteria: V

IBA Criteria: A1, A2, A3, A4i, iii.

IPA Criteria: Criteria C

Coordinates: N 31 1 28, E 47 0 57

Area: 131780 ha (Central Marshes KBA site)

Unprotected Area

Altitude: unmeasured

Directional information: This site is part of the Chibaish area at the Central Marshes and located approx. 8km north of Chibaish city.



Part of a panoramic picture of the northern view of Baghdadadiya marsh.

Site Description: This site is part of the Chibaish area marshes of the Central Marshes and is a brackish water site featuring very dense submerged and emergent vegetation. Eutrophication here has led to oxygen depletion and fish kills in recent years. The site's open water area lies adjacent to the road to the east and is surrounded by reedbed from other directions. Clusters of reeds are also distributed randomly throughout the area. Small groups of *Typha* (reedmace bed) and *Schoenoplectus litoralis* are growing close to the eastern road. The depth of the water is low. The open ground area is covered by submerged plants, most of them decayed.

Weather conditions were fine and sunny with a moderate northerly wind during the summer 2010 visit. The team was informed by locals that an embankment was constructed to block most of the Euphrates waters which will increase the water level throughout the entire Central Marshes area.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:
Vulnerability Criteria	<i>Rafetus euphraticus</i>	

Nature Iraq & Iraqi Ministry of Environment Report

Important Areas Criteria	Bird	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species		<i>Marmaronetta angustirostris</i> <i>Limosa limosa</i> <i>Acrocephalus griseldis</i>	32000 480	30- Confirmed 30- Not breeding 6 -Confirmed
A2. Restricted-range species		<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	27 18	6 -Confirmed
A3. Biome-restricted species		<i>Vanellus leucurus</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i> <i>Passer moabiticus</i> <i>Anthus spinoletta</i>	28 18 50 36	12 -Possible 6 –Confirmed
A4. Congregations				
A4i.		<i>Marmaronetta angustirostris</i>	32000	30 -Confirmed
A4iii.		<i>Marmaronetta angustirostris</i>	32000	30 -Confirmed
Important Area Criteria	Plant	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
Threatened habitats		Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecogion and also under threat of decreasing water levels, grazing and electrofishing.	

Birds: Winter total count: 57373. Winter species number: 35. Summer total count: 490. Summer species Number: 34. Key winter observations included: *Francolinus francolinus*, *Marmaronetta angustirostris*, *Tachybaptus ruficollis*, *Vanellus leucurus*, *Limosa limosa*, *Cettia cetti*, *Turdoides altirostris*, *Passer moabiticus* and *Motacillia citreola*. Key summer observations include: *Francolinus francolinus*, *Marmaronetta angustirostris*, *Vanellus spinosus*, *Vanellus leucurus*, *Limosa limosa*, *Glareola pratincola*, *Chroicocephalus genei* and *Acrocephalus griseldis*.

Baghdadiya is a significant site for both resident and migrant birds. It receives huge numbers of Waterfowl during their wintering in the marshlands, such as the globally threatened *Marmaronetta angustirostris* and other conservation concern Waterfowl. It also harbors considerable numbers of endemic (but conservation concern) bird species such as the Iraqi subspecies of the *Tachybaptus ruficollis*, in addition to the globally threatened (but endemic) *Acrocephalus griseldis*. Both of these species breed in quite good numbers in this area of the Central Marshes.

Mammals and other fauna: No mammals or other fauna were found in winter or summer during the site visit.

Plant: Two types of aquatic habitat were observed at this site, and two waypoints were identified during the summer visit. Waypoint 1 (N: 31 02 18.9E: 47 02 13.4) was inland standing water- aquatic communities-rooted submerged vegetation and Waypoint 2 (N: 31 01 33.6 E: 47 02 13.3) was inland running water, river or canal- submerged river and canal vegetation.

Waypoint 1: This site rated as 5 on the ecological scale due to the gradual drying of the marsh, which will in time kill all aquatic plants and organisms inhabiting the water. Six plant species were identified, including *Phragmites australis*, *Schoenoplectus litoralis* and *Typha domingensis* as emerged plants, all with very high vegetation densities. The remainder of the species were submerged, including *Potamogeton pectinatus* and *Chara sp.* *Tamarix aucherana* was also present at this waypoint in areas where the water levels were very shallow.

Waypoint 2: The small canal located to the south of the first waypoint was rated as 4 (very disturbed) on the ecological scale on account of decreasing water levels, livestock grazing and electrofishing. Nine plant

Nature Iraq & Iraqi Ministry of Environment Report

species were observed at this waypoint: *Typha domingensis* was the dominant species, in addition to several other types of emerged plants such as *Phragmites australis* and *Schoenoplectus litoralis*. The submerged species included *Ceratophyllum demersum*, *Myriophyllum verticillatum*, *Potamogeton pectinatus*, *Potamogeton lucens*, *Potamogeton crispus* and *Potamogeton perfoliatus*.

All identified plant species at this site are common in Iraq. Last year this site was identified as an IPA and is considered a threatened habitat due to prior drainage of the area and current problems with drought and upstream water utilization (Salim, Abid, Abdulhasan, and Minjil, 2009). There are no details concerning *Myriophyllum verticillatum* (it is covered in the unpublished volumes of the *Flora of Iraq*) although based on the team's observations it is relatively common.

Conservation Issues & Recommendations: Serious efforts need to be taken to ensure that this region, which is included in the core area of the proposed National Park is well protected from the threat of hunting, which is severe in this area. Despite the area's large size, with shelter provided by dense reed beds where hunting continues to be a serious disturbance for birdlife here. We also recommend that this area be supplied with a sufficient and stable source of water to ensure better health of the flora and fauna.

Fuhood, North

CM10

Winter Fauna observations: 1/16/2010; no spring plant or summer fauna observations conducted.

Admin Area: Thi Qar

IBA Criteria: A3.

Coordinates: N 30 59 10, E 46 43 32

Area: 131780 ha (Central Marshes KBA site)

Unprotected Area

Altitude: unmeasured

Directional information: near the outlet of the reflooded Abu Zirig Marsh, approx. 3km north of Fhood city.

See CM1 GIS Map



Part of the panoramic picture of the northern view of Fuhood marshes

Site Description: This site is a brackish marsh situated near the outlet of the reflooded Abu Zirig Marsh. CM10 is characterized by the presence of a high human population, large livestock herds and a lack of water flow (it is a remote site from its source of water). The area's habitat is predominantly reed bed, with small open water areas between the reeds.

A road runs adjacent to the area in the south, alongside the soil embankment of the river, which feeds the marsh with water. Date palm trees grow on the river soil embankment. This area is locally considered prime buffalo grazing area, with many locals also collecting reeds for buffalo fodder.

This area is situated in the Central Marshes, at the northern edge of Nassirya-Chibaish Way and close to Al Fuhood city. The site has been regularly surveyed by the Nature Iraq team since 2005. During the most recent survey the team found the water level to be less than one meter and the reed beds yellowish, due to decreasing water levels in the marsh's water source (Tigris and Euphrates Rivers). The summer 2008 survey found this area to be completely dry on account of the drought, whereas the area flooded in 2009 due to increasing water levels in Abu Zirig marsh (CM16), north of this area. Few bird species were found, possibly due to the significant disturbance of the main road's proximity.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Vanellus leucurus</i>	2	

Birds: Winter total count: 464. Winter species number: 14. Key observations include: *Vanellus leucurus*, *Ardea cinerea* and *Oenanthe isabellina*. This site is in very poor condition in comparison to the above site CM1. Its diversity of bird life in particular has decreased dramatically. Certain species of conservation concern are still present at this site, although they are few in number.

Mammals and other fauna: No mammals or other fauna were found during the survey.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations:

There are few prospects for bird conservation at this site. Although it harbors some species of conservation concern, these are very few in number. The site suffers from drought and requires more water to enrich and sustain its biodiversity. The fauna team recommends that this site be omitted from future surveys. This site requires more water to enrich and sustain its biodiversity.

Abu Zirig

CM16

Winter fauna observations: 1/18/2010; spring plant observations: 16/3/2010; summer fauna observations: 5/7/2010

Admin Area: Thi Qar

KBA Criteria: V
IBA Criteria: A1, A2, A3.
IPA Criteria: Criteria B and C

Coordinates: N 31 8 57, E 46 37 16

Area: 131780 ha (Central Marshes KBA site)

Unprotected Area

Altitude: unmeasured

Directional information: this marsh is located in Thi-Qar, approx. 3km south of the town of Islah.

See CM1 GIS Map



Panoramic photo of the northern view of Abu Zirig area.

Site Description: Abu Zirig is a freshwater marsh. Water flow and discharge at the site is very good, with water depth ranging from 3 to 5 meters. CM16 is characterized by an absence of human population, the presence of thick plant vegetation and a proximity to rice cultivation fields. The aquatic macroinvertebrates community at this site is quite diverse, supporting the impression gained by Al-Saffar (2006b) that the site and its surrounding areas have good water quality. The water passage (a canal) has a depth of about 2m, surrounded from both sides by reeds, with canal borders reaching a height of 2-3m above the water surface. This canal runs from north to south. Close to the reeds there are dense areas of decayed, submerged plants, while a narrow strip in the middle, where the canal's current runs, is deeper and unvegetated. Submerged plants in and around the canal are used by birds for breeding.

Nature Iraq & Iraqi Ministry of Environment Report

During the winter 2010 survey, this site was suffering a severe lack of water, which has resulted in a fish shortage and impacted on the economic status of residents. The shrinking water surface, caused by low water levels, has in turn affected the population numbers of birdlife in this area.

The water level was found to be healthy during the summer 2010 survey, and the plant coverage in good condition.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Frequently reported	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i> <i>Acrocephalus griseldis</i>	17	18 pairs -Possible breeding 11 - Confirmed
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	14 3	11 -Possible 9 - Confirmed
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Pycnonotus leucotis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	6 3	19 -Possible 11 -Confirmed 11 -Possible 29 -Confirmed
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
B. Botanical richness	<i>Nymphoides indica</i>	Locally threatened species because their habitat is threatened too.	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecogion and also under the threat of decreasing water levels, overgrazing, fishing, and trash	

Birds: Winter total count: 132. Winter species number: 16. Summer total count: 341. Summer species number: 28. Key observations in winter include: *Tachybaptus ruficollis*, *Ardeola ralloides*, *Porphyrio porphyrio*, *Pycnonotus leucotis*, *Turdoides altirostris* and *Erythacus rubecula*. Key observations in summer include: *Marmaronetta angustirostr*, *Netta rufina*, *Ardea cinerea*, *Ardea purpurea*, *Porphyrio porphyrio*, *Vanellus leucurus*, *Glareola pratincola*, *Pycnonotus leucotis*, *Acrocephalus griseldis* and *Turdoides altirostris*. Abu-Zirig is an important site for birdlife and harbors considerable numbers of conservation concern bird species and some globally threatened species such as *Acrocephalus griseldis*. The wetland habitat provides good conditions for the wintering Waterfowl and many species of Passerines.

Mammals and other fauna: No mammal or other fauna were found during the site visits.

Plants: Two waypoints in this site include: Waypoint 3 (N: 31 06 46.5E: 46 38 10.6), which was of the habitat type “inland standing water- aquatic communities- rooted submerged vegetation” and Waypoint 4 (N: 31 09 44.6E: 46 36 50.7), which was made up of inland standing water-flooded communities.

Waypoint 3: This waypoint is a permanent marsh dominated by submerged vegetation, such as *Ceratophyllum demersum*, *Potamogeton lucens*, *Potamogeton pectinatus*, *Potamogeton crispus* and *Hydrilla verticillata*. Several species of emerged plants were also present, including *Phragmites australis*, *Typha domingensis*, and *Schoenoplectus littoralis*. A total of 9 species were found at this waypoint. The nature of this site is fairly undisturbed, and as such rated a 2 on the ecological scale.

Nature Iraq & Iraqi Ministry of Environment Report

Waypoint 4: This waypoint contains periodically/occasionally flooded lands on the edge of Abu Lahlia River (the extension of Al Gharagh River), which is located north of waypoint 3. It was rated as 3 on the ecological scale due to livestock overgrazing, fishing and garbage/littering. 18 species were found at this waypoint, including emerged plant species *Phragmites australis* and *Typha domingensis*; submerged species *Ceratophyllum demersum*; floating plants *Nymphoides indica*, *Salvinia natans* and *Lemna gibba*; and flooded communities *Ranunculus aquaticus*, *Bacopa monniera*, *Cyperus rotundus*, *Melilotus indicus*, *Cynodon dactylon*, *Phylla canescens*, *Malva aegyptia*. Terrestrial species *Tamarix aucherana*, *Albati graecorum*, *Suaeda sp.*, *Rumex sp.*, and *Aeluropus lagapoides* were observed growing sporadically on the outer edges of the waypoint.

The majority of identified plants at this site are common in Iraq. This site, however, is the only one surveyed where *Nymphoides indica* grows and as such can be considered an extremely rare species. No conservation record is listed for this species in the unpublished volumes of *Flora of Iraq* however. *Hydrilla verticillata* is not mentioned in *Flora of Iraq* (only three plants of Hydrocharitaceae are mentioned in *Flora of Iraq*).

Conservation Issues & Recommendations: It is recommended that there be continued monitoring of Abu Zirig, focusing specifically on the life cycles of the globally threatened bird species it harbors. It is also highly recommended that the relationship with local residents be strengthened in order to encourage an interest in the protection of the marsh and the possible creation of a Local Conservation Group (LCG). This would facilitate better implementation of any future program for marsh conservation.

Zichri

CM5

Winter fauna observations: 1/17/2010; no spring plant or summer fauna observations conducted

Admin Area: Thi Qar

IBA Criteria: A2, A3, A4ii.

Coordinates: N 31 3 19, E 47 13 19

Area: 131780 ha (Central Marshes KBA site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 15km north of Mdeina city, north of the Euphrates.

See CM1 GIS Map



Segment of a panoramic picture of a northern view of the Zichri wetlands

Site Description: This site was formerly a brackish marsh environment that was part of the reflooded Chibaish Area Marshes, with shallow water and low dissolved oxygen. Today the area is characterized by dry and arid conditions, with a rapid growth of terrestrial vegetation such as *Tamarix sp.*, *Albati graecorum* and others. A dirt road divides the area in two: a more aquatic side to the west and a dryer area to the east. The road extends from Al Medaina Sector in the south, north towards Missan governorate. The marsh side on the road's west is shallow, with minimal open water areas. The area is covered by reeds, which are cut and used by locals. Water levels were slightly higher in the northwestern area than the southwest. Al Subaitia village lies close to the southern area of the marshes. The eastern, dry side of the road is predominantly covered by terrestrial plants. The site was relatively dry during the winter 2010 survey, although a patch of shallow water from Shatt Al-Shaghanba canal, which according to locals had recently flooded, was present and inhabited by a large number of Waterfowl.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Turdoides altirostris</i>	6 2	
A3. Biome-restricted species	<i>Passer moabiticus</i> <i>Turdoides altirostris</i> <i>Oenanthe deserti</i> <i>Vanellus leucurus</i>	70000 2 2 3	
A4. Congregations			
A4ii.	<i>Passer moabiticus</i>	70000	

Birds: Winter total count: 71,231. Winter species number: 30. Key observations in winter include: *Marmaronetta angustirostris* (8), *Tachybaptus ruficollis*, *Vanellus leucurus*, *Turdoides altirostris* and *Passer moabiticus*. This site does not have a particularly rich diversity of Waterfowl and water birds as it is only occasionally flooded. When pools of water do form in the area, it attracts water birds, some of which may be threatened or of conservation concern, but in general the birdlife in this area is fluctuating and temporary in nature. A small number of *Marmaronetta angustirostris* (GT) were observed in a waterpool and large numbers of *Passer moabiticus* (CC) were observed in winter.

Mammals and other fauna: No mammal or other fauna were found during the survey visit.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: While this site harbors some threatened and conservation concern species this is not regular the case. The overall this site is considered part of the Central Marshes KBA Site and part of the proposed Mesopotamian Marshlands National Park. It was historically a part of this marsh, but it now suffers from drying. A greater supply of water is urgently needed for this area in order to restore the huge numbers of Waterfowl the site once harbored.

Teena, Northern

HA1

Winter fauna observations: 1/21/2010; no spring plant or summer fauna observations conducted

Admin Area: Thi Qar

IBA Criteria: A2, A3.

Coordinates: N 30 53 19, E 46 54 24

Area: 136326 ha (part of West Hammar KBA Site)

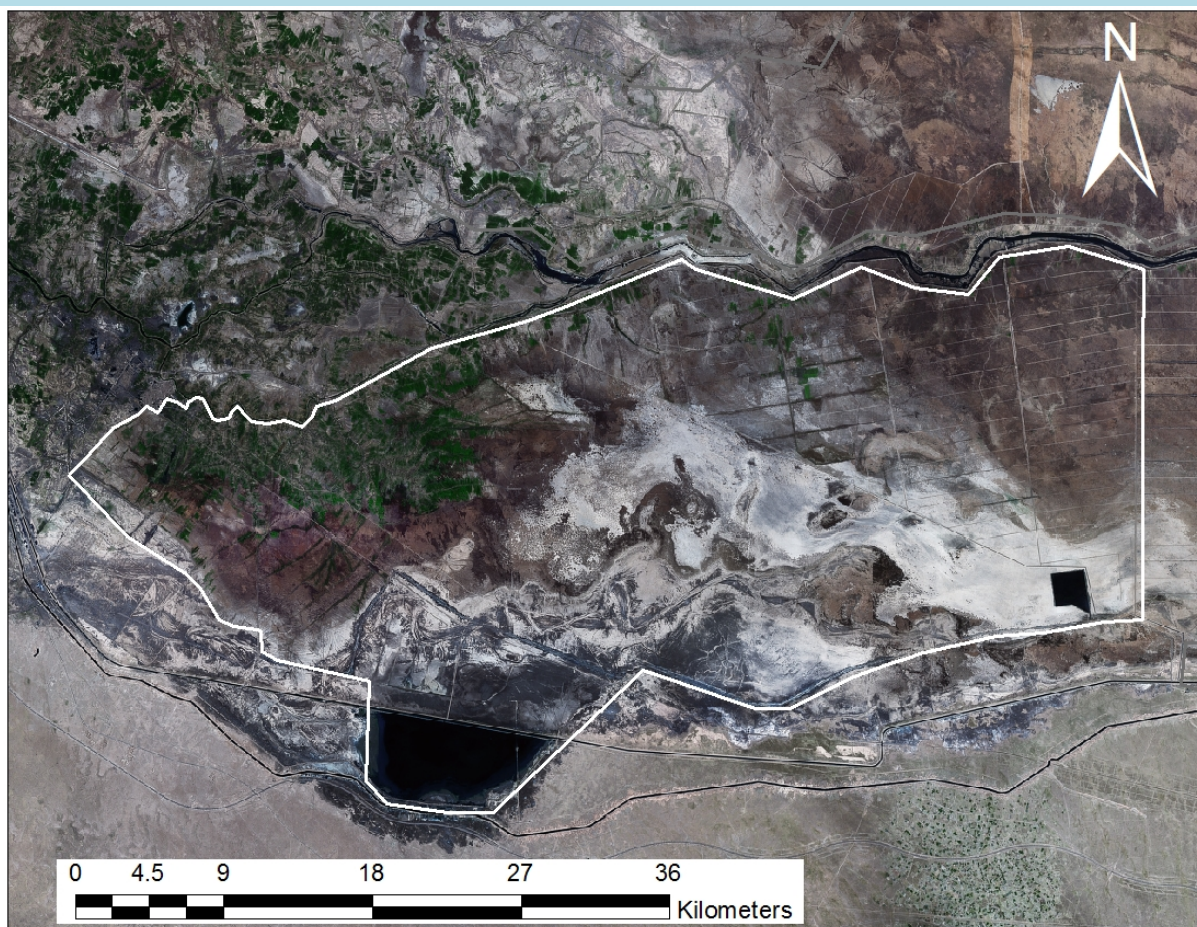
Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 5km south of Fhood town, south of the Euphrates.

Teena, Northern

HA1



North Teena is part of the West Hammar Marshes



Panoramic picture showing the North Teena wetlands

Site Description: This is a re-flooded area and is a brackish water site. The Teena River (canal), constitutes the area's water source. The dominant plants in this area are Tamarix and Phragmites. The Al Teena canal flows through the area from the Euphrates. It is an irrigation canal that has two embankments and there is thick with Typha in the eastern bank of the canal. The site is currently inaccessible by car as homes have been constructed over the road, and as such it was reached by the survey team on foot. The only major change found at this site during the winter 2010 survey was the lack of the water in the marsh area.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A2. Restricted-range species	<i>Turdoides altirostris</i>	8	
A3. Biome-restricted	<i>Turdoides altirostris</i>	8	

Nature Iraq & Iraqi Ministry of Environment Report

species		
---------	--	--

Birds: Winter total count: 884 Winter species number: 17. Key observations include: Black-winged Kite *Elanus caeruleus*, Montagu's Harrier *Circus pygargus*, Hoopoe *Upupa epops* and Iraq Babbler *Turdoides altirostris* (18 were seen in winter). North Al-Teena is in an area of agricultural wheat and barley farms, bushes and reedbed wetlands, factors which combine to form a good habitat for various bird species. The presence of Raptors indicates that the area is relatively rich in prey (such as smaller birds and rodents). No congregations of birds were seen at this site but some conservation concern and endemic bird species were identified.

Mammals and other fauna: No mammals or other fauna were found during the winter visit.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This site warrants regular surveys in order to gain further insight in to the area's biodiversity. A better supply of water is urgently required to feed the wetlands in this area.

Buhaira Al-Hilwa

HA3

Spring plant observations: 18/3/2010

Admin Area: Thi Qar

IPA Criteria: C

Coordinates: N 30 46 54, E 47 3 1

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 25km southeast of Chibayish city.

See HA1 GIS Map



Panoramic photo of the northern view of Buhaira Al-Hilwa.

Site Description: This lake or marsh measures approximately 4x4km and is surrounded by an artificial embankment and is fed by the Al-Wafa' Canal, which carries water from Thi-Qar to Basrah. As this marshland was created as a lake to prevent flooding in the canal, so that any extra water that may cause flooding in the canal flows into this lake via another short canal. The lake has very dense reed beds of *Phragmites*, with few open areas. The site is a very good habitat for harboring birds and as a breeding site, as it tends to retain water throughout most of the year. The water level was very shallow and dirty during the KBA visit, but has been recently restored and locals stated that current conditions are an improvement from 5 months ago, when the marsh was dry.

Conservation Significance:

Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecoregion and also threatened by water shortages, livestock

Nature Iraq & Iraqi Ministry of Environment Report

		production/grazing, hunting and garbage/littering.
--	--	---

Plants: One waypoint was chosen at this site during the spring visit: Waypoint 6 (N: 30 46 53.6 E: 47 03 03.4) is dominated by flooded communities, either periodically or occasionally flooded land. This was originally marsh vegetation (permanent vegetation), but the habitat's nature has changed dramatically due to its dryness.

The ecological status of the site was rated as 4 due to water shortage, in addition to numerous other threats such as livestock production and grazing, hunting and garbage/littering. 16 plant species were found at this site, some aquatic and others terrestrial, near the roads or embankments. The dominant plant was *Phragmites australis* (emerged). The percentage of non-vegetated terrain was 15%. The area is a flat slope of 0° in all directions and the geology and soil type at this waypoint were sedimentary and clay respectively.

Conservation Issues and Recommendations: All identified plant species are common in Iraq. This site requires a more stable supply of water to support its flora and fauna. However the conditions have been improved slightly by a recent local government project to block the MOD canal to direct its water supply to Hammar marsh, which this area is part of.

Naggaara

HA16

Winter fauna observations: 1/29/2010; spring plant observations: 29/3/2010; summer fauna observations: 6/12/2010

Admin Area: Thi Qar

KBA Criteria: V
IBA Criteria: A2, A3.
IPA Criteria: Criteria C

Coordinates: N 30 41 15, E 47 36 6

Area: 82968 ha (part of East Hammar KBA Site)

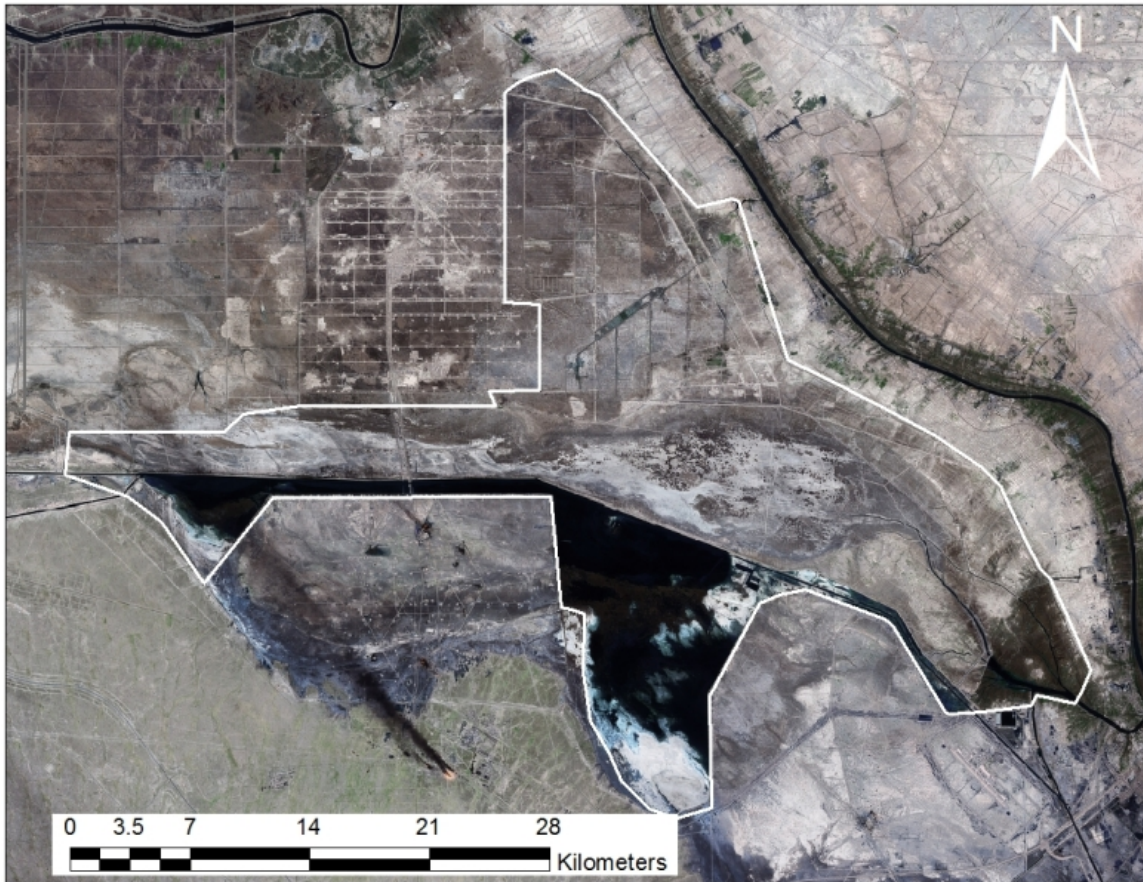
Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 15km northeast of Basra city, west of Shat Al-Arab.

Naggaara

HA16



Naggaara is part of the East Hammar KBA site



Part of panoramic picture showing the northern view of Naggaara wetlands

Site Description: The site is a large marsh fed by the Euphrates River and is tidally affected. HA16 is characterized by dense plant vegetation, distinct water flow and the presence of algal colonies. Poisons used for fishing constitute the main source of pollution here. The site's river is surrounded by reed species *Typha* and *Schoenoplectus* from each side. Approximately 500m north of the site the river expands to form a wide, shallow area (known as a *Bargab*), inhabited by many birds. No changes were found during the 2010 visit in comparison to previous surveys.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Frequently reported	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data

Nature Iraq & Iraqi Ministry of Environment Report

A2. Restricted-range species	<i>Tachybaptus ruficollis</i>	30	31 pair – possible
A3. Biome-restricted species	<i>Vanellus leucurus</i>	34	45 pair - confirmed
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecogion and also under threat of fishing, hunting and water pollution from boats.	

Birds: Winter total count: 1,385. Winter species number: 37. Summer total count: 401. Summer species number: 13. Key observations in winter included: *Anas crecca*, *Netta rufina*, *Vanellus leucurus*, *Chroicocephalus genei*, *Hydroprogne caspia* and *Apus apu*. Key observations in summer were: *Marmaronetta angustirostris*, *Glareola pratincola* and *Chroicocephalus genei*.

Mammals and other fauna: One Indian Mongoose was observed at the edge of the waterway in winter, close to the marsh, No other fauna was seen in summer.

Plants: One waypoint was selected at this site. Waypoint 38 (N: 30 41 34.3 E: 47 33 41.9) was characterized by inland standing water- aquatic communities- rooted submerged vegetation (dominated by *Ceratophyllum demersum*) surrounded by marsh vegetation (dominated by *Phragmites australis*). The ecological scale reading was 3 (moderately disturbed) due to local threats including fishing, hunting and water pollution caused by boats. Four plant species were identified, with the submerged *Ceratophyllum demersum* as the dominant species. Other species identified here were *Typha domingensis*, *Phragmites australis* and *Schoenoplectus litoralis*. All species of plants at this site are common in Iraq.

The local elevation was 19 m, and the surrounding area was flat with a slope of 0° exposed in all directions. The geology of this area was sedimentary, the soil type was clay and the percentage of non-vegetated terrain was 20%.

Conservation Issues & Recommendations: Coordination with the local police force to control hunting in this area is recommended. Regular educational programs to raise environmental awareness amongst the local community would assist in the promotion of responsibility regarding important species at this site. This site also requires a larger, more stable water supply.

Shilaychiya Marsh

HA17

Winter fauna observations: 1/31/2010; spring plant observations: 4/4/2010; summer fauna observations: 6/12/2010

Admin Area: Thi Qar

IBA Criteria: A2, A3, A4i.

IPA Criteria: Criteria C

Coordinates: N 30 37 32, E 47 37 32

Area: 82968 ha (part of East Hammar KBA Site)

Unprotected Area

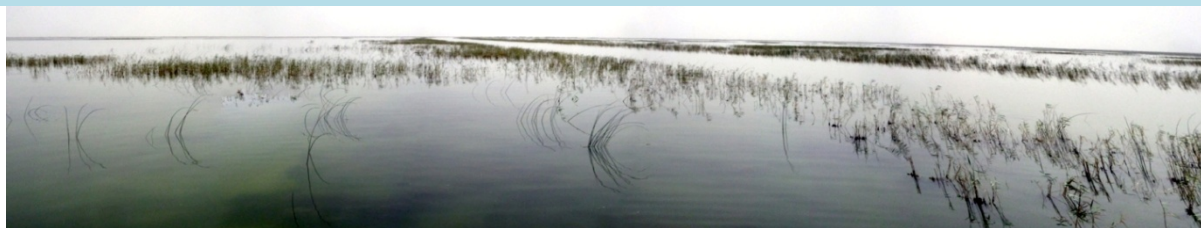
Altitude: unmeasured

Directional information: this site is located approx. 35km northwest of Basra city, north of the MoD.

See HA16 GIS Map

Shilaychiya Marsh

HA17



Panoramic picture of northern view of Shilaychiya Marsh

Site Description: This marsh is located southwest of Hammar. HA17 is characterized by the presence of dense floating algae and a diverse range of birds and fish. The area is divided in to two halves by a road: the eastern half is generally very dry except for a small area with muddy soil; the western side features a canal with open water to each side of it. This area is affect by the tide. A species of amphibian inhabits the area, known locally as “Abu Shalmo” (a species of Mudskipper). Small reeds grow on the edges of the canal.

During the summer 2010 visit no changes were found in comparison to previous surveys. Local residents were observed collecting vast quantities of small fish (under 10cm in length) and spreading them to dry in the sun for several days, to be used as chicken feed. This practice of mass fish collection likely constitutes an environmental problem as it may be devastating the area’s fish populations.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>		4 pair - Possible 3 pair - Possible 4 pair - Possible
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>		19 pair - Possible 3 pair - Possible 4 pair - Possible
A4. Congregations			
A4i.	<i>Chroicocephalus genei</i>	4100	220 pair - possible
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecorgion and also under the threat of water pollution by boats and the villages close to the site as well as trash, hunting, fishing and grazing activities	

Birds: Winter total count: 808. Winter species number: 15. Summer total count: 4,562. Summer species number: 29. Key winter observations include: *Chroicocephalus genei*, *Hydroprogne caspia* and *Gelochelidon nilotica*. Key summer observations include: *Tachybaptus ruficollis*, *Vanellus spinosus*, *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei*, *Hydroprogne caspia*, *Acrocephalus griseldis* and *Turdoides altirostris*. The following conservation concern species were identified at this site: *Chroicocephalus genei*, *Turdoides altirostris*(EN), *Vanellus (Hoplopterus) spinosus* and *Prophyrio prophyrio*.

Mammals and other fauna: No mammal or other fauna were found in winter or summer visits.

Plant: Two waypoints were visited at this site: In Waypoint 27 (N: 30 38 18.3E: 47 28 22.9) the habitat type is marsh vegetation/helophytic vegetation. In Waypoint 28 (N: 30 37 08.0E: 47 27 40.4) the habitat type is inland standing water- aquatic communities- rooted submerged vegetation.

Nature Iraq & Iraqi Ministry of Environment Report

Waypoint 27: This waypoint is a permanent marsh dominated by emerged plants such as *Phragmites australis* and *Typha domingensis* in addition to the submerged species *Potamogeton pectinatus*.

Waypoint 28: This waypoint contains submerged plant species such as *Potamogeton pectinatus*, *Najas marina* and *Chara sp.*

The site rated 3 on the ecological scale due to water pollution caused by boats and nearby villages, in addition to garbage/littering, hunting, fishing and grazing activities. The percentage of non-vegetated terrain was 30%. The area featured a flat slope of 0° fully exposed in all directions. The geology of this area was sedimentary and the soil type clay. All the identified plant species are common in Iraq.

Conservation Issues & Recommendations: It is important that water levels in this area be more stringently controlled to ensure a stable habitat. Human activity also leads to a variety of environmental impacts (example fish harvesting for chicken feed mentioned above) and it is recommended that a local environmental awareness campaign be initiated to raise ecological awareness. It is also clear that water levels in this area have decreased, most probably due to the closure of the regulator on the MOD downstream of the marsh. A local stated, “Yes, the water is saline here but it’s better than nothing or we would have to leave our area!”

Haffaar Opening 2

HA19

Winter fauna observations: 1/17/2010; no spring plant or summer fauna observations were conducted.

Admin Area: Thi Qar

IBA Criteria: A3

Coordinates: N 30 56 10, E 46 58 13

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: This site is located 3km southwest of Chibaish city, south of the Euphrates River.

See HA1 GIS Map



Panoramic picture of Haffaar wetlands

Site Description: This region has been re-flooded by water newly introduced to the site in 2007, after the creation of a small waterway from the southern side of the Euphrates River. It stretches from the Euphrates to Al Hammar marshes. Opposite the site the Euphrates is covered by reeds and *Typha*. Al Hammar marsh came to feature a high density of *Typha* growth in just one year after the opening was made in the embankment. Water was observed flowing in from the Euphrates River to Hammar via this opening during the survey. Few fishermen were seen netting in the shallow water, and few birds were seen at this site.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Passer moabiticus</i>	2500	

Nature Iraq & Iraqi Ministry of Environment Report

Birds: Winter total count: 2,556. Winter species number: 10. Key observations include: *Ardea cinere* and *Passer moabiticus*. The following conservation concern species were identified at the site: *Tachybaptus ruficollis*, *Ardea cinere* and *Passer moabiticus*.

Mammals and other fauna: No mammals or other fauna were observed during the site visit.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This area's proximity to Chibaish town means that it is affected by human activity such as fishing, reed cutting and even bird hunting. Due to the relatively low bird diversity of this site, the high level of disturbance and the close proximity to the proposed Mesopotamian Marshlands National Park, our recommendation is that the site should have continued monitoring and would also benefit from a local educational program to raise environmental awareness within the community to better protect and sustainably use the local biodiversity.

Slein (Ghatra)

HA21

Winter fauna observations: 1/31/2010; spring plant observations: 4/4/2010; summer fauna observations: 6/12/2010.

Admin Area: Basrah

IBA Criteria: A1, A2, A3.

IPA Criteria: Criteria C

Coordinates: N 30 41 17, E 47 28 16

Area: 82968 ha (part of East Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 50km northwest of Basra city, north of the MoD.

See HA16 GIS Map



Panoramic picture shows the Slein area, southern Hammar

Site Description: Ghattar is located at the eastern part of Hammar, about 30km west of Shileichiya (HA17). The area is divided by the Main Outfall Drain (MOD), that runs east to join Basrah Canal in western Basrah. The site was added only recently to the KBA program to focus on the considerable numbers of Waterfowl it harbors during the winter months and the presence of endangered species such as *Marmaronetta angustirostris*. A road and embankment runs parallel to the MOD. The road was recently paved to link Shileichiya with the Rumaila Oilfields. Large numbers of birds, most probably Waterfowl, were observed on the southern margins of the marsh, but many of them were unidentifiable because of this area's distance and inaccessibility. Water levels in the area appeared shallow, although there were still scatterings of reed beds. During summer the 2010 visit, no changes were found in comparison to the previous winter survey.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Limosa limosa</i>	1780	1780
A2. Restricted-range	<i>Tachybaptus ruficollis</i>	15	

Nature Iraq & Iraqi Ministry of Environment Report

species	<i>Turdoides altirostris</i>	5	
A3. Biome-restricted species	<i>Caprimulgus aegyptius</i> <i>Vanellus leucurus</i> <i>Turdoides altirostris</i>	5	2 – possible 8 – possible
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecogion and also under the threat of road construction, hunting, grazing, and oil pollution.	

Birds: Winter total count: 3,589 Winter species number: 24. Summer total count: 464. Summer species number: 6. Key winter observations include: *Tachybaptus ruficollis*, *Botaurus stellaris*, *Pelecanus onocrotalus*, *Limosa limosa*, *Chroicocephalus genei*, *Hydroprogne caspia* and *Turdoides altirostris*. 6. Key summer observations include: *Vanellus leucurus* and *Chroicocephalus genei*. The following conservation concern species were identified: White-cheeked Bulbul *Pycnonotus leucogenys*, *Chroicocephalus genei*, *Limosa limosa* (GT), and *Vanellus leucurus*.

Mammals and other fauna: No mammals or other fauna were observed.

Plants: One waypoint was visited at this site. Waypoint 29 (N: 30 42 47.3E: 47 15 39.9) was desert- desert shrub habitat.

This site rated as 4 (very disturbed) on the ecological scale. The main threats to this site are road construction, hunting, grazing and oil pollution. Three plant species were observed at the site: *Tamarix auberana* (the dominant species), *Suaeda sp.* and *Aeluropus lagapoides*. All the plant species at this site are common in Iraq. The area was flat with a slope 0° and exposure in all directions. The geology of this area was sedimentary, the soil type clay and the percentage of non-vegetated areas was 20%.

Conservation Issues & Recommendations: The most urgent priority at this site is to stop the construction of embankments and check the expansion of oil fields in the area. Based on the high number of Waterfowl observed here it would also be advisable to designate an ecologically protected area here in cooperation with the local police and Sheikhs of the region. A local educational program focusing on addressing habitat destruction and bird conservation is also recommended.

Abu Hedeeda

HA22

Admin Area: Thi Qar

IBA Criteria: A3.

Coordinates: N30 48 10, E46 48 49

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information:

See HA1 GIS Map

Abu Hedeeda

HA22



Abu Hedeeda in winter 2010

Site Description: None at this time

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Vanellus leucurus</i>		10 - possible

Conservation Issues & Recommendations: None identified at this time

Abu-'Ajaj

HA23

Winter fauna observations: 1/21/2010; no spring plant observations conducted; summer fauna observations: 5/9/2010

Admin Area: Thi Qar

KBA Criteria: V
IBA Criteria: A1, A2, A3.

Coordinates: N 30 52 18, E 46 48 11
Area: 136326 ha (part of West Hammar KBA Site)
Altitude: unmeasured

Unprotected Area

Directional information: this site is located approx. 20km southwest of Chibaish city in Hammar marsh.
See HA1 GIS Map



Panoramic picture of northern view of Abu-'Ajaj

Site Description: The water level of this area was very low, which prevented the team from moving freely throughout the site by boat. Despite calm, sunny weather, the site appeared not to harbor a rich diversity of birdlife. This may be due to disturbance caused by reed-cutting or the presence of hunters in the area

Nature Iraq & Iraqi Ministry of Environment Report

during the time the team's visit. During summer the 2010 visit, no changes were found in comparison to the previous winter survey.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Frequently reported, also otter tracks have been found here, possibly from the vulnerable <i>Lutrogale perspicillata</i>	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i> <i>Aythya nyroca</i> <i>Acrocephalus griseldis</i>		21 pair -Confirmed 26 pair -Confirmed 8 -Confirmed
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	8 8	7 -Probable breeding 8 -Confirmed breeding 4 -Possible breeding
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	8	6 -Probable breeding 8 -Confirmed breeding 4 -Possible breeding

Birds: Winter total count: 240. Winter species number: 27. Summer total count: 259. Summer species number: 30. Key winter observations include: *Tachybaptus ruficollis*, *Phalacrocorax pygmeus*, *Aquila clanga*, *Aquila nipalensis*, *Porphyrio porphyrio* and *Turdoides altirostris*. Key summer observations include: *Marmaronetta angustirostris*, *Netta rufina*, *Aythya nyroca*, *Tachybaptus ruficollis*, *Threskiornis aethiopicus*, *Botaurus stellaris*, *Phalacrocorax pygmeus*, *Porphyrio porphyrio*, *Vanellus leucurus*, *Acrocephalus griseldis* and *Turdoides altirostris*. Conservation concern species here were: *Prinia gracilis*, *Tachybaptus ruficollis*, *Phalacrocorax pygmaeus*, *Marmaronetta angustirostris* (GT), *Netta rufina*, *Aythya nyroca* (GT), *Acrocephalus griseldis* (GT, EN), *Chroicocephalus genei*, *Turdoides altirostris* (EN) and *Prophyrio prophyrio*.

Mammals and other fauna: One set of otter tracks were found in a muddy, bare area close to the marsh in winter. It was not possible to determine the species of otter based on the tracks. No mammals or other fauna was observed in summer.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: The first visit to this site in 2009 identified no human disturbance but the team observed that the water was running out of the marsh towards the canals. Based on the traces of the previous water-level, the team also concluded that this important area suffers from regular and serious water shortages. If this continues it may result in significant if not irreversible damage to this very important habitat.

According to local reports this area received more water from the opening of the new branch of the Main Outfall Drain (MOD), however greater effort should be made to provide the area with better water supplies to ensure sustainability of the flora and fauna it supports, the endangered and breeding species at this site in particular. This may be enabled through liaison with the Ministry of Environment and Ministry of Water Resources and local stakeholders.

Nuwashi

HA24

Winter fauna observations: 1/22/2010; no spring plant observations conducted; summer fauna observations: 5/9/2010

Nuwashi

HA24

Admin Area: Thi Qar

IBA Criteria: A1, A2, A3, A4i.

Coordinates: N 30 51 36, E 46 27 12

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 5km southeast of Suq Ash Shuyukh city, close to the Nassiriya-Basra railway line.

See HA1 GIS Map



Part of panoramic picture showing the northern view of the Nuwashi wetlands

Site Description: This site should receive regular monitoring in the future. It was reflooded recently after a new canal was built, bringing water from the Main Outfall Drain (MOD) near Khameesiya, south of Suq Al Shuyookh, northeastward to feed the upper parts of Hammar Marsh. During the winter 2010 visit, the first survey for this site, the site was filled with shallow water with poor plant cover (mainly dead/old reedmace). Large numbers of Waterfowl (ducks) have been attracted by this new water source, in addition to large numbers of other water-related birds.

During the summer 2010 visit, the "new" marsh was still fed by the new branch opened from the MOD. Plant coverage has increased in comparison to the previous visit. A large breeding colony of *Chlidonias hybrida* was observed.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i>	4100	
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>		7 - Probable breeding
A3. Biome-restricted species	<i>Vanellus leucurus</i>	100	41 - Probable breeding
A4. Congregations			
A4i.	<i>Marmaronetta angustirostris</i>	4100	

Birds: Winter total count: 7566. Winter species number: 19. Summer total count: 760. Summer species number: 14. Key winter observations include: *Marmaronetta angustirostris*, *Aquila nipalensis*, *Vanellus spinosus*, *Vanellus leucurus*, *Charadrius dubiu* and *Chlidonias hybrid*. Key summer observations include: *Tachybaptus ruficollis*, *Vanellus spinosus*, *Vanellus leucurus* and *Glareola pratincola*. Conservation concern species were *Tachybaptus ruficollis*, *Marmaronetta angustirostris* (GT), *Acrocephalus griseldis* (GT, EN) and *Limosa limosa*.

Mammals and other fauna: No mammals or other fauna were observed.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: A large breeding colony of *Chlidonias hybrida*, *Sternula albifrons* and *Sterna hirundo* was found in this newly flooded area. These species were observed to be laying their eggs on simple nests built just above the water surface, leaving them very vulnerable to human interference.

This area is evidently very important for breeding of the above-mentioned *Tern* spp and it is strongly recommended that steps be taken to protect this area, at the very least during the breeding season in the summer. Communication with the local community to raise awareness of their environment and the wetland's importance and its protection is recommended. It is also suggested that liaison with the relevant bodies be implemented to ensure a sufficient and stable water supply to this area through a regulated water-current from the new branch of the MOD.

Abu-Ajaj, East

HA27

Summer fauna observations: 5/10/2010

Admin Area: Thi Qar

IBA Criteria: A3.

Coordinates: N 30 50 7, E 46 52 48

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: thi site is located approx. 25km southwest of Chibayish city, north of the MoD canal.

See HA1 GIS Map



Panoramic picture of the East Abu-Ajaj wetlands

Site Description: This is a new KBA site, located in the southern and central region of Hammar Marsh. It is shallow marsh that receives water from the Euphrates and the new canal built from the Main Outfall Drain (MOD) to the northeast. During the summer visit, the first for this site, a considerable amount of newly arrived birds was observed. It is discerned that the area began to support such numbers of birds approximately one month before the visit, after the area was flooded with new waters from the MOD branch to the middle of Hammar.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Vanellus leucurus</i>		18 -Probable breeding

Birds: Summer total count: 281. Summer species number: 27. Key observations include: *Marmaronetta angustirostris*, *Netta rufina*, *Botaurus stellaris*, *Vanellus leucurus*, *Glareola pratincola* and *Streptopelia turtur*.

Mammals and other fauna: One Wild boar *Scrus rufa* was observed at this site during the visit.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Regular visits to this site are recommended to monitor the effect of the new water supply from the MOD branch. A program aimed at educating residents about the effects of hunting in this important area is recommended. A steady water supply to this area must be achieved to ensure the health of its flora and fauna.

Al-Rashid Lake

HA25

Winter fauna observations: 1/23/2010; spring plant observations: 20/3/2010; summer fauna observations: 5/8/2010

Admin Area: Thi Qar

IBA Criteria: A1, A2, A3.

IPA Criteria: Criteria C

Coordinates: N 30 40 58, E 46 37 52

Unprotected Area

Area: 136326 ha (part of West Hammar KBA Site)

Altitude: unmeasured

Directional information: this site is located approx. 30km southeast of Suq Ash Shuyukh town, south of the MOD canal.

See HA1 GIS Map



Part of a panoramic picture of the northern view of Al-Rashid Lake

Site Description: Al-Rashid Lake is a new site for the KBA program. It is located in the southern region of Hammar and fed by the Main Outfall Drain (MOD). The depth of the lake is approximately 1-1.5m, with a very large area of shallow water and sandy ground, lacking in vegetation cover, that forms an ideal habitat for Flamingos and other Waterfowls. During the summer 2010 visit, the lake was in good condition and was supplied with sufficient amounts of water by the MOD. Intensive fishing was observed.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i>	310	28 - Probable
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>	7	
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Oenanthe deserti</i> <i>Passer moabiticus</i>	11 3 430	
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecogion and also under the threat of fishing and hunting activities	

Nature Iraq & Iraqi Ministry of Environment Report

Birds: Winter total count: 12,618. Winter species number: 36. Summer total count: 1,514. Summer species number: 30. Key winter observations include: *Marmaronetta angustirostris*, *Netta rufina*, *Tachybaptus ruficollis*, *Pelecanus onocrotalus*, *Vanellus leucurus*, *Hydroprogne caspia* and *Passer moabiticus*. Key summer observations include: *Marmaronetta angustirostris*, *Netta rufina*, *Phoenicopterus roseus*, *Platalea leucorodia*, *Pelecanus onocrotalus*, *Vanellus spinosus*, *Chroicocephalus gene* and *Hydroprogne caspia*. Conservation concern species include: *Marmaronetta angustirostris* (GT), *Netta rufina* (GT), *Tachybaptus ruficollis*, *Pelecanus onocrotalus*, *Hydroprogne caspia*, *Platalea leucorodia* and *Passer moabiticus*.

Mammals and other fauna: No mammals or other fauna were observed in winter but one Brown hare was observed crossing the road close to the site in summer

Plants: One waypoint was visited at this site. Waypoint 13 (N: 30 41 39.7E 46 42 10.0) was characterized by inland standing water- aquatic communities- rooted submerged vegetation.

The ecological status of the site was rated as 3, indicating that the site was moderately disturbed, due largely due to the threat of fishing and hunting activities. Thirteen plant species were observed at this site. The dominant species in the lake is *Potamogeton pectinatus*; the dominant species at the edges of the lake are *Suaeda vermiculata* and *Tamarix aucherana*. The percentage of non-vegetated area was 30%. The site had a flat slope of 0° in all directions. The geology and soil type at this waypoint were sedimentary and clay respectively. All plant species at this site are common in Iraq or their status is unknown (i.e. they would be found only in the unpublished volumes of the *Flora of Iraq*).

Conservation Issues & Recommendations: Two issues make this lake a priority for environmental protection: its rich diversity of birdlife and congregations of threatened and conservation concern bird species; and the severe level of hunting and fish harvesting in the lake. Some fishermen employ the use of poisons to harvest large quantities of fish.

It is highly recommended to liaise with the Thi-Qar Department of Environment and the other relevant governmental bodies to devise and implement a sustainable hunting program and monitor hunting and fishing activities in the area on a frequent basis.

Shaafi

HA26

Winter fauna observations were made on 2/1/2010; No spring plant observations were done; Summer fauna observations were made on 6/18/2010

Admin Area: Basrah

IBA Criteria: A1, A2, A3, A4i.

Coordinates: N 30 49 32, E 47 26 48

Area: 82968 ha (part of East Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 30km northwest of Basra city, west of Shat Al-Arab river.

See HA16 GIS Map



Part of a panoramic picture of the northern view of Shafi wetlands

Site Description: This is a new site that was added during this latest survey to the KBA program. It is a wetland area located in the eastern part of Hammar, northwest of Basra. The area was characterized by dense reed beds and patches of open water. Hunting constitutes a significant threat to this site. Very few changes were found during the summer 2010 visit in comparison to the winter visit. A slight shortage in water was detected, possibly due to the tide effect noted during the winter visit.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Acrocephalus griseldis</i> <i>Marmaronetta angustirostris</i>	1800	4 pair - Possible
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	15 4	1 -Probable 4 -Possible 6 -Probable
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	45 4	8 -Probable 4 -Possible 6 -Probable
A4. Congregations			
A4i.	<i>Marmaronetta angustirostris</i>	1800	

Birds: Winter total count: 2,986. Winter species number: 22. Summer total count: 628. Summer species number: 21. Key winter observations include: *Marmaronetta angustirostris*, *Tachybaptus ruficollis*, *Vanellus leucurus* and *Turdoides altirostris*. Key summer observations include: *Tachybaptus ruficollis*, *Vanellus leucurus*, *Glareola pratincola*, *Acrocephalus griseldis* and *Turdoides altirostris*. Conservation concern species were: *Tachybaptus ruficollis*, *Vanellus leucurus*, *Glareola pratincola*, *Acrocephalus griseldis* (GT) and *Turdoides altirostris*.

Mammals and other fauna: No mammals or other fauna were observed here during the winter visit, except for one Wild boar *Scus rufa* found in the marsh.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: As this is a new site it is not yet possible to fully assess its potential as a KBA site. Further survey research is recommended to gain a better understanding of this site.

Spring plant observations: 18/3/2010

Admin Area: Thi Qar

Coordinates: N: 30 40 41.4 E: 46 53 02.6

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located 73km southeast of Nasriyah.

Not delineated

Unprotected Area

Al Ghabishiya

HA28



Panoramic picture of Al-Gabishiya area

Site Description: The site is located just north of Main Outfall Drain (MOD) and west of an MOD pump station. It is a desert area featuring species of shrub such as Tamarisk and sand dunes around the edges of the MOD. The only human activities in the area are livestock grazing and fishing in the MOD.

Conservation Significance:

Plants: One waypoint was visited at this site. Waypoint 7 (N: 30 40 41.4 E: 46 53 02.6) was a desert-desert shrub habitat. The site was rated 3 on the ecological scale as it was moderately disturbed by grazing activities. Fourteen plant species were observed at this waypoint, with the dominant species being *Tamarix aucherana*. The area was flat, with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 50%.

This site is located in the Tigris-Euphrates alluvial salt marsh, which is a critically threatened ecoregion. It is also under threat due to livestock grazing activities.

Conservation Issues & Recommendations: No plants of conservation significance were recorded here and the grazing appears to adversely affect the site.

Umm At Tiyaar near-Al Buhaira

HA4

Winter fauna observations: 1/23/2010; no spring plant observations conducted; summer fauna observations: 5/8/2010

Admin Area: Thi Qar

IBA Criteria: A1, A2, A3.

Coordinates: N 30 53 59, E 46 51 59

Unprotected Area

Area: 136326 ha (part of West Hammar KBA Site)

Altitude: unmeasured

Directional information: this site is located approx. km south of Chibaish town, north of Al-Wafaa' (Basrah) Sweet Water Canal.

See HA1 GIS Map



Panoramic picture of Umm Al-Tiyaar area

Site Description: This is a lake/marsh site, surrounded by soil embankments. The site's water source was diverted in the summer of 2007. It is located near and previously received its water from a channel

Nature Iraq & Iraqi Ministry of Environment Report

called Al Wafah River (Canal), which provides freshwater to Basrah from Thi Qar. There are openings in the soil embankments, making the site difficult to access. Fishing and bird-hunting takes place in the area. The site was found to still be dry during the summer 2010 visit, although water from Al-Wafaa canal had created some small wet and muddy areas.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Acrocephalus griseldis</i> <i>Marmaronetta angustirostris</i>	122	1 -Probable breeding
A2. Restricted-range species	<i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i> <i>Tachybaptus ruficollis</i>	8 9	1 -Probable breeding 3 -Possible breeding
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i> <i>Passer moabiticus</i>	8	2 -Probable breeding 1 -Probable breeding 3 -Possible breeding 21 -Possible breeding

Birds: Winter total count: 367. Winter species number: 17. Summer total count: 1224. Summer species number: 15. Key winter observations include: *Tachybaptus ruficollis*, *Vanellus spinosus* and *Turdoides altirostris*. Key summer observations include: *Francolinus francolinus*, *Vanellus leucurus*, *Chroicocephalus genei*, *Lanius nubicus*, *Acrocephalus griseldis*, *Turdoides altirostris* and *Passer moabiticus*. Conservation concern species included: *Francolinus francolinus*, *Vanellus leucurus*, *Chroicocephalus genei*, *Lanius nubicus*, *Acrocephalus griseldis*, *Turdoides altirostris* and *Passer moabiticus*.

Mammals and other fauna: One Golden jackal *Canis aureus* was observed crossing the road close to the canal in summer.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This site appears to be an important one for migrating Passerines and wintering Waterfowl. This area has become dry during the last two years and needs to be flooded with sufficient water to keep the level as stable as possible.

Umm Nakhla

HA6

Winter fauna observations: 1/19/2010; no spring plant or summer fauna observations conducted.

Admin Area: Thi Qar

IBA Criteria: A3.

Coordinates: N 30 49 18, E 46 38 32

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: This site is located approx. 10km southeast of Suq Ash Shuyukh town, north of the Nassiriya-Basra railway line.

See HA1 GIS Map



Umm Nakhla

HA6

Panoramic picture of Umm Nakhla wetlands

Site Description: This is a brackish water site located in the middle of an agricultural area (rice farms). HA6 is characterized by thick plant vegetation and almost stagnant water flow in the marsh, and date palm plantations and rice cultivation. A small canal, containing little water, runs through here. Sewage is the main source of pollution. The marsh areas are almost dry and feature a high density of reed and *Typha* growth. In former times a dirt road ran through this site, but has since been used for rice cultivation. There is also a village close to the site.

This site lacked water during the winter 2010 visit. The cultivation of wheat and barley fields were also hindered due to the lack of water in Um-Nakhla River. During the site visit there were some excavators digging a channel that brings the MOD water northward via this new canal to flood the northwestern parts of Hammar Marshes.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Pycnonotus leucotis</i>	2 4	

Birds: Winter total count 112. Winter species number: 19. Key observations include: Siberian Stonechat *Saxicola maurus*, *Vanellus leucurus* and *Pycnonotus leucotis*. Conservation concern species were: *Vanellus leucurus* and *Pycnonotus leucotis*.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: While Um-Nakhla harbors one or possibly more bird species of conservation concern this is not frequent and the site is not particularly rich in biodiversity. Overgrazing has severely impacted on this area. We recommend omitting this site from future surveys to concentrate on other sites with richer biodiversity.

Kermashiya Marsh

HA8

Winter fauna observations: 1/19/2010; spring plant observations: 17/3/2010; summer fauna observations: 5/9/2010

Admin Area: Thi Qar

IBA Criteria: A1, A2, A3.

IPA Criteria: Criteria C

Coordinates: N 30 47 56, E46 37 25

Area: 136326 ha (part of West Hammar KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 15km southeast of Suq Ash Shuyukh town, north of the Nasiria-Basrah railway line.

See HA1 GIS Map

Kermashiya Marsh

HA8



Panoramic picture of Kermashiya wetlands

Site Description: This site is near an Reverse Osmosis (RO) water purification station, which is located on the soil embankment opposite the area. The station purifies marsh water to be used for drinking water. *Typha* is the dominant plant. The marsh itself features shallow water and is divided by a soil embankment, with the east side more densely covered by reed and *Typha* than the west side. Many houses have been constructed from reeds on the embankment.

This site suffered seriously from a lack of water during the 2008/2009 that was severe enough to drive out the majority of inhabitants (the Madan) living on the embankment. A large canal has now been dug, bringing water from the new opening in the MOD northward to flood the northwestern parts of Hammar Marsh. The survey was conducted along a transect line in winter and summer that started at point (N30 49 36.2, E46 34 59.6) and ended at point (N30 46 23.7, E46 39 56.3). The site was found to be in good condition during the summer 2010 visit. Many houses have been built along the soil embankment.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i> <i>Acrocephalus griseldis</i>		8 -Possible 3 -Confirmed
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	3	7 -Confirmed 3 22 - Probable
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Pycnonotus leucotis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>		30 -Confirmed 4 -Possible 3-Confirmed 22 -Probable
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecoregion and is also under threat of decreasing water levels, fishing and over grazing.	

Birds: Winter total count: 214. Winter species number: 18. Summer total count: 506. Summer species number: 25. Key winter observations include: *Tachybaptus ruficollis*, Common Black-headed Gull *Chroicocephalus ridibundus* and *Phalacrocorax pygmaeus*. Key summer observations include: *Marmaronetta angustirostris*, *Tachybaptus ruficollis*, *Phalacrocorax pygmaeus*, *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei*, *Pycnonotus leucotis*, *Acrocephalus griseldis* and *Turdoides altirostris*. The following conservation concern species were identified at this site during the winter 2010 visit: *Chroicocephalus genei*, *Tachybaptus ruficollis*, *Turdoides altirostris* (EN), *Tachybaptus ruficollis*, *Phalacrocorax pygmaeus*, *Prophyrio prophyrio*, *Acrocephalus griseldis* (GT, EN), *Larus genei* and *Marmaronettaangustirostris* (GT).

Nature Iraq & Iraqi Ministry of Environment Report

Mammals and other fauna: No mammals or other fauna were found in winter but one Indian Mongoose was observed in the area in summer.

Plants: One waypoint was selected at this site. Waypoint 5 (N: 30 48 08.0E: 46 37 08.2) was a marsh dominated by reeds and cattails.

Waypoint 5: The site was rated as 3 on the ecological scale due to decreasing water levels, fishing and over grazing. Eight species were observed, with the dominant one being the reed *Pbragmites australis*. Other species identified here were: *Typha domingensis*, *Schoenoplectus litoralis* (emerged), *Najas marina*, *Potamogeton crispus*, *Potamogeton pectinatus*, *Chara sp.* and *Ceratophyllum demersum* (submerged). The local elevation was 4 m with a flat slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was clay and the percentage of non-vegetated terrain was 5%. All identified plant species are common in Iraq. This site was identified as an IPA in 2009 and considered a threatened habitat due to the dry conditions and other threats to the existence of this unique habitat (Salim, Abid, Abdulhasan, and Minjil, 2009).

Conservation Issues & Recommendations: Water shortage is the primary problem at this site. Control of the water level and ensuring sufficient water supplies from the Euphrates River will encourage the plants, fish and bird life to flourish. It is also recommended that a regular environmental educational campaigns be run to raise awareness amongst the local community, particularly in regard to the threatened species of bird and fish found here.

Umm An Ni'aaj

HZ1

Winter fauna observations: 2/8/2010; spring plant observations: 26/3/2010; summer fauna observations: 6/20/2010.

Admin Area: Missan

KBA Criteria: V
IBA Criteria: A2, A3, A4i.
IPA Criteria: Criteria C

Coordinates: N 31 35 35, E47 34 56

Area: 164023 ha (part of Hawizeh KBA site)

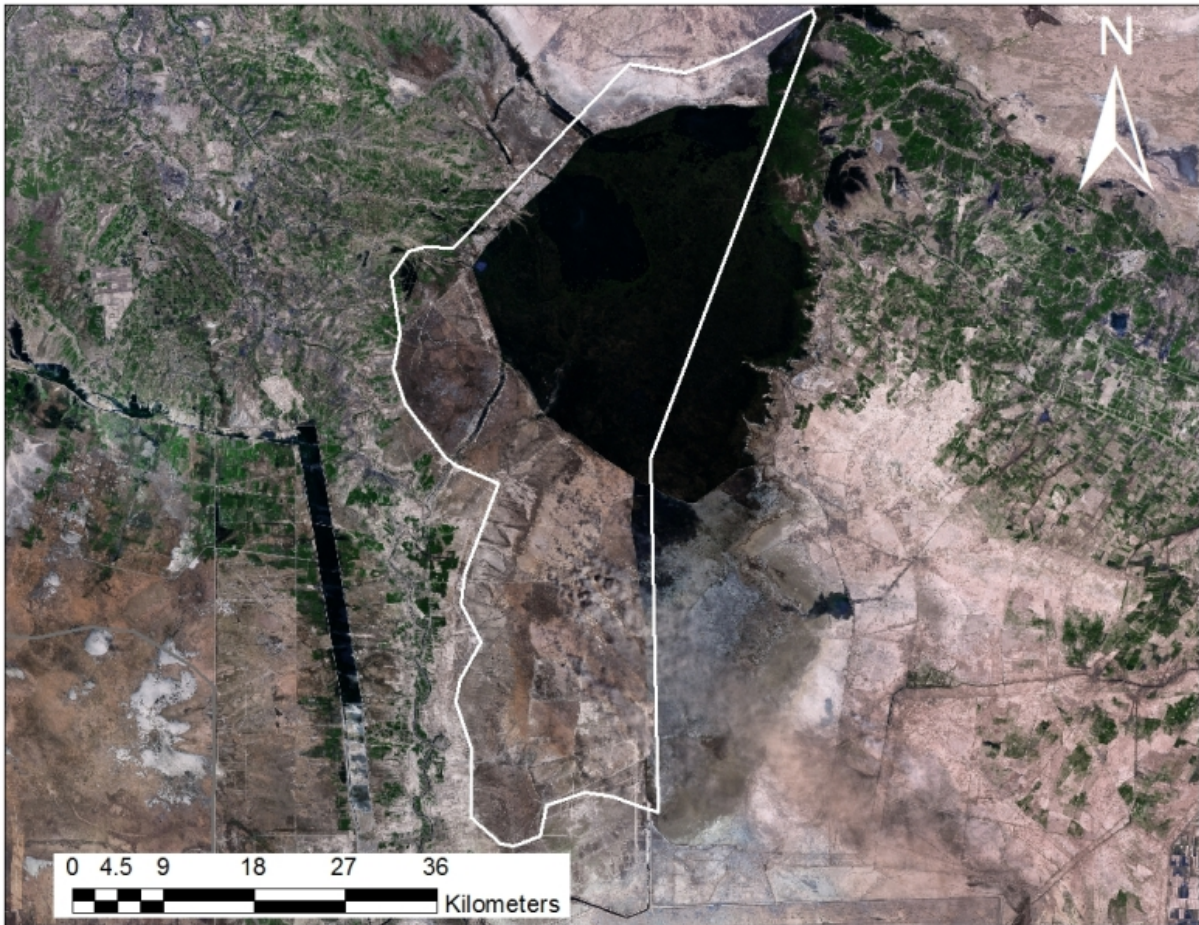
Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. km southeast of Kaha'a town in the Maysan governorate.

Umm An Ni'aaj

HZ1



Umm An Ni'aaj wetlands

Site Description: This site was originally listed in Evans (1995) as IBA site 32 “Haur Om Am Nyaj”, and described as a large wetland (15,000 ha) about 20 km southeast of Amarah, “comprised of extensive Typha beds with many areas of open water and fast-running creeks, and is partly permanent and partly seasonal.” The current survey considers this area a part of the larger Hawizeh system of marshes and found that it is a brackish water marsh in summer and fresh water in winter. It is located in a region of the Hawizeh that was affected by the drainage programs of the previous regime, but was never drained entirely and thus offers a possible habitat to support many of the marshland plants and animals that existed nowhere else during the drainage period.

Nature Iraq & Iraqi Ministry of Environment Report

Today this site (HZ1) consists of a large lake on the northern side of Hawizeh with water coming from the Tigris, and has a depth ranging from 2-3.5 meters with low turbidity. A diverse range of plants grow here, with most plant communities found on the margins of the lake, except submerged plants species which are found throughout the area. *Phragmites australis* communities form aggregations floating on the lake, moving from place to place in accordance with wind direction and speed, a phenomenon known as *Tabala* in Arabic. In the most recent visit the water quality was found to be poor: the flow had decreased and decayed submerged plants (*Ceratophyllum* sp) were observed. The dominant submerged plant was *Ceratophyllum demersum*.

The water level in Ummil Niaaj was good during the winter 2010 visit, although noticeably different compared to original water levels noted during previous surveys. No electro fishing and fish netting is permitted in this marsh, enforced by the border guards who do not allow fishermen to fish till the end of the spawning season. Electro fishing is entirely forbidden in this marsh.

During the summer 2010 visit, no changes were found in comparison to the previous winter survey.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	3 seen, also there are frequent reports of otter (perhaps the vulnerable <i>Lutrogale perspicillata</i>)	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Turdoides altirostris</i>	6	35 - Confirmed 1 - Possible
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Turdoides altirostris</i>	5 6	21pair -possible 1 - Possible
A4. Congregations			
A4i.	<i>Phalacrocorax pygmeus</i>	2900	321 pair - confirmed
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecoregion and is also under threat of decreasing water levels, fishing, hunting, garbage/littering and livestock production/grazing (particularly water buffalos).	

Birds: Winter total count: 5576. Winter species number: 27. Summer total count: 3665. Summer species number: 31. Key observations include: *Botaurus stellaris*, *Phalacrocorax pygmeus*, *Anhinga rufa*, *Vanellus leucurus*, *Chroicocephalus gene* and *Turdoides altirostris*. Key summer observations include: Black Francolin *Francoelinus francolinus*, *Marmaronetta angustirostris*, *Tachybaptus ruficollis*, *Phalacrocorax pygmeu*, *Anhinga rufa*, *Porphyrio porphyrio*, *Vanellus leucurus*, *Glareola pratincola* and *Turdoides altirostris*. The following conservation concern species were observed at the site: Darter *Anhinga [rufa] melanogaster*, Mesopotamian Crow *Corvus capellanus*, Armenian/Yellow-legged Gull *Larus armenicus/michabellis*, *Chroicocephalus genei*. Other species with various conservation status were observed, such as: Iraq Babbler *Turdoides altirostris*, *Phalacrocorax pygmaeus*, *Tachybaptus ruficollis*, *Vanellus leucurus* and *Porphyrio porphyrio*.

Mammals and other fauna: No mammals or other fauna were observed during the winter survey, although 2 snakes of unknown species were observed during the summer survey, in the marshwaters. One Indian Mongoose was also observed at the edge of the marsh.

Nature Iraq & Iraqi Ministry of Environment Report

Plants: This site had only one waypoint, Waypoint 58 (-N: 31 35 33.2E: 47 34 58.7), as there was only one primary habitat at this site (inland standing water-submerged vegetation and the surrounding reed beds) within which 16 plant species were observed. The dominant plants were reeds (*Phragmites australis*) that surrounded the marsh itself and were randomly distributed throughout the body of water. Along the edges of the marsh are semi-aquatic species such as *Bacopa monniera*, which grows on the old aggregate root of the reed and benefits from the shelter they provide. In the same habitat there are other, similar species including *Phyla nodiflora* and *Cynodon dactylon*. The submerged plants cover the marsh's open waters where no reeds grow. This submerged vegetation includes *Ceratophyllum demersum*, *Najas marina*, *Potamogeton crispus*, *Potamogeton pectinatus* as well as *Chara sp.* from lower plants. In addition to *Phragmites australis*, there are other emergent aquatic plants such as *Typha domingensis*, *Schoenoplectus litoralis*, and *Cladium mariscus*. The floating plant species *Lemna gibba* and *Lemna minor* grows in the spaces between the reed communities to avoid strong, wind currents. *Capparis spinosa* and *Salix euphratica* were also present on the way to the site. The ecological scale was 4 (very disturbed), with four categories of threat recorded: decreasing water levels, resource extraction (fishing and hunting), garbage/littering and livestock production and grazing (water buffalos in particular).

The majority of identified plant species are common in Iraq. There are four species of *Lemna* in Iraq, however, and three of them classified as rare (including *Lemna gibba*). The only one commonly found is *Lemna minor*. *Cladium mariscus* is a rare species in Iraq and is found only in two, possibly three, districts (Townsend, 1985). This site is an IPA and considered a threatened habitat due to dry conditions and other threats to the existence of this unique habitat (Salim, Abid, Abdulhasan, and Minjil, 2009).

Conservation Issues & Recommendations: This and all Hawizeh wetlands sites are affected by the 40 km-long embankment currently under construction that runs along the border on the Iranian side of the wetlands, directly impacting on water supply to the Iraqi wetlands. The most urgent priority for this area is the removal of the embankment, in order to renew water supplies.

This is one of the most important water bodies in Iraq as it harbors a number of very important species that breed in the region's dense reed beds. Several unique bird species such as *Anhinga rufa*, *Phalacrocorax pygmaeus* and the Sacred Ibis breed regularly at this site. Water levels are decreasing at this site due to the embankment built by Iran on the other side of the border, requiring liaison with the relevant Iranian authorities to remedy the situation.

This site must also be protected from human activity that impact on the site fauna, such as over-hunting of birds and electro-fishing. Additional survey research should be conducted of the local fish population to determine the sustainable catch for the area, and a community program devised to regulate the fisheries and achieve sustainability. This site can be considered as an IPA in Iraq as it is a threatened habitat containing many important aquatic plant species.

Udhaim

HZ2

Winter fauna observations: 2/9/2010; spring plant observations: 27/3/2010; summer fauna observations: 6/20/2010

Admin Area: Missan

IBA Criteria: A1, A2, A3, A4i.

IPA Criteria: Criteria C

Coordinates: N 31 41 13, E 47 44 56

Unprotected Area

Area: 164023 ha (part of Hawizeh KBA site)

Altitude: unmeasured

Directional information: this site is located approx. 35km southeast of Msharah town in the Maysan governorate.

See HZ1 GIS Map



Part of a panoramic picture of the northern view of Udhaim

Site Description: Evans provides a lengthy description of these marshes, which are fed by the Tigris and Karkheh Rivers and extend into Iran (the marsh here is called Hor Al Azim). Evans lists many globally and regionally threatened bird species that use the site as a source of water, such as *Anser erythropus* and *Anhinga rufa*. He also lists restricted range species at the site (*Hypocolius ampelinus* and *Acrocephalus griseldis*). Other threatened and endemic wildlife listed for this site include *Canus lupus*, *Lutra perspicillata* and the endemic sub-species *L. p. maxwelli* and *Gerbillus mesopotamiae*. It should be noted that mammal records in the KBA program have always been incidental and opportunistic. Only in the 2007 survey was there any attempt to gather more information on mammal species. Today this site is open water (lake) bounded on the north by reeds. Groups of Tahala reeds grow inside the lake, the bottom of which is covered by submerged vegetation. A police station is located close to the lake. The team was unable to survey within the lake as no boat was available.

Water levels in Udhaim were found to be good, although a noticeable decrease has been identified in comparison to previous surveys' observations. No fishing or hunting was permitted in this marsh during the winter 2010 survey, with the ban enforced very strictly by the Border Guards. Electrofishing strictly prohibited by the Border Guards. During the summer 2010 visit, no changes were found in comparison to the previous winter survey.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Acrocephalus griseldis</i>		2 -Possible
A2. Restricted-range species	<i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>		2 -Possible 2 -Possible
A3. Biome-restricted species	<i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>		2 -Possible 2 -Possible
A4. Congregations			
A4i.	<i>Phalacrocorax pygmeus</i>	2015	95
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecoregion and also under threat of sharply decreasing water levels.	

Birds: Winter total count: 2,830. Winter species number: 20. Summer total count: 324. Summer species number: 21. Key winter observations include: *Threskiornis aethiopicus*, *Botaurus stellaris*, *Phalacrocorax pygmeus*, *Phalacrocorax carbo*, *Anhinga rufa* and *Porphyrio porphyrio*. Key summer observations include: *Phalacrocorax pygmeus*, *Porphyrio porphyrio*, *Vanellus spinosus*, *Acrocephalus griseldis* and *Turdoides altirostris*. Conservation

Nature Iraq & Iraqi Ministry of Environment Report

concern species observed during the winter 2010 visit were: Darter *Anhinga [rufa] melanogaster*, Mesopotamian Crow *Corvus capellanus*, Armenian/Yellow-legged Gull *Larus armenicus/michabelhs*, *Chroicocephalus genei Phalacrocorax pygmaeus*, *Tachybaptus ruficollis* and *Acrocephalus griseldis* (GT, EN).

Mammals and other fauna: No mammals or other fauna were found. But the status of *Lutra perspicillata* (VU) and the endemic sub-species *L. p. maxwelli* (the latter is thought to be extinct but may still exist in Hawizeh since this Marsh was never completely drained) should be evaluated in these wetlands.

Plants: One waypoint was visited at this site. Waypoint 19 (N: 31 41 13E 47 44 56) was characterized by inland standing water- aquatic communities- rooted submerged vegetation, surrounded by reeds (marsh vegetation- helophytic vegetation- reed bed). The ecological status of the site was rated as 4, indicating that the site was very disturbed, in this case due to a sharp decrease in water levels.

Twelve plant species were observed at this site. *Phragmites australis* is the dominant species and is present in dense communities along the edge of the marsh. Also present are small, isolated communities within the body of water growing on the roots of the reed beds including *Cynanchum acutum*, *Trachomitum venetum*, *Rubus sanctus*, *Imperata cylindrical*, *Cladium mariscus* and two additional unidentified species from the *Compositae* family. The submerged plants growing at this site are *Ceratophyllum demersum* and *Potamogeton pectinatus*. Two species of terrestrial plants are also found here growing around the marsh *Tamarix sp.* and *Suaeda sp.*

Cladium mariscus is a rare species in Iraq, found only in two, possibly three, areas (Townsend, 1985). All other plant species identified here are common in Iraq. This site was defined as an IPA by Salim, Abid, Abdulhasan, and Minjil (2009) and is considered a threatened habitat due to drying and drought conditions and other threats to the existence of this unique habitat

Conservation Issues & Recommendations: This and all Hawizeh wetlands sites are affected by the 40 km-long embankment currently under construction that runs along the border on the Iranian side of the wetlands, directly impacting on water supply to the Iraqi wetlands. The most urgent priority for this area is the removal of the embankment, in order to renew water supplies.

This site is similar to HZ1 in that it is a very important breeding, nursery and rearing area for birds and fish. It is also important for its plantlife. It shares common threats with HZ1, thus warranting a long-term planning scheme to protect the entire region. This site is considered to be threatened habitat and contains many aquatic plants, and thus may qualify as an IPA.

It is strongly recommended that environmental awareness campaigns be conducted for both HZ1 and this site, aimed at educating locals and border police, who controls the entire wetland region. The border police in Abu-Khussaf (at the edge of the lake) have done a fine job in controlling the fishing ban during the spawning season in March and April, clearly evidenced by the noticeable increase in fish size and amount. The ban and its enforcement enabled much-needed “breathing space” for the lake and its fauna.

E'jayrda

HZ4

Winter fauna observations: 2/6/2010; no spring plant observations conducted; summer fauna observations: 6/18/2010.

Admin Area: Missan

IPA Criteria: Criteria C

Coordinates: N 31 19 55, E 47 37 51

Unprotected Area

Area: 164023 ha (part of Hawizeh KBA site)

Altitude: unmeasured

Directional information: this site is located approx. 25km east of Al-'Ezeir town in Maysan governorate.

See HZ1 GIS Map

E'jayrda

HZ4



Panoramic picture of Udham wetlands (formerly wetlands)

Site Description: This site is located towards the southern end of Hawizeh marshes and is itself a wide marsh split in to several segments by soil embankments. As is usually the case in summer, it was noted during the summer 2010 visit that the reed community had rapidly expanded in size and density. This area continues to suffer from critically low levels of water and is essentially now dry land, except for a few patches of water still inhabited by birds.

HZ4 was formerly characterized by various species of submerged vegetation, floating algae and areas of open water amid patches of reeds and typha. During the summer 2010 visit, the site was entirely dry. Patches of water were observed only around the margins of adjacent fields that were watered during the summer visit.

Conservation Significance:

Birds: Winter total count: 596. Winter species number: 28. Summer total count: 107. Summer species number: 13. Key winter observations include: Pin-tailed Sandgrouse *Pterocles alchata*, Black Francolin *Francolinus francolinus*, *Tachybaptus ruficollis* (1 of this range-restricted bird was seen in winter), *Phalacrocorax pygmeus*, *Vanellus leucurus* (33 of this biome-restricted bird was seen in winter), *Chroicocephalus gene*, and *Passer moabiticus* (13 of this biome-restricted species was seen in winter). Key summer observations include: Pin-tailed Sandgrouse *Pterocles alchata*, *Vanellus leucurus* (3 of these birds were seen in winter and were possible breeding birds at the site), *Glareola pratincola*, and *Streptopelia turtur*. Conservation concern species include: Pin-tailed Sandgrouse *Pterocles alchata*, Black Francolin *Francolinus francolinus*, *Tachybaptus ruficollis*, *Phalacrocorax pygmeus*, *Vanellus leucuru*, *Chroicocephalus gene* and *Streptopelia turtur*.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment but it is clear that the embankment represents a threat to this habitat.

Conservation Issues & Recommendations: This and all Hawizeh wetlands sites are affected by the 40 km-long embankment currently under construction that runs along the border on the Iranian side of the wetlands, directly impacting on water supply to the Iraqi wetlands. The most urgent priority for this area is the removal of the embankment, in order to renew water supplies. The area's habitat has changed dramatically and what was once flooded with water that harbored vast numbers of birds, is now dessicated or drying. If the embankment is not removed this part of the Hawizeh site will likely no longer meet conservation criteria very strongly. Sadly to say, this is an example for an area that was once extremely rich with waterfowl in large numbers based both on the historical information and the KBA 2005-2009 surveys. It has turned into dry area over a period of less than a couple of years.

Majnoon

HZ8

Winter fauna observations: 2/24/2010; spring plant observations: 3/30/2010; summer fauna observations: 6/15/2010.

Admin Area: Basrah

IPA Criteria: Criteria C

Coordinates: N 31 5 41, E 47 34 38

Unprotected Area

Area: 164023 ha (part of Hawizeh KBA site)

Majnoon

HZ8

Altitude: unmeasured

Directional information: this site is located approx. 75km to the north of Basra City, east of Shat Al-Arab River.

See HZ1 GIS Map



Panoramic picture of Majnoon wetlands (formerly wetlands)

Site Description: This site is located in the southernmost end of the Hawizeh marshes. It is a wide marsh split in to several segments by soil embankments, each with open water areas and groups of reed & typha (Tahala). This area began suffering from water shortage in the Tigris River in 2008 due to the drought and as of the summer 2010 survey was almost completely dry, with only one very small patch of water the only indicator of a “wetland” habitat at the site.. Only one patch of water was found in the area during the winter survey, while in former times the area was entirely covered in water. Its southernmost position in the Hawizeh marshes means it suffers from the most severe water shortages. Oil development was renewed in this area in 2009.

Conservation Significance:

Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecorgion and is also under threat of water shortages and dryness, livestock production/ grazing, road construction, garbage/littering, mining and oil extraction.

Birds: Winter total count: 72. Winter species number: 14. Summer total count: 10. Summer species number: 4. Key observations include: *Tachybaptus ruficollis* (with 7 birds seen that are possibly breeding at the site in summer) and *Passer moabiticus* (25 were seen in winter). Another importatn summer observation was Afgan Babbler *Turdoides buttoni*.

Plants: Only one waypoint was selected for this site during the spring 2010 visit, Waypoint 23 (N: 31 10 48.0 E: 47 35 55.7), due to the total dryness of the entire area. The main habitat was flooded communities- periodically or occasionally flooded land (originally the site was marsh vegetation-permanent vegetation, but the current state of dryness has changed the inherent nature of the site’s habitat).

The ecological status of the site was rated as 5 due to the drying of the marsh, in addition to other threats such as livestock production and grazing, road construction, garbage/littering, mining and oil extraction. The only aquatic plant coverage observed was the dry reed *Phragmites australis*, with some terrestrial plants growing near the soil embankments. The total number of species observed was 13.

The elevation was 7m, with a flat slope of 0° in all directions. The percentage of non-vegetated terrain was 70%. The geology and soil type at this waypoint were sedimentary and clay respectively. All the plant species at this site are common in Iraq or their status is unknown (based on the unpublished volumes of *Flora of Iraq*).

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: This and all Hawizeh wetlands sites are affected by the 40 km-long embankment currently under construction that runs along the border on the Iranian side of the wetlands, directly impacting on water supply to the Iraqi wetlands. The most urgent priority for this area is the removal of the embankment, in order to renew water supplies and restore its historically rich birdlife. As with HZ4, this is an example for an area that was once extremely rich with waterfowl in large numbers based both on the historical information and the KBA 2005-2009 surveys. It has turned into dry area over a period of less than a couple of years.

Bushes near Umm Al-Warid

HZ9

Spring plant observations: 26/3/2010.

Admin Area: Missan

IPA Criteria: Criteria B and C

Coordinates: N 31 34 5, E 47 30 4

Unprotected Area

Area: 164023 ha (part of Hawizeh KBA site)

Altitude: unmeasured

Directional information: This site is located 46km southeast of Al Amara city.

See HZ1 GIS Map



Panoramic picture of northern view of the Bushes near Umm Al-Warid

Site Description: “The Bushes” near Umm Al-Warid is an area west of Umm An Ni’aaj (HZ1) and the Umm Al-Warid border station. The single, unpaved road leading to the site (on an embankment) runs parallel to Al Adel River, which carries water to Umm Al-Warid Marsh from the Tigris River. The site may be subject to occasional flooding due to water that flows in from the surrounding fields, when combined with the water coming from the nearby canal. It is a dense, bushy area featuring small groups of *Phragmites* growing in the wet areas. The water levels in Al Adil canal (which lies south of the site) were observed to have decreased since the last winter survey.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
B. Botanical richness		<i>Silybum marianum</i> (Endemic)	Fourteen plant species were observed at this site.
C. Threatened habitats		Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecorgion and also under the threat of trashes (slightly disturbed where the only threat was the trash)

Birds: This area is clearly important to Passerines for breeding purposes, particularly the restricted-range Dead Seas Sparrow (summer visitors to the area), and several other bird species that seek this type of habitat.

Mammals and other fauna: It may also be important for medium-sized mammals such as the Golden Jackal, Jungle Cat, Rupelli Fox and others.

Plants: One waypoint was visited at this site, Waypoint 18 (N: 31 34 5 E 47 30 4), which was characterized by woodland-shrubs. The ecological status of the site was rated as 2, indicating that the site

Nature Iraq & Iraqi Ministry of Environment Report

was slightly disturbed - the only threat noted was garbage and littering. Fourteen plant species were observed at this site. The dominant species are *Tamarix sp.* (shrub), *Salix euphratica* (tree) and *Aeluropus lagapoides* (grass). The site was characterized by a non-vegetated area of 15% and a flat slope of 0° in all directions. The geology and soil type at this waypoint were sedimentary and clay respectively.

All the plant species at this site are common in Iraq or their status is unknown (based on the unpublished volumes of *Flora of Iraq*). *Silybum marianum* is an endemic plant in Iraq.

Conservation Issues & Recommendations: Regulations regarding littering in this area should be devised and implemented to decrease the level of garbage. Co-ordination between the Iraqi government and the governments of neighboring states should be initiated to increase the water levels in the Al Adil canal would improve the riparian area of this site.

Khor Az Zubayr Canal-100 meters east

KZ3

Winter fauna observations: 1/26/2010; no spring plant observations conducted; summer fauna observations: 6/16/2010.

Admin Area: Basrah

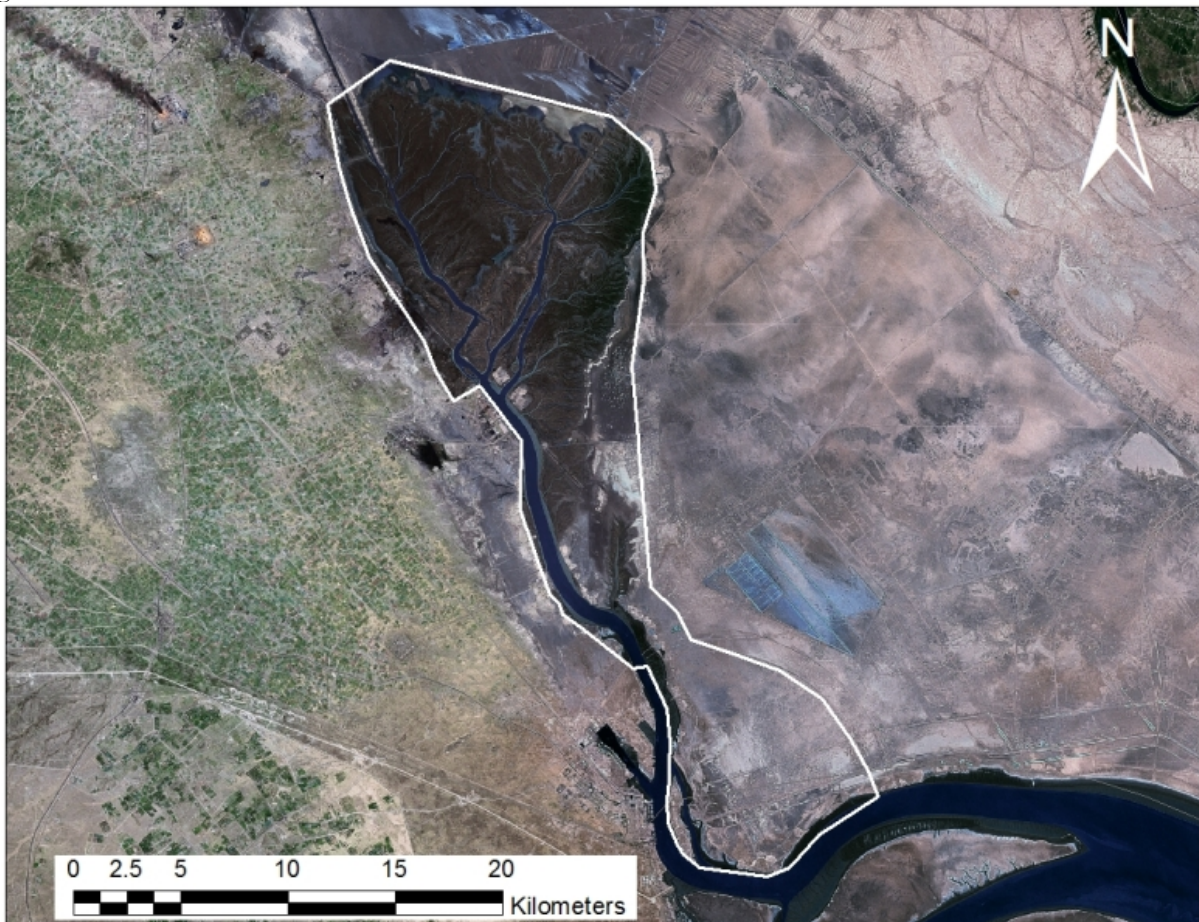
Coordinates: N 30 5 27, E 47 57 13

Area: 31854 ha (part of Khor Az Zubayr KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is locate approx. 4km northeast of Um-Qassr town in Basrah governorate.



Khor Az Zubayr Canal-100 meters east

KZ3



Panoramic picture of the northern view of Khor Az Zubayr Canal – 100 meters east

Site Description: This site features the Khor Al Zubayr Canal, surrounded by terrestrial dry lands with saline soils. Oil spills in to the canal here from tankers that use it for transporting oil. Few plant species grow here, due to high levels of salinity. No significant changes were found during the summer 2010 survey in comparison to previous visits.

Conservation Significance:

Birds: Winter total count: 323. Winter species number: 26. Summer total count: 34. Summer species number:6. Key winter observations include: *Vanellus leucurus* (2 of this biome-restricted bird were seen), *Oenanthe deserti* (1 of this biome-restricted bird was seen) and *Hydroprogne caspia*. Key summer observations include: *Chroicocephalus genei*. All are conservation concern species. Also this site is the only area in Iraq that harbors several particular unique bird species such as Crab Plover *Dromas ardeola* and Indian Reef Heron *Egretta schistoacea*.

Mammals and other fauna: Only one unidentified species of snake was found near the site. Also this area offers good intertidal habita in where Mudskipper species, members of the subfamily Oxudercinae within the family Gobiidae (Gobies), can be found.

Plants: This site is located in the South Iran Nubo-Sindian Desert and Semi-Desert ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment, but it likely represents unique habitats for Iraq.

Conservation Issues & Recommendations: Though the 2010 survey data does not provide strong evidence that the site meets conservation critiera, many unique species of bird and fish can be found here but the area is threatened by oil pollution from the tankers. Local and governmental initiative is urgently required to clean up the area and prevent further pollution and environmental damage from the oil shipping industry.

Khor Az-Zubayr

KZ4

Spring plant observations: 3/4/2010.

Admin Area: Basrah

IPA Criteria: Criteria C

Coordinates: N 30 2 30, E 47 57 51

Unprotected Area

Area: 31854 ha (part of Khor Az Zubayr KBA Site)

Altitude: unmeasured

Directional information: This site is located 53km southwest of Basra city.

See KZ3 GIS Map

Khor Az-Zubayr

KZ4



Panoramic picture of northern view of Khor Al-Zubayr

Site Description: This area is in Hacham area, southern Basrah, close to the Kuwaiti border. Its location south of Umm Qasar port required the KBA survey team to pass through a Marine Border Police checkpoint. The site's terrain is a mudflat that runs along an artificial canal, subject to tidal effect, which is the cause of the surrounding muddy terrain. There are several water channels throughout the area, allowing water to run through during the tide, turning the canals to soft mud as the tide retreats.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
C. Threatened habitats		South Iran Nubo-Sindian Desert and Semi-Desert-Critical	This site is located in a critically threatened ecogion and also threatened by water pollution, caused by boats.

Plants: One waypoint was visited at this site. Waypoint 25 (N: 30 2 30 E: 47 57 51) was characterized by flooded communities - periodically or occasionally flooded land on the edges of Khor Al-Zubayr canal. No plants grow inside this canal due its depth and the high level of salinity.

The site was rated as 3 (moderately disturbed) on the ecological scale. Three species of halophytic vegetation were identified in the saline waters: *Salicornia europaea* (the dominant species), *Suaeda maritime* and *Suaeda fruticosa*.

The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 60%. All plant species at this site are common in Iraq.

Conservation Issues & Recommendations: The area is affected by oil pollution due to pipelines and shipping tanker, causing the perpetual degradation of plant life throughout the area. There is high traffic of fishing boats and passenger ships in this area, which also contributes to the disturbance of water.

Khor Al-Zubayr, west

KZ5

Winter fauna observations: 1/26/2010; no spring plant observations conducted; summer fauna observations: 6/16/2010.

Admin Area: Basrah

Coordinates: N 30 18 25, E 47 49 25

Area: 31854 ha (part of Khor Az Zubayr KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 15km southeast of Zubair city, west of Shat Al-Basra Canal.

See KZ3 GIS Map

Khor Al-Zubayr, west

KZ5



Panoramic picture of the northern view of Khor Al-Zubayr, west

Site Description: Northwest Khor Al-Zubayr (KZ5) is a point that is located at the eastern side of Upper Khawr Al-Zubair canal (30 18 25.8, 47 49 25.0). The site was added to the KBA program during the survey of summer 2009 as an alternative to the Lower Khawr Al-Zubair (KZ4) site due to its favorable logistical and security conditions. The area is subject to daily tidal flooding, creating a unique habitat at this site. It predominantly features a coverage of low herbs species, such as *Salicornia*.

Conservation Significance:

Birds: Winter total count: 142. Winter species number: 8. Summer total count: 62. Summer species number: 8. Key winter observations include: *Tringa totanus* and *Hydroprogne caspia*. Key observations include: *Chroicocephalus genei* and *Hydroprogne caspia*. Conservation concern species were *Hydroprogne sterna caspia* and *Chroicocephalus genei*.

Plants: This site is located in the South Iran Nubo-Sindian Desert and Semi-Desert ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: The entire canal region, including this area on the eastern edge of Khor Al-Zubayr canal, lies within a large industrial area of factories and other industrial institutions. As such it is recommended that an environmental education program be carried out in the area, including the staff of these institutions, to reduce current and projected threats to this vital area. The most serious issues at this site is pollution from oil from tankers and other ships using the canal.

Umm Qasr Port

KZ6

Spring plant observations: 3/4/2010.

Admin Area: Basrah

IPA Criteria: Criteria B and C

Coordinates: N 30 03 44, E 47 56 22.6

Area: 31854 ha (part of Khor Az Zubayr KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: This site is located 50km southwest of Basra city.

See KZ3 GIS Map

Umm Qasr Port

KZ6



Site Description: This site lies on the road to Umm Qasr seaport, its location requiring Border Police permission to access the area. The coastal environment means that the many plant species found here are largely of the coastal or Halophytic variety. Garbage and littering are a significant problem in this region. There is unpaved road beside the site’s waypoint, which leads to a fishermen’s port.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
B. Botanical richness			There were 30 plant species observed in this site.
C. Threatened habitats		Persian (Arabian) Gulf Desert and Semi-Desert- Critical	This site is located in a critically threatened ecoregion and is also under threat of garbage/littering and disturbance caused by vehicles.

Plants: One waypoint was visited at this site, Waypoint 26 (N: 30 03 44 E: 47 56 22.6), which was characterized by desert- desert shrub.

The site was rated as 4 (very disturbed) on the ecological scale. There were 30 species at this waypoint, the dominant species being *Stipagrostis plumose*, *Plantago boissieri* and *Salsola sp.* The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay, and the percentage of non-vegetated terrain was 60%.

Conservation Significance: All the plant species at the site are common in Iraq.

Conservation Issues & Recommendations: As with other sites in the Khor Az Zubayr area, there are many threats in this area associated with the port, pollutions from oil shipping and as mentioned above garbage.

Dalmaj Marsh, South

ME10

Winter fauna observations: 2/21/2010; spring plant observations: 7/4/2010; summer fauna observations: 5/18/2010.

Admin Area: Qadissiya

KBA Criteria: V
IBA Criteria: A1, A2, A3.
IPA Criteria: Criteria C

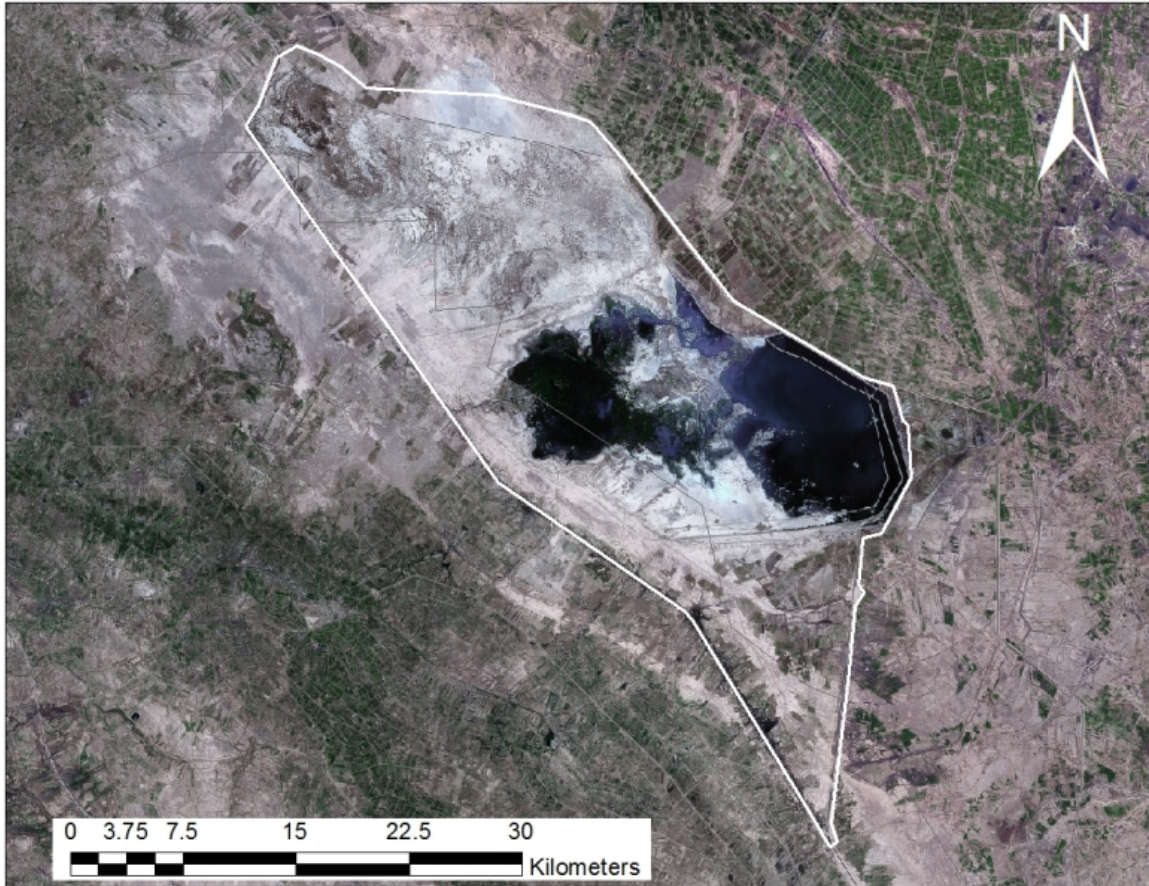
Coordinates: N 32 7 30, E 45 27 7

Area: 92076 ha (part of Dalmaj Marsh KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx. 55km to the east of Diwaniya city, north of the MoD.



Part of panoramic picture showing the northern view South Dalmaj wetlands

Site Description: A large number of representatives points in this site were covered during the survey of winter 2010. This site in the Dalmaj wetlands contains both the lake's southern wetland areas and the

Nature Iraq & Iraqi Ministry of Environment Report

terrestrial region, in addition to the dividing margin and surrounding crop fields. No changes were found in comparison to the previous survey during the summer 2010 visit.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Locals report that these turtles are common	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Chlamydotis macqueenii</i>	4	
A2. Restricted-range species	<i>Turdoides altirostris</i>		21 pair - Possible
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Caprimulgus aegyptius</i> <i>Turdoides altirostris</i> <i>Passer moabiticus</i> <i>Alaemon alaudipes</i>		8 - Possible 3 - Possible 21 - Possible 14 - Possible 6 - Possible
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and also under the threat of over fishing, over hunting and water pollution.	

Birds: Winter total count: 25,666. Winter species number: 23. Summer total count: 616. Summer species number: 29. Key winter observations include: *Phoenicopterus roseus*, *Pelecanus onocrotalus*, *Phalacrocorax pygmeus* and Macqueen's Bustard *Chlamydotis macqueenii*. Key summer observations include: Pin-tailed Sandgrouse *Pterocles alchata*, *Marmaronetta angustirostris*, *Phalacrocorax pygmeus*, *Porphyrio porphyrio*, *Vanellus spinosus*, *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei*, *Streptopelia turtur*, *Turdoides altirostris* and *Passer moabiticus*. Conservation concern species were: Macqueen's Bustard *Chlamydotis macqueenii* (GT), Pin-tailed Sandgrouse *Pterocles alchata*, *Phoenicopterus roseus*, *Pelecanus onocrotalus*, *Phalacrocorax pygmeus* (GT), *Marmaronetta angustirostris* (GT), *Porphyrio porphyrio*, *Vanellus spinosus*, *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei*, *Streptopelia turtur*, *Turdoides altirostris*, *Passer moabiticus* and *Podiceps cristatus*.

Mammals and other fauna: One Jungle cat and one Golden Jackal were observed at the site in winter. The locals have reported frequently the existence of the Near threatened Striped Hayena *Hyaena hyaena* in this area.

Plants: This site had only one waypoint, Waypoint 34 (N:32 7 30 E: 45 27 7), as there is only one primary habitat (inland standing water- rooted submerged vegetation with surrounding reed beds) at this site. 8 plant species were identified at this waypoint. The dominant plants were *Phragmites australis*, *Schoenoplectus littoralis* (emerged) and *Potamogeton pectinatus*. *Tamarix aucherana*, *Suaeda sp.*, *Aeluropus lagapoides*, *Albagi graecorum* and one unidentified plant from the *Poaceae* family were also observed growing around the edges of the marsh. The ecological scale was 4 (very disturbed), with three categories of threat identified: overfishing, overhunting and water pollution. All identified plant species are common in Iraq.

Conservation Issues & Recommendations: Dalmaj Wetlands is a very important site from an avifaunal perspective, harboring large numbers of birds of high conservation status (globally threatened, conservation concern, and endemic birds). Large concentrations of Waterfowl can be seen inside the lake while many Passerines species are found on the edges of the marsh.

Nature Iraq & Iraqi Ministry of Environment Report

The most urgent threat to the birds in this area is illegal hunting, which is very high and occurs each season. An educational campaign is necessary to address this threat. Coordination with local hunting associations and related governmental bodies is also recommended.

Dalmaj Marsh, East

ME11

Winter fauna observations: 2/21/2010; no spring plant observations conducted; summer fauna observations: 5/17/2010.

Admin Area: Qadissiya

KBA Criteria: V

IBA Criteria: A1, A2, A3.

Coordinates: N 32 10 27, E 35 38 37

Unprotected Area

Area: 92076 ha (part of Dalmaj Marsh KBA Site)

Altitude: unmeasured

Directional information: this site is located approx 35km southwest of Kut city.

See ME10 GIS Map



Panoramic picture showing Dalmaj, east wetlands

Site Description: The survey of this site included the area along the northwest-southeast way on the eastern embankment of the Dalmaj wetlands lake, in addition to the birds inhabiting the water body and surrounding fields. No changes were found in comparison to the previous survey during summer 2010 visit. During the visit, labourers were observed coating the concrete/tar slope-side of the lake with use of heavy vehicles during the visit. Some of this tar was spilled into the lake.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Locals report that these turtles are common	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i> <i>Acrocephalus griseldis</i>	28 2	28 - possible 2 - possible
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	41 2 51	14 – possible 2 – possible 13 - possible
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i> <i>Passer moabiticus</i> <i>Alaemon alandipes</i>	42 2 51 60 2	8 - possible 2 - possible 13 - possible 31 - possible 1 - possible

Birds: Winter total count: 3406. Winter species number: 38. Summer total count: 1159. Summer species number: 41. Key winter observations include: *Tachybaptus ruficollis*, *Phalacrocorax pygmeus*, *Vanellus spinosus*, *Vanellus leucurus*, *Chroicocephalus genei*, *Acrocephalus griseldis*, *Turdoides altirostris* and *Passer moabiticus*. Key summer observations include: Black Francolin *Francolinus francolinus*, Pin-tailed Sandgrouse *Pterocles alchata*, *Marmaronetta angustirost*, *Tachybaptus ruficollis*, *Vanellus spinosus*, *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei*, *Acrocephalus griseldis*, *Turdoides altirostris* and *Passer moabiticus*. Conservation concern

Nature Iraq & Iraqi Ministry of Environment Report

species were: *Marmaronetta angustirostris*, *Turdoides altirostris* (EN), *Tachybaptus ruficollis* (EN), *Acrocephalus griseldi* (GT, EN), *Passer moabiticus*, *Netta rufina* and *Prophyrio prophyrio*.

Mammals and other fauna: Two Golden jackals were observed at the site in winter.

Plants: This site is located in the Arabian Desert and East Sahero-Arabian Xeric Shrublands ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: The primary threat to this part of the marsh is hunting and fishing, as well as the fluctuation of water level. The recommendations for ME10 are also applicable to this site.

Dalmaj Marsh, North

ME12

Winter fauna observations: 2/12/2010; no spring plant observations conducted; summer fauna observations: 5/19/2010.

Admin Area: Qadissiya

KBA Criteria: V

IBA Criteria: A1, A2, A3, A4i.

Coordinates: N 32 21 27, E 45 15 32

Area: 92076 ha (part of Dalmaj Marsh KBA Site)

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx km northeast of Diwaniya city on the eastern side of the MoD Canal.

See ME10 GIS Map



Panoramic picture of Dalmaj

Site Description: This site was newly added to the KBA program for the winter 2010 survey. It is located in the northern part of Dalmaj wetlands, also including terrestrial areas. The area features a rich coverage of plants such as reed beds and Tamarix. Huge numbers of Waterfowl were observed here during the survey. Severe methods of hunting and netting are employed here to catch considerable numbers of birds each season. No changes were found in comparison to the previous winter survey during the summer 2010 visit.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Locals report that these turtles are common	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i> <i>Limosa limosa</i> <i>Acrocephalus griseldis</i> <i>Chlamydotis macqueenii</i>	278 710 5	117-Confirmed 32 -Not breeding 16 - Possible
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i>	59 37 18	9 -Possible 16 -Possible 18 - Probable
A3. Biome-restricted	<i>Vanellus leucurus</i>	17	32 -Confirmed

Nature Iraq & Iraqi Ministry of Environment Report

species	<i>Acrocephalus griseldis</i> <i>Turdoides altirostris</i> <i>Pycnonotus leucotis</i> <i>Passer moabiticus</i>	37 12 885	16 -Possible 18 -Probable
A4. Congregations			
A4i.	<i>Marmaronetta angustirostris</i> <i>Netta rufina</i>	2780 6050	117 - Confirmed 21 - confirmed

Birds: Winter total count: 31,055. Winter species number: 51. Summer total count: 1,222. Summer species Number: 37. Key winter observations include: Macqueen's Bustard *Chlamydotis Macqueen*, *Marmaronetta angustirostris*, *Netta rufina*, *Tachybaptus ruficollis*, *Pelecanus onocrotalus*, *Phalacrocorax pygmeu*, *Porphyrio porphyrio* *Vanellus leucurus*, *Limosa limosa*, *Pycnonotus leucotis*, *Turdoides altirostris* and *Passer moabiticus*. Key summer observations include: *Marmaronetta angustirostris*, *Tachybaptus ruficollis*, *Platalea leucorodia*, *Phalacrocorax pygmeus*, *Porphyrio porphyrio*, *Vanellus leucurus*, *Limosa limosa*, *Glareola pratincola*, *Chroicocephalus genei*, *Streptopelia turtur*, *Acrocephalus griseldis* and *Turdoides altirostris*. Conservation significant species included: *Marmaronetta angustirostris* (GT), *Tachybaptus ruficollis* (EN), *Platalea leucorodia*, *Phalacrocorax pygmeus* (GT), *Porphyrio porphyrio*, *Vanellus leucurus*, *Limosa limosa* (GT), *Glareola pratincola*, *Chroicocephalus genei*, *Streptopelia turtur*, *Acrocephalus griseldis* (GT, EN) and *Turdoides altirostris* (EN).

Mammals and other fauna: In summer one Golden jackal was observed crossing the road and one Jungle cat was seen inside thick bushes of *Tamarisk* close to the MOD Canal. Three wild boars were also sighted in the area. Residents report that large quantities of Jungle cat families inhabit the area.

Conservation Issues & Recommendations: The threats identified and recommendations described for sites ME10 and ME11 are applicable to this site also.

Al-Basroogiya

ME13

Spring Plant observations: 7/4/2010.

Admin Area: Qadissiya

IPA Criteria: Criteria B and C

Coordinates: N 31 55 8.5, E 45 35 34.7

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located 65km east of Diwaniya city.

Not delineated



Panoramic picture of northern view of Al-Basroogiya

Site Description: This area is characterized by sparse woodlands in a desertous area, west of Al Dalmaj marsh. The site features many wheat and barley farms and a large number of irrigation canals that pass through the area, close to the M.O.D. canal (west of the canal). Livestock grazing takes place here on a large scale. Some irrigation canals suffer from water pollution due to engine fuel.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
--------------------	------------	--	------------------------

Nature Iraq & Iraqi Ministry of Environment Report

B. Botanical richness	<i>Silybum marianum</i> (Endemic)	There were 45 plant species observed in this site.
C. Threatened habitats	Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecogion and also under the threat of changes in nearby land (plant some trees), hunting, livestock production or grazing, trash, and water pollution

Plants: One waypoint was visited at this site. Waypoint 33 (N: 31 55 8.5 E: 45 35 34.7) was desert-desert shrubs (Abdulhasan, 2009).

The site was rated as 4 on the ecological scale as it was very disturbed by due primarily to tree-planting programs that were undertaken in the 1970s in an attempt to circumvent desertification of the area, of what turned out to be invasive species (*Prosopis juliflora*). It is also affected by hunting, livestock production and grazing, garbage and water pollution. 45 plant species were observed at this waypoint, with the dominant species being *Prosopis juliflora*, *Silybum marianum* and *Alhagi graecorum*. The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 60%.

The majority of identified plant species are common in Iraq. *Silybum marianum* is an endemic plant in Iraq. *Prosopis juliflora* is an invasive plant, introduced to Iraq during the last century to control desertification.

Conservation Issues & Recommendations: A governmental program is required to control the growth of *Prosopis juliflora* as its growth is currently unregulated. Regulations should also be implemented to address agricultural activity in the area.

Ibn Najm

ME4

Winter fauna observations: 2/11/2010; no spring plant observations conducted; summer fauna observations: 5/16/2010.

Admin Area: Qadissiya

IBA Criteria: A3.

Coordinates: N 32 8 57, E 44 38 31

Area: 4000 ha

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx km northwest of Diwaniya city



Panoramic picture of northern view of Ibn Najm

Site Description: Though Evans provides little information on this IBA site, it is described as a seasonal freshwater lake lying east of the Euphrates River and c. 130 km south of Baghdad, Babil Governorate, in the triangle between Babil, Qadissiya, and Janaf. Today the region is a broad marsh dominated by *Typha*. Water drains from nearby agricultural (predominantly rice) fields to the site. During the summer 2008 survey the marsh was found to be almost dry. The current survey found reed and *Typha* areas generally dry, except in areas close to the drainages. The site is somewhat difficult to access.

The site has been under severe threat of drying and drought since the major draining canal that was dug in the area. No water has returned to the marsh since, which remains dry, and the reed beds yellow in color. No fishing takes place at this site. A large regullator bridge was under construction at the newly dug draining canal at the time of the summer 2010 visit.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
Biome-restricted species	<i>Vanellus leucurus</i>	8	3 - Possible

Nature Iraq & Iraqi Ministry of Environment Report

<i>Pycnonotus leucotis</i>	3	4 - Possible
----------------------------	---	--------------

Birds: Winter total count: 886. Winter species number: 34 Summer total count: 226. Summer species number: 21. Key winter observations included: Black-winged Kite, *Vanellus leucurus*, *Chroicocephalus genei* and *Pycnonotus leucotis*. Key summer observations include: *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei*, *Pycnonotus leucotis* and Black-winged Kite. Conservation significant species were: *Vanellus leucurus*, *Glareola pratincola*, *Chroicocephalus genei* and *Pycnonotus leucotis*.

Plants: This site is located in the Arabian Desert and East Sahero-Arabian Xeric Shrublands ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This area was once a true marsh habitat that harbored a considerably diverse range of birds of threatened and endemic status. This site constitutes the last remnants of the historical Hor Ibn-Najm, which once held very large numbers of wintering Waterfowl, Waders and Raptors. The environmental of this historic marsh has sadly been eradicated as more and more of the area has been used for agriculture and human inhabitation. Today the marsh is entirely dry due to the excavation of new draining canals, which split the marsh in to two parts.

Restoration of this marsh would require large scale coordination between the environment departments of the three relevant districts (Babil, Qadisiya and Najaf), in addition to Water Resources Departments and local residents who are dependant on the marsh and the area for their livelihood.

Razzaza Lake

ME5

Winter fauna observations: 2/16/2010; spring plant observations: 8/4/2010; summer fauna observations: 5/15/2010.

Admin Area: Karbala

IBA Criteria: A1, A2, A3.

IPA Criteria: Criteria C

Coordinates: N 32 33 9, E 43 53 57

Area: 156234 ha

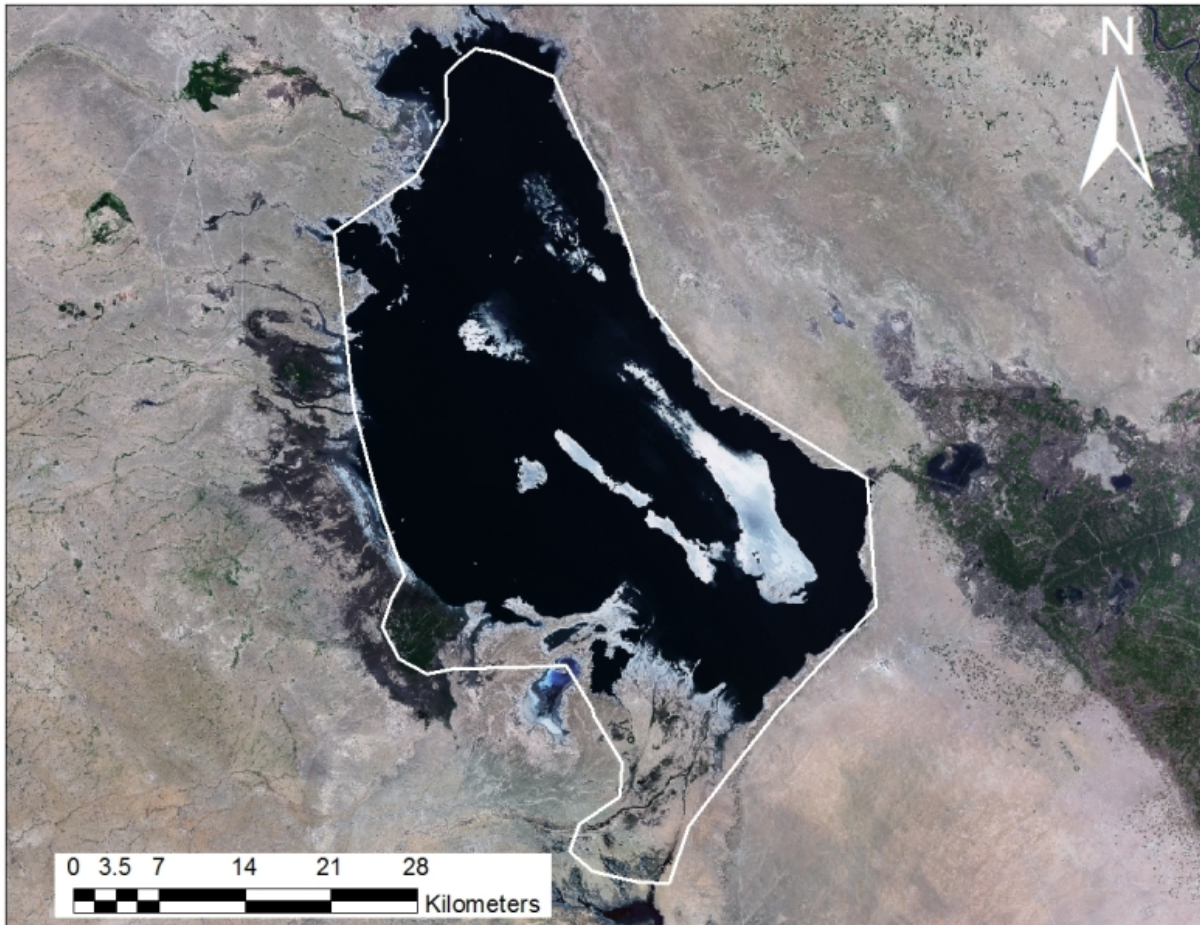
Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx 20km northwest of Karbala' city.

Razzaza Lake

ME5



Panoramic picture of the eastern side of Razzaza Lake wetlands

Site Description: This area of Karbala is listed in Evans (1994) under the name “Bahr Al Millh”, but is more commonly referred to as Lake Razazah. Evans states that the lake was formed in the 1970s as a second storage reservoir (after Habbaniya Lake) to control flooding of the Euphrates River. In former times this is large lake was very deep, but today is threatened with drying. Locals report that water levels have declined to the point where water levels stand between 5 and 10m deep. In contrast to former times there is now little to no fishing, and only salt-tolerant fish species (locally known as “Shanig”) are reported. A small number of these fish were observed dead on the edge of the lake. Salinity levels are high. No plants grow in the lake. Several islands in the lake are breeding areas for Gulls and Flamingos. There is a police station on the lake’s eastern edge.

The site continues to suffer from water shortages as a result of drainage. During the summer 2010 visit no changes were found in comparison to the last survey. Water levels in the lake remain critically low, with most of the lake’s birdlife concentrated around the basin of the sole source of water, which carries sewage from Karbala’ city. The Sin-Al-Thibban water regulator (carrying water from Habbaniya) remains closed by the Anbar government, which is the cause of water shortage in this area.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Marmaronetta angustirostris</i> <i>Limosa limosa</i>	1800	30 -Possible 34–none breeding
A2. Restricted-range species	<i>Turdoides altirostris</i>		6 -Possible
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Turdoides altirostris</i> <i>Passer moabiticus</i>	7	21 -Possible 6 -Possible 4 -Possible
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and is also under threat of sharply decreasing water levels and garbage/littering.	

Birds: Winter total count: 5,654. Winter species number: 14. Summer total count: 1008. Summer species number: 34. Key winter observations include: *Phoenicopterus roseus*, *Limosa limosa* and *Chroicocephalus genei*. Key summer observations include: *Marmaronetta angustirostris*, *Phoenicopterus roseus*, *Vanellus spinosus*, *Vanellus leucurus*, *Limosa limosa*, *Glareola pratincola*, *Chroicocephalus genei*, *Hydroprogne caspia*, *Turdoides altirostris* and *Passer moabiticus*. Conservation concern species included: The following conservation concern species were identified at the site: Armenian/Yellow-legged Gull *Larus armenicus/michabellis*, *Aythya nyroca* (GT), *Chroicocephalus genei*, *Marmaronetta angustirostris* (GT), *Netta rufina*, *Oenanthe finschii*, *Pelecanus onocrotalus*, *Phoenicopterus [ruber] roseus*, *Vanellus leucurus*, *Hydroprogne sterna caspia* and *Phoenicopterus ruber roseus*.

Plants: One waypoint was surveyed at this site. Waypoint 35 (N: 32 33 9 E: 43 53 57) was characterized by desert-desert shrubs, located on the eastern shore of the lake.

Waypoint 35: The local terrain consists of saline lake water surrounded by terrestrial vegetation. 31 plant species were identified at this waypoint, with dominant species being *Zygophyllum fabago*, *Haloxylon salicornicum* and *Tamarix aucherana*. This still should be considered an IPA and a botanically rich area home to many plant species. The majority are common in Iraq, although some are rare.

Conservation Issues & Recommendations: This lake harbors considerable numbers of Waterfowl (particularly the globally threatened *Marmaronetta angustirostris*) and its mudflats attract large numbers of waders and shorebirds during their migration passage. Large areas of the area's are relatively inaccessible, making them important breeding sites for birds. Water must flow into the lake from Habbaniya Lake via the Sin-Al-Thibban Canal in order for the lake to birdlife and fish, and as such an assessment of overall water resources in the area and their potential should be made. Additional water in Razzaza will improve the circulation of water, reduce the increasing salinity of the lake and allowing more space for more bird, plant and fish species to flourish in the lake once again. Communication and coordination with regional governmental bodies are also necessary to initiate any restoration of this important lake. Given the current drought conditions, there may be a tendency to try and save water upstream, which causes increased downstream drought conditions. Some of these issues may require better coordination between different governorates to manage these limited resources more sustainably for all communities and their environments' biodiversity. Environmental education programs targeting the local residents and policemen are also recommended.

Nature Iraq & Iraqi Ministry of Environment Report

Al-Taar

KR1

Admin Area: Karbala

IPA Criteria: Criteria C

Coordinates: N 32 28 55.6, E 43 44 12.9

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located 31km northeast of Karbala city.

Not delineated



Panoramic picture of the northern view of Al-Taar

Site Description: This site is a depression in the desert to the west of Karbala city. It lies near the road between Karbala and Ain Tamar district, which also leads to Al Akhaider archeological site. Heavy vehicle traffic in the area creates extensive disturbance and dusty weather. Date farms and a gravel mine are located close to the site. Rain water runs in to the depression from the north.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
C. Threatened habitats		Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and also under the threat of livestock production or grazing, road construction, trash and huge disturbance by trucks and gravel and sand mining activities.

Plants: This site had one waypoint, Waypoint 36 (N: 32 28 55.6 E: 43 44 12.9), which was flooded communities - periodically or occasionally flooded land. Eight plant species were observed, the dominant species being *Salicornia herbacea*, *Aeluropus lagapoides* and *Schoenoplectus litoralis*. The ecological scale was 5 (most disturbed). All identified plant species at this site are common in Iraq.

Conservation Issues & Recommendations: This was a highly disturbed site with four threat were identified at the site: livestock production and grazing, road construction, garbage/littering and major disturbance generated by heavy vehicle traffic and gravel and sand mining activities.

Ein Al-Tamr

KR2

Spring plant observations: 8/4/2010.

Admin Area: Karbala

IPA Criteria: Criteria C

Coordinates: N32 32 57.6, E43 30 11.7

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located 50km west of Karbala.

Ein Al-Tamr

KR2

Not delineated



Panoramic picture of the northern view of Ein Al Tamar

Site Description: This site is located north east of Karbala city, west of Ein Tamar town and the road linking the town to Karbala. The southeastern area of the site is dominated by shrub land. Many date farms are located to the north and west of the site, which are dependant on rain and groundwater as there are no rivers or canals in this area. There is a paved street that passes through the site, leading to a checkpoint in the north.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
C. Threatened habitats		Arabian Desert and East Sahero-Arabian Shrublands- Critical Xeric	This site is located in a critically threatened ecoregion and is also heavily impacted by livestock production/ grazing.

Plants: This site had one waypoint, Waypoint 37 (N: 32 32 57.6 E: 43 30 11.7), that was desert- desert shrubs. Twenty-four plant species were observed, the dominant species being *Nitraria retusa* and *Phoenix dactylifera* (cultivated). The ecological scale was 4 (very disturbed), due to the large-scale threat of livestock production and grazing.

Conservation Issues & Recommendations: All identified plant species are common in Iraq. Livestock and grazing are major threat to the site.

Hindiya Barrage

ME7

Winter fauna observations: 2/17/2010; no spring plant observations conducted; summer fauna observations: 5/15/2010

Admin Area: Babil

IBA Criteria: A2, A3.

Coordinates: N 32 44 2, E 44 15 50

Area: 278 ha

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx 35km northwest of Hilla city on the Euphrates River in Babil.

Hindiya Barrage

ME7



Panoramic picture showing Hindiya Barrage wetlands, Euphrates River

Site Description: Hindiya Barrage is a network of waterways centered around the Euphrates River. The Euphrates river is blocked here by a large barrage, before which are several branching canals/ rivers, chiefly the main trunk of Euphrates and Shat-Al-Hilla rivers, and surrounded by marshes. Large numbers of Waterfowl were observed here, predominantly *Fulica atra*, Cormorant and various species of Gulls. Hunting and fishing in this area is prohibited and entry to the area is restricted by police, which has enabled the large assemblage of Waterfowl to remain safely in this area. During the summer 2010 visit, no changes were found in comparison to the previous winter survey.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/ Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Tachybaptus ruficollis</i> <i>Turdoides altirostris</i>	5 7	11 pair -Possible 11 pair -Possible
A3. Biome-restricted species	<i>Pycnonotus leucotis</i> <i>Turdoides altirostris</i>	28 7	6 -Confirmed 11 -Possible

Nature Iraq & Iraqi Ministry of Environment Report

Birds: Winter total count: 911. Winter species number: 22. Summer total count: 338. Summer species number: 29. Key winter observations include: *Tachybaptus ruficollis*, *Phalacrocorax pygmaeus*, *Porphyrio porphyrio*, *Vanellus spinosus*, *Chroicocephalus genei*, *Pycnonotus leucotis* and *Turdoides altirostris*. Key summer observations include: Black Francolin *Francolinus francolinus*, *Marmaronetta angustirostris*, *Tachybaptus ruficollis*, *Phalacrocorax pygmaeus*, *Porphyrio porphyrio*, *Vanellus spinosus*, *Chroicocephalus genei*, *Pycnonotus leucotis* and *Turdoides altirostris*. The following conservation concern species were identified at the site: Mesopotamian Crow *Corvus capellanus*, Black Francolin *Francolinus francolinus*, Armenian/Yellow-legged Gull *Larus armenicus/michabellis*, *Chroicocephalus genei*, *Larus genei*, *Phalacrocorax pygmaeus*, *Tachybaptus ruficollis*, *Turdoides altirostris* (EN), *Vanellus leucurus*, *Acrocephalus griseldis* (GT, EN) and *Prophyrio prophyrio*.

Mammals and other fauna: One Indian Mongoose was observed close to the road in summer.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: Communication with local police (or those responsible for guarding the barrage) and regular environmental educational programs will assist in the protection of this site, particularly during the peak seasons for bird migration, breeding and fish spawning.

Residents are open to the idea of an aquaculture project as the area's habitat is suitable for it. We thus recommend that the community be assisted with technical support, based on our experience in the aquaculture project in Chibaish. Publication and distribution of a booklet or brochure on such economic projects is recommended.

North Ibn Najm

ME8

Winter Fauna observations: 2/17/2010; no spring or summer observations conducted

Admin Area: Babil

Coordinates: N 32 18 55, E 44 24 25

Area: 1789 ha

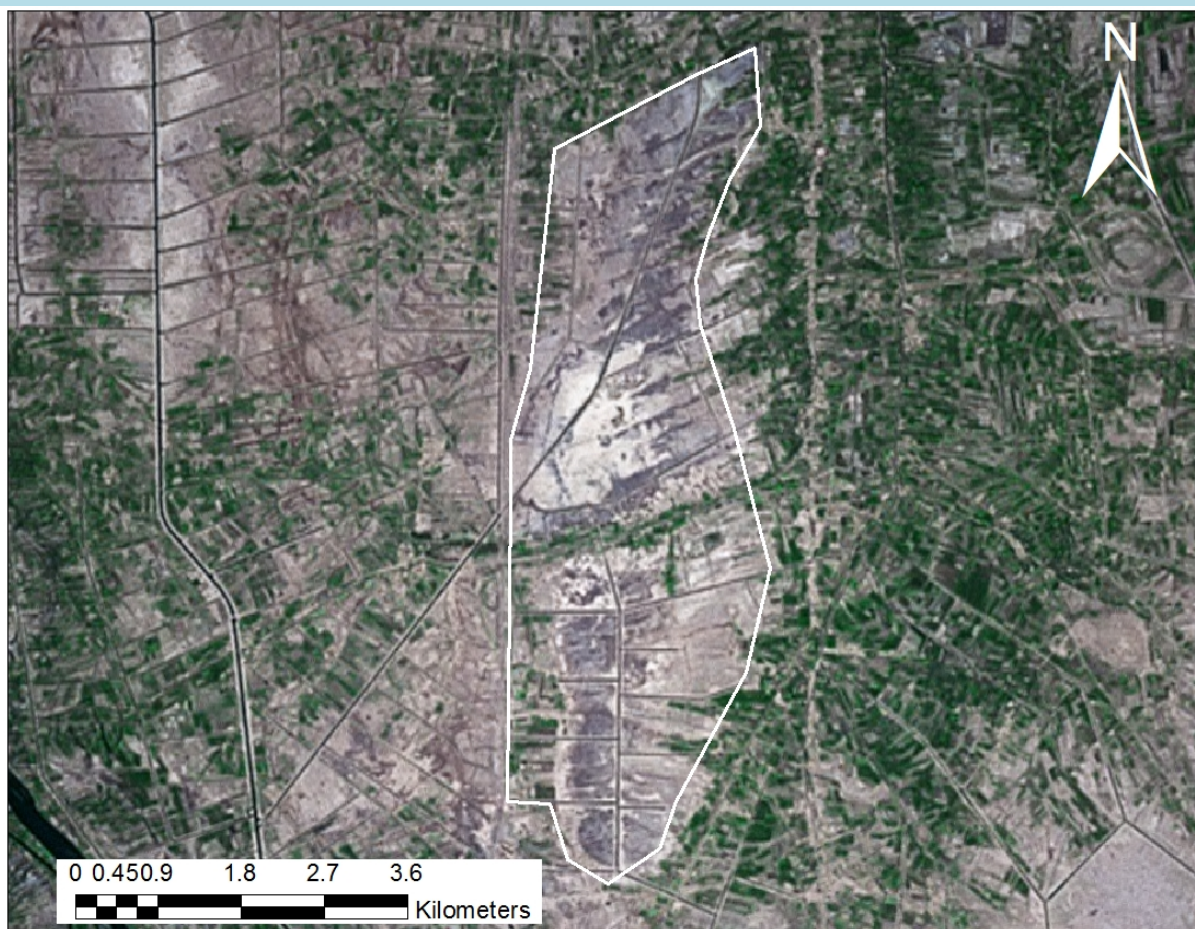
Altitude: unmeasured

Unprotected Area

Directional information: this site is located approx 20km southwest of Hilla city in Babil governorate.

North Ibn Najm

ME8



Panoramic picture showing North Ibn Najm wetlands (previously wetlands)

Site Description: North Ibn-Najm (locally known as Garrat Sayid Jafar) is a small, isolated marsh that receives water from the surrounding networks of drainage canals, which carry water from fields and orchards that surround the site. It is located south of Hilla city on the route between Hilla and Najaf. The center of the marsh lies at: 32 18 55.7, 44 24 25.8. Dense reed beds of *Phragmites* and *Typha* grow here, in addition to many species of aquatic plants. Large numbers of Ducks were observed. Hunting constitutes a threat to the area's wildlife. Electrofishing is the chief fishing method employed by locals here.

Conservation Significance:

Birds: Winter total count: 139. Winter species number: 13. Key observations included: *Vanellus spinosus*, *Turdoides altirostris* and *Pycnonotus leucotis* (5 of this biome-restricted bird were seen in winter). Species of conservation concern include: Black Francolin *Francolinus francolinus*, *Tachybaptus ruficollis*, *Turdoides altirostris* (EN) and *Chroicocephalus genei*.

Plants: This site is located in the Arabian Desert and East Sahero-Arabian Xeric Shrublands ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This site was identified as a good candidate for surveying through word of mouth, and upon visiting the area the team discovered that it indeed harbors a considerable diversity of bird species, including various important species. It is thus recommended that the site's special features are promoted in order to garner further suggestions of potential KBA sites but it in the 2010 survey it suffered from drought conditions. It is crucial that protection of this area be enabled through cooperation with the local government, particularly during the *Marmaronetta angustirostris* breeding season. Conducting educational talks and distribution of posters of *Marmaronetta angustirostris* would assist in their protection. This area requires the restoration of its water supply in order to restore the growth of habitat of aquatic plants, which will in turn support birdlife and other species present at the site.

Teeb oasis

MN1

Winter fauna observations: 2/7/2010; spring plant observations: 27/3/2010; summer fauna observations: 6/19/2010

Admin Area: Missan

IBA Criteria: A1, A2, A3.

IPA Criteria: Criteria C

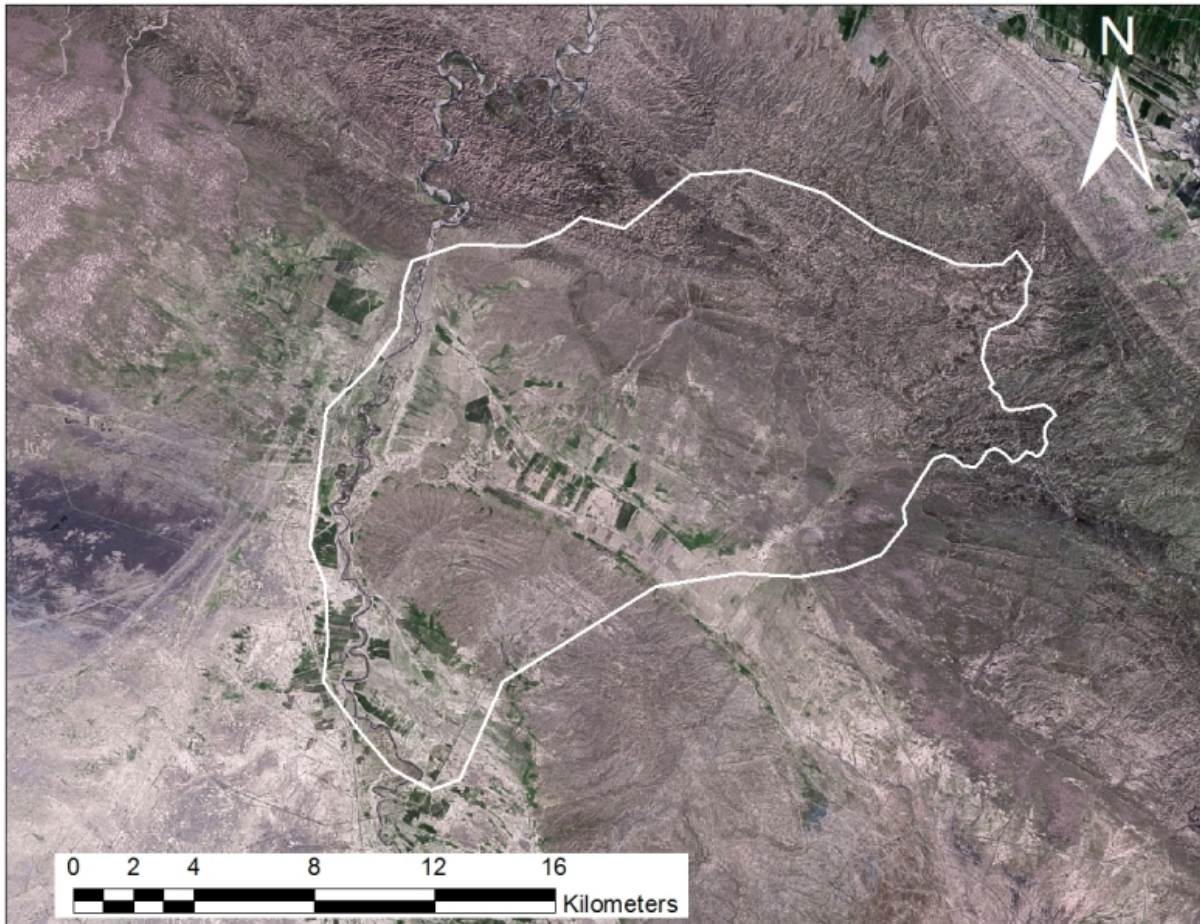
Coordinates: N 32 23 19, E 47 20 30

Area: 28578 ha (with Zubaidaat (MN2))

Unprotected Area

Altitude: unmeasured

Directional information: this site is located aprx 35km northeast of Amara city in Maysan



Teeb oasis

MN1

Panoramic picture showing Teeb Oasis

Site Description: Al-Teeb oasis (AM2), is an oasis in semi-deserted area. It is located on foothills that increase eastwards in height towards the mountainous area in Iraq across the border to Iran. Shepherds and other locals use the oasis' source of fresh water to fill their tanks. This area features rich plant coverage, particularly in contrast to the surrounding areas, making it an attractive point for birds and other fauna. A small number of trees grow throughout the site, in addition to medium-sized thorny shrubs and a blanket of grass. This site is also important for migrating birds (Passerines in particular). The site's natural features make it a popular place for recreation and picnicking. Consequently it is highly disturbed during spring and autumn, when large amounts of garbage (particularly plastic waste) is left by the high numbers of visitors. No hunting was observed at this site. A sulphur oasis lies a few kilometers southwest of this site, the sulphur exuding a very pungent smell. Several small farms and trees surround the sulphur oasis, making it an attractive point for birds.

During the summer 2010 visit, no changes were found in comparison to the last winter survey. Judging by rough measurements taken, the oasis continues to produce the same amount of water during both the winter and summer, and is still used for by sheep and cattle in the area.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Anser erythropus</i>	70	
A2. Restricted-range species	<i>Hypocolius ampelinus</i>		31 pair -Possible
A3. Biome-restricted species	<i>Ammomanes deserti</i> <i>Pycnonotus leucotis</i> <i>Rhodospiza obsoleta</i>	12 32	8 -Possible 5 -Possible
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Persian (Arabian) Gulf Desert and Semi-Desert-Critical	This site is located in a critically threatened ecoregion and is also threatened by livestock production/grazing, garbage/littering and the remains of military weapons and mines	

Birds: Winter total count: 150. Winter species number: 15. Summer total count: 142. Summer species number: 13. Key winter observations include: Spanish Sparrow *Passer hispaniolensis*, *Pycnonotus leucotis* and *Turdus merula*. Key summer observations include: Yellow-throated Sparrow *Gymnoris xanthocollis*, *Hypocolius ampelinus* and, *Pycnonotus leucotis*. The following conservation concern species were identified at the site: White-cheeked Bulbul *Pycnonotus leucogenys*, Grey Hypocolius *Hypocolius ampelinus ampelinus* (EN), Common Babbler *Turdoides caudata*, *Oriolus oriolus* and *Streptopelia turtur*.

Mammals and other fauna: One Spiny-tailed Lizard was seen at this site in winter

Plants: One waypoint was selected at this site, Waypoint 21 (N: 32 23 16.7E: 47 20 31.5), which was characterized by desert- desert shrubs. The ecological status of the site was rated as 5 (most disturbed), due to the threat of livestock production and grazing, garbage and the remains of weapons and mines. 10 species of plant were identified at this waypoint, the dominant species being *Tamarix aphylla*. The percentage of non-vegetated terrain was 75%. The area was characterized by a flat slope of 0° in all directions, and the geology and soil type at this waypoint were sedimentary and clay respectively. All identified plant species are common in Iraq.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Although this terrestrial site was visited during the winter and summer 2009 KBA survey, there is still much to be learnt about it. It is recommended that future surveys be conducted of this site to discover more about the breeding, migrant and wintering bird populations and that a conservation plan may be devised should it be necessary. The primary threats to this site are garbage/littering and human disturbance caused by visiting. An educational program is recommended to keep this area as clean and natural as possible.

Zubaidaat

MN2

Winter fauna observations: 2/7/2010; spring plant observations: 5/4/2010; summer fauna observations: 6/19/2010

Admin Area: Missan

IBA Criteria: A3.

IPA Criteria: Criteria B and C

Coordinates: N 32 23 40, E 47 23 27

Area: 28578 ha (with Teeb Oasis (MN1))

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx 40km northeast of Amara city in Maysan, close to the Iranian border.

Combined with Teeb Oasis – See MN1 GIS Map



Panoramic picture of Zubaidaat area

Site Description: Zubaidaat area (AM3) is characterized by hilly terrain, with many valleys (wadies). It is located close to the Iranian border, with several oil fields, pipe networks and a small number of roads in the area. It is uninhabited and otherwise devoid of human activity, rendering much of its wildlife undisturbed. The area is an important migration corridor for Passerines and other birds. The land here appears to have suffered during the Iran-Iraq war of the 1980s, as traces of the conflict (bombs, bombshells, ammunition boxes) were found. During the time of the summer 2010 visit, a new oil well had been outlined in the area and some excavators were observed digging at the site. Oil excavation may expand in this area in the future.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Ammomanes deserti</i>	6	3 - Possible
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
1-Threatened species			
B. Botanical richness		67 plant species were observed in this site.	
C. Threatened habitats	Persian (Arabian) Gulf Desert and Semi-Desert-Critical	This site is located in a critically threatened ecoregion and is also threatened by the remains of military weapons and mines	

Birds: Winter total count: 108. Winter species number: 7. Summer total count: 29. Summer species number: 7. Key winter observations include: *Ammoperdix griseogularis*, *Alauda arvensis* and *Hirundo rustica*.

Nature Iraq & Iraqi Ministry of Environment Report

The key summer observation included: Hume's Wheatear *Oenanthe albonigra*. A conservation concern species seen at the site is Ammoperdix griseogularise *Ammoperdix griseogularis*.

Mammals and other fauna: no mammals or other fauna were observed, but Canine family tracks were found at the site.

Plants: One waypoint was visited at this site. Waypoint 30 (N: 32 23 37.3 E: 47 23 14.2) was a desert-desert shrub habitat. The site was rated as 4 on the ecological scale as it was moderately disturbed by the remains of military weapons and mines. 67 plant species were identified at this waypoint, with the dominant species being *Sinapis arvensis*. The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 60%.

This site appears to meet IPA criteria and considered botanically rich, with many plant species growing in this area. Most of them are common in Iraq, but some are rare.

Conservation Issues & Recommendations: It is recommended that surveys of this terrestrial site continue to investigate the possible presence of conservation concern species and that a conservation plan may be devised, should it be necessary. The site may be used by some bird species of conservation concern for breeding, but further research is required to confirm. Overgrazing may be an issue at this site but locals report that the biggest problem in the area is the drought.

Sawa Lake

MT1

Winter Fauna Observations: 2/18/2010; spring plant observations: 22/3/2010; summer fauna observations: 5/13/2010

Admin Area: Muthanna

IBA Criteria: A1, A2, A3.

IPA Criteria: Criteria C

Coordinates: N 31 18 50, E 45 0 13

Unprotected Area

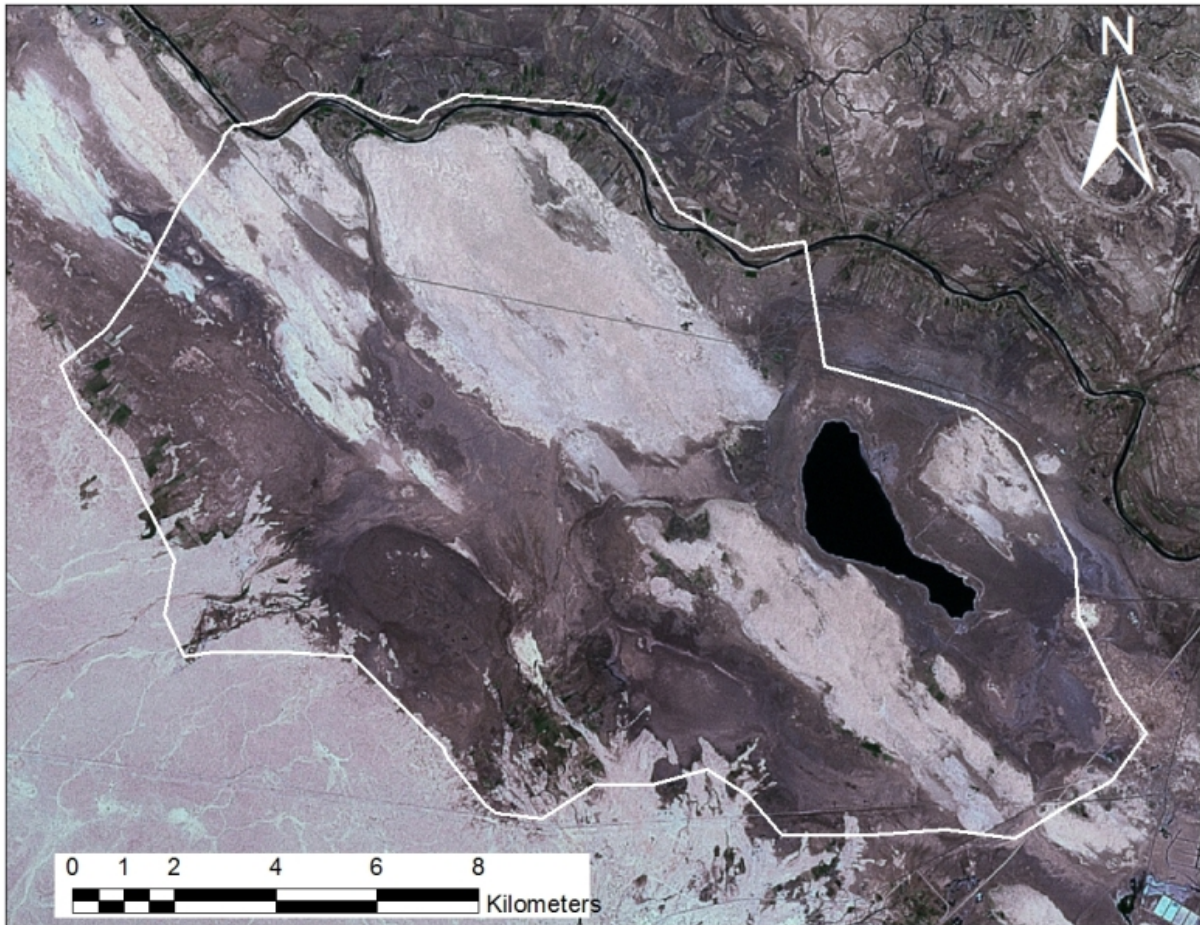
Area: unmeasured

Altitude: unmeasured

Directional information: this site is located approx 20km southwest of Samawa city in Muthanna governorate.

Sawa Lake

MT1



Panoramic picture of Sawa Lake

Site Description: Sawa Lake is a closed lake, with no inlet or outlet of water, located approximately 30 km west of Samawa city. It is fed by groundwater from higher western desert areas. The lake area's only plant coverage is scattered low desert shrubs. No reed beds were found here. During the summer 2010 visit, no changes were found in comparison to the previous winter survey. Weather conditions were dusty during the survey.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A1. Globally threatened species	<i>Aythya nyroca</i>	1600	
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>	43	12 - Possible
A3. Biome-restricted species	<i>Oenanthe deserti</i> <i>Oenanthe lugens</i>	3 1	
Important Plant Area	List Scientific name or	Notes (State evidence)	

Nature Iraq & Iraqi Ministry of Environment Report

Criteria	Eco-region type as appropriate	as
C. Threatened habitats	Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and is also under threat of hunting, fishing, garbage/littering and livestock grazing.

Birds: Winter total count: 3,300. Winter species number: 17. Summer total count: 266. Summer species number: 19. Key winter observations include: *Aythya nyroca*, *Tachybaptus ruficollis* and *Chroicocephalus genei*. Key summer observations include: *Marmaronetta angustirostris* (8 birds (4 pairs) were seen in summer of this vulnerable species that, despite the non-typical habitat found at this site, could be possible breeding birds at the site), *Tachybaptus ruficollis*, *Chroicocephalus genei* and *Streptopelia turtur*. The site contained the following conservation concern species: *Aythya nyroca*, *Marmaronetta angustirostris* (GT), *Tachybaptus ruficollis*, *Chroicocephalus genei* and *Streptopelia turtur*.

Plants: Two waypoints were visited at this site: Waypoint 14 (N: 31 19 02.9E: 44 59 35.0), which was inside the lake and characterized by inland standing water- pond or lake, and Waypoint 15 (N: 31 19 03.5 E: 45 00 40.1), which was desert- desert shrub habitat.

Waypoint 14: Only one species of plant was found inside the lake, *Chara sp.* (lower plant).

Waypoint 15: Ten plant species were identified at this waypoint, the dominant species being *Suaeda sp.*, *Haloxylon salicornicum* and *Tamarix aucherana*.

The site was rated as 4 on the ecological scale (very disturbed), due to hunting, fishing, garbage/littering and livestock grazing activities. The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 85% inside the lake and 30% in the areas surrounding the lake. No plants of conservation significance were recorded here.

Conservation Issues & Recommendations: This is a unique wetland in Iraq. Sawa Lake is not fed by any surface water, nor discharges in to any river or other wetland. It is a closed waterbody and as such is important for protection from a scientific and educational perspective. Further surveying of this area is recommended to conduct more detailed ecological studies in the lake and surrounding desert area.

Salman

MT3

Summer fauna observations: 5/10/2010

Admin Area: Muthanna

IBA Criteria: A3.

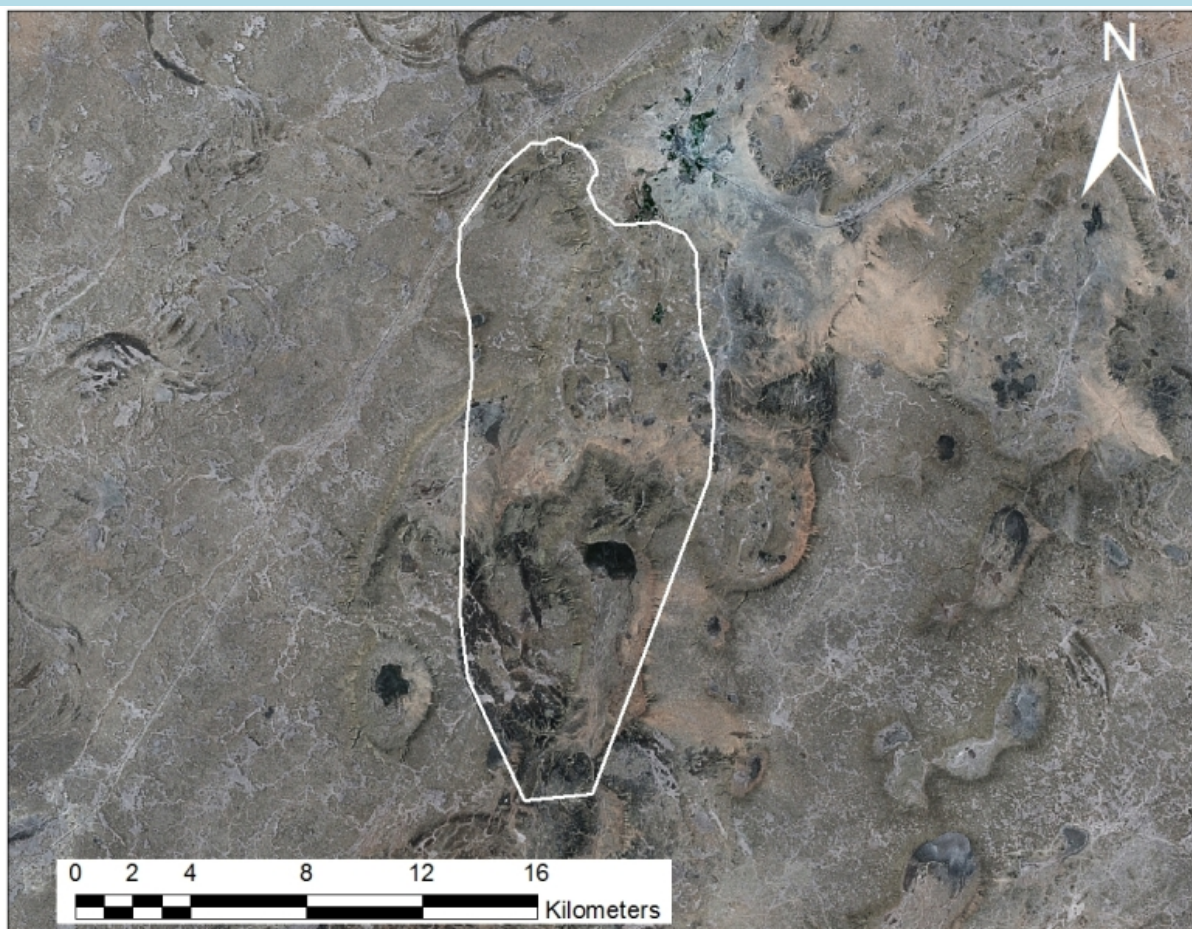
Coordinates: N 30 25 12, E 44 24 57

Area: 14895 ha

Unprotected Area

Altitude: unmeasured

Directional information: this site is located approx 150km southwest of Samawa city in Al-Muthanna desert.



Panoramic picture of Salman Desert area

Site Description: This is a new site for the KBA program. It is located in the depth of the southwestern desert that lies southwest of Salman town. Overall the area is dry, but includes large valleys that carry draining water northeastward. The area is well-vegetated with small plants of different species scattered throughout.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Pterocles senegallus</i> <i>Ammomanes deserti</i> <i>Alaemon alaudipes</i>		14 -Probable 16-Probable 2 - Probable

Birds: Summer total count: 306 Summer species number: 8. Key summer observations include: Greater Hoopoe-Lark *Alaemon alaudipes*, Pin-tailed Sandgrouse *Pterocles albata*, Spotted Sandgrouse *Pterocles senegallus*, Aurian Isabelline Shrike *Lanius isabellinus*, *Lanius collurio*, *Ammomanes deserti* and *Lanius senator*. Conservation concern species at the site included: Greater Hoopoe-Lark *Alaemon alaudipes*, Pin-tailed

Nature Iraq & Iraqi Ministry of Environment Report

Sandgrouse *Pterocles alchata*, Spotted Sandgrouse *Pterocles senegallus*, Daurian Isabelline Shrike *Lanius isabellinus* and *Lanius senator*.

Plants: This site is located in the Arabian Desert and East Sahero-Arabian Xeric Shrublands ecoregion. It was not surveyed in 2010 and there is currently insufficient information to make a full assessment.

Conservation Issues & Recommendations: This part of the southwestern desert is very poorly-known in regards to its ecology, biology and biodiversity. This area's biocontent may represent that of a vast area of Shamiya, the southern Iraqi desert and as such warrants further investigation. It is recommended that this region continue to be searched for desert habitat areas relatively rich in biodiversity. Al-Salman desert is a good example of such a remote desert site.

Wadi Al-W'eir

NJ1

Winter Fauna observations: 2/20/2010; spring plant observations: 27/3/2010; summer fauna observations: 6/30/2010

Admin Area: Najaf

IBA Criteria: A2, A3.

IPA Criteria: Criteria B and C

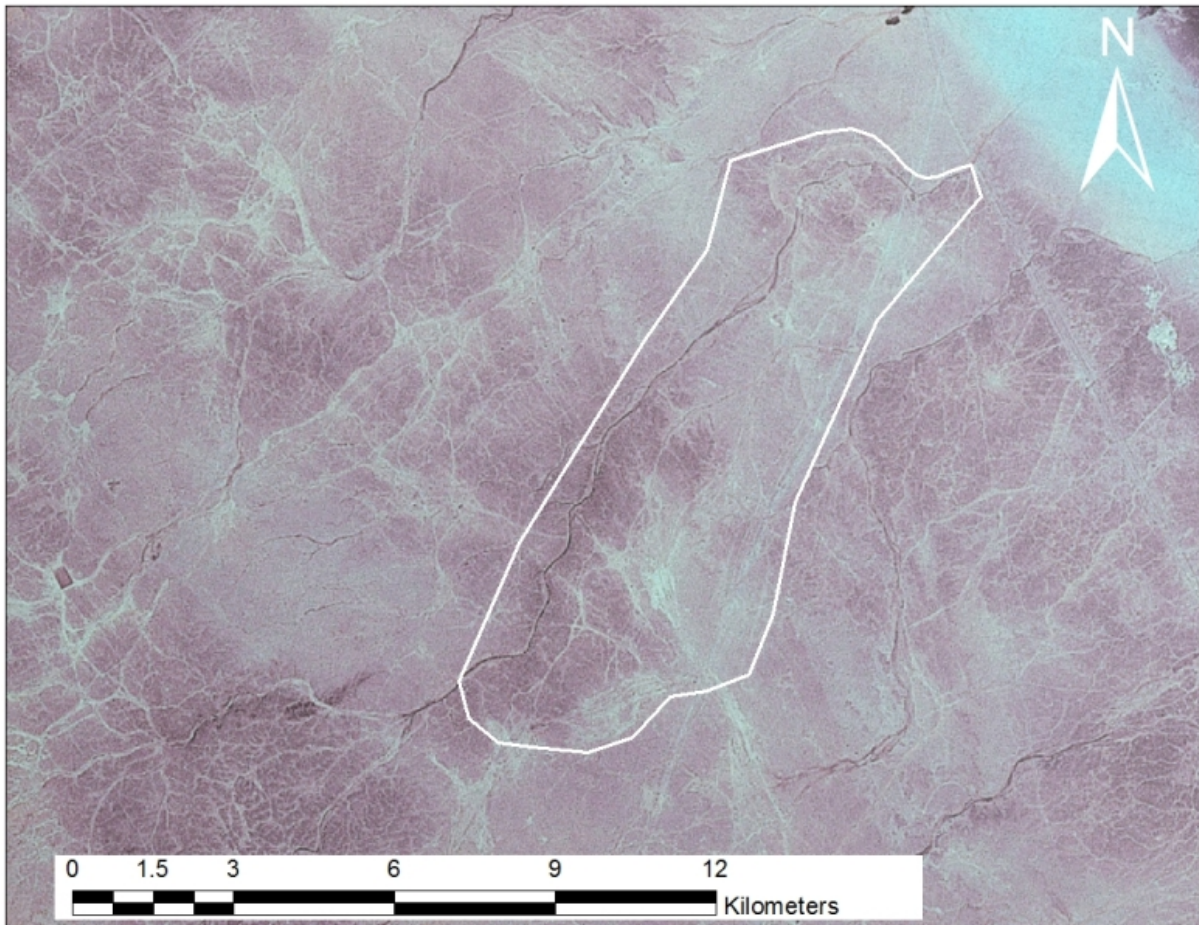
Coordinates: N 31 41 2, E 44 17 33

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: this site is located approx 70km southwest of Diwaniya city on the edge of the western desert.



Wadi Al-W'eir

NJ1



Panoramic picture of Wadi Al-W'eir Desert area

Site Description: Wadi Al-W'eir is a relatively large waterway in the western desert, located approximately 80km southwest of Diwaniya city. It is overall a desert habitat, featuring relatively good plant coverage that may provide a good habitat for breeding of desert fauna species. During the summer 2010 visit, no changes were found in comparison to the previous winter survey. Two large excavators were observed digging up the rocks at the site. Fencing around a protected area designated for gazelle-breeding close to Wadi Shi'eeb was still under construction during these most recent surveys.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A2. Restricted-range species	<i>Hypocolius ampelinus</i>	7	2 -Probable
A3. Biome-restricted species	<i>Corvus ruficollis</i>		2 -Probable
	<i>Ammomanes deserti</i>	5	3 -Probable
	<i>Oenanthe deserti</i>	4	
	<i>Alaemon alaudipes</i>	2	
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
B. Botanical richness	<i>Astragalus spinosus</i> (Endemic)	90 plant species were observed in this site.	
C. Threatened habitats	Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and also under the threat of grazing activities.	

Birds: Winter total count: 1231. Winter species number: 19. Summer total count: 89. Summer species number: 16. Key winter observations include: Pin-tailed Sandgrouse *Pterocles alchata*, *Oenanthe deserti* and *Hypocolius ampelinus ampelinus*. Key summer observations include: Pin-tailed Sandgrouse *Pterocles alchata* and *Hypocolius ampelinus ampelinus*. Conservation concern species include: Pin-tailed Sandgrouse *Pterocles alchata*, *Oenanthe desertii* and *Hypocolius ampelinus ampelinus* (EN).

Mammals and other fauna: Two Spiny-tailed Lizards were observed at the site in summer

Plants: One waypoint was visited at this site. Waypoint 20 (N: 32 23 37.3E: 47 23 14.2) was a desert-desert shrub habitat. The site was rated as 3 on the ecological scale (moderate disturbed) due to grazing activities. 90 species of plant were identified at this waypoint, the dominant species being *Zizphus nummularia*, *Peganum barmala*, *Zygophyllum fabago* and *Zilla spinosa*. The area was flat with a slope of 0° exposure in all directions. The geology of this area was sedimentary, the soil type was sand-clay and the percentage of non-vegetated terrain was 70%.

Conservation Issues & Recommendations: Recommendations for this site are similar ME3 site. Both are pure desert areas, and the valleys (Sh'eeb) may be critical areas for the passage and residence of Passerines, Raptors and other desert bird and Faunal species, especially after the rainy season. This is an

Nature Iraq & Iraqi Ministry of Environment Report

IPA and considered a botanically rich for its biogeographic zone, with many plant species growing in this area. Most of them are common in Iraq, but some are rare.

Sh'eeb Abu-Talha

NJ2

Winter Fauna observations: 2/20/2010; no spring plant observations; Summer fauna observations: 6/30/2010

Admin Area: Najaf

IBA Criteria: A1, A3.

Coordinates: N 31 4 35, E 44 1 19

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: this site is located approx. 70km southwest of Najaf City in the desert.



Panoramic picture of Sh'eeb Abu-Talha Desert area

Site Description: This area is part of the southwestern desert, located approximately 150km southwest of Diwaniya city. It forms part of the large seasonal Sh'eeb Abu-Talha waterway that carry rainwater from the southern and western areas of the desert towards the Euphrates River. The Sh'eeb Valley is relatively

Nature Iraq & Iraqi Ministry of Environment Report

well covered by various species of low and medium height plants, in addition to varieties of shrub that may provide a good habitat for breeding of desert bird species. A few patches of water were found in the depressions of this site during the winter 2010 survey, forming a good water source for birdlife and noticeably enhancing plant coverage throughout the area.

During the summer 2010 visit, no changes were found in comparison to the previous survey. Weather conditions featured very severe temperatures and a lack of water.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Neophron percnopterus</i> <i>Chlamydotis macqueenii</i>	1 1	
A3. Biome-restricted species	<i>Ammomanes deserti</i> <i>Cursorius cursor</i> <i>Pterocles senegallus</i> <i>Rhodospiza obsolata</i> <i>Alaemon alaudipes</i>	4 17 11 3	2 - Probable 2 - possible 2 - confirmed

Birds: Winter total count: 888. Winter species number: 13. Summer total count: 17. Summer species number: 4. Key winter observations include: Egyptian Vulture *Neophron percnopterus*, Macqueen's Bustard *Chlamydotis macqueenii*, Cream-coloured Courser *Cursorius cursor*, Pin-tailed Sandgrouse *Pterocles alchata*, Spotted Sandgrouse *Pterocles senegallus* and *Oenanthe finschii*. A key summer observation included: Pin-tailed Sandgrouse *Pterocles alchata*. Conservation concern species were: Egyptian Vulture *Neophron percnopterus*, Macqueen's Bustard *Chlamydotis macqueenii* (GT), Cream-coloured Courser *Cursorius cursor*, Pin-tailed Sandgrouse *Pterocles alchata*, Spotted Sandgrouse *Pterocles senegallus* and *Oenanthe finschii*.

Mammals and other fauna: A Brown hare was observed under a thorny plant during the summer observations.

Plants: This site is located in the Arabian Desert and East Sahero-Arabian Xeric Shrublands ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: Recommendations for this site are similar NJ1 site. Both are pure desert areas and the valleys (Sh'eeb) may be critical for the passage and residence of Passerines, Raptors and other desert bird and Faunal species, especially after the rainy season.

Euphrates & Tigris Junction

SA1

Winter fauna observations: 1/27/2010; spring observations: 5/4/2010

Admin Area: Basrah

Coordinates: N 30 34 59, E 47 46 18

Area: unmeasured

Altitude: unmeasured

Directional information: this site is located approx. 5km north of Basra city.

Site not delineated

KBA Criteria: V

IBA Criteria: A3.

IPA Criteria: Criteria C

Unprotected Area

Euphrates & Tigris Junction

SA1



Panoramic picture of Euphrates & Tigris area

Site Description: This site is located on the Shatt Al Arab waterway at the meeting point of the Tigris & Euphrates rivers in Qarmat Ali city. The site is heavily populated, with many houses and the Najibia Power Station, an electricity generating unit, close to the site. Date palm trees form groves on the rivers' edges. There is a bridge nearby, called Khalid Bridge. No changes were found in comparison to the previous survey during this visit.

Conservation Significance:

Key Biodiversity Areas Criteria	Scientific name	Notes:	
Vulnerability Criteria	<i>Rafetus euphraticus</i>	Frequently reported	
Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A3. Biome-restricted species	<i>Pycnonotus leucotis</i>	6	
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecoregion and is also under threat of water pollution, garbage/littering and livestock grazing.	

Birds: Winter total count: 802. Winter species number: 15. The key observations were: *Chroicocephalus genei* and *Pycnonotus leucotis*. Species of conservation concern species observed here in winter were: Mesopotamian Crow *Corvus capellanus* (Endemic Race), *Hydroprogne [Sterna] caspia*, White-cheeked Bulbul *Pycnonotus leucogenys*, *Tachybaptus ruficollis* *Tachybaptus ruficollis*, and *Chroicocephalus genei*.

Plants: One waypoint was visited at this site. Waypoint 31 (N: 30 34 59E: 47 46 18) was on the junction of the Euphrates & Tigris Rivers, which are inland running water rivers.

The site was rated as 4 on the ecological scale, with many factors constituting a threat to its ecosystems, including water pollution, garbage/littering and road grazing. Fourteen species of plant were recorded at this waypoint: the dominant species were *Phragmites australis*, *Schoenoplectus litoralis* and *Typha domingensis*, while *Phoenix dactylifera* was cultivated in areas surrounding the site. The remainder of plants were submerged species including *Ceratophyllum demersum*, *Potamogeton crispus*, *Vallisneria spiralis*, *Potamogeton lucens* and a few species near the water like *Juncus acutus*, *Cynodon dactylon*, *Juncus sp.*, *Cyperus sp.*, *Bacopa monniera* and an unidentified member of the *Polygonaceae* family. All the plant species identified at this site are common to Iraq

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Issues & Recommendations: Large quantities of septic and sewage discharge flows in to this site from the surrounding area, in addition to pollution from motor-boats. Hot water from Al-Najeebiya Power Station also discharges into the river. It is necessary to engage local government officials and other stakeholders in a critical dialogue concerning the abovementioned factors and the future of this important site in order to find ways to restore it. Dialogue should be opened and research conducted with fishermen in the area to gain insight in to potential sustainable fishing plans and to devise fishing regulationsfor the area.

Ras Al-Beesha (Fao)

SA4

Winter fauna observations: 2/25/2010; spring plant observations: 2/4/2010; summer fauna observations: 6/14/2010

Admin Area: Basrah

IBA Criteria: A3.

IPA Criteria: Criteria C

Coordinates: N 29 55 44 , E 48 36 9

Unprotected Area

Area: 16909 ha

Altitude: unmeasured

Directional information: this site is located approx 95km southeast of Basra city, in the extreme southern part of Iraq.



Ras Al-Beesha (Fao)

SA4



Part of panoramic picture showing the northern view of Fao wetlands

Site Description: This is a marsh region along the Shatt Al Arab, that is affected by the tides and saltwater of the Gulf, and may be wet or dry depending on the tide. During the 1980s prior to the Iraq/Iran war this was an important area for date palm production, but the trees have since been destroyed. High reeds and aquatic plants line the dirt road used for accessing the site. There were many amphibians and small species of fish in the canals. No changes were found in the site during the either the summer or winter 2010 visits in comparison to the previous survey.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A3. Biome-restricted species	<i>Vanellus leucurus</i>	3	
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	South Iran Nubo-Sindian Desert and Semi-Desert-Critical	This site is located in a critically threatened ecoregion and is also under threat of hunting, garbage/littering and water pollution.	

Birds: Winter total count: 3409. Winter species number: 21. Summer total count: 473. Summer species number: 24. Key winter observations include: *Pelecanus crispus*, *Vanellus leucurus*, *Chroicocephalus genei*, *Larus armenicus* and *Hydroprogne caspia*. Key summer observations include: *Phoenicopterus roseus*, *Limosa limosa*, *Chroicocephalus genei* and *Hydroprogne caspia*. Conservation concern species were: *Phoenicopterus roseus*, *Limosa limosa*, *Chroicocephalus genei*, *Chroicocephalus genei*, *Hydroprogne caspia*, *Pelecanus crispus* (GT), *Vanellus leucurus*, *Larus armenicus* and Mesopotamian Crow *Corvus capellanus* (Endemic Race).

Mammals and other fauna: One Indian mongoose was seen at this site in summer.

Plants: One waypoint was visited at this site. Waypoint 24 (N: 29 55 44E: 48 36 9) was a wetland on the edge of the Shatt Al-Arab, affected by the tide. The site was rated as 3 on the ecological scale, currently classified as moderately disturbed, although this area’s habitat was devastated in former times by intense fighting in the region. Three plant species were observed, the dominant species being the *Phragmites australis* variety of reed. *Suaeda sp.* and *Salicornia herbacea* were seen growing at the edges of the wetland. No plants of conservation significance were recorded here.

Conservation Issues & Recommendations: This site represents an important habitat for coastal birdlife but is impacted by widespread pollution from oil refineries and shipping, a threat that has not been addressed through any environmental management scheme for the area. Construction was also underway during the current survey of an asphalt roadway through the area, thus filling in and destroying parts of marshland. Road construction and canalization should be avoided in this area, as it damages the natural landscape of the entire peninsula.

Sinnaaf Area, Western

SM5

Winter fauna observations: 2/6/2010; no spring plant observations conducted; summer fauna observations: 6/19/2010

Admin Area: Missan

IBA Criteria: A1, A2.

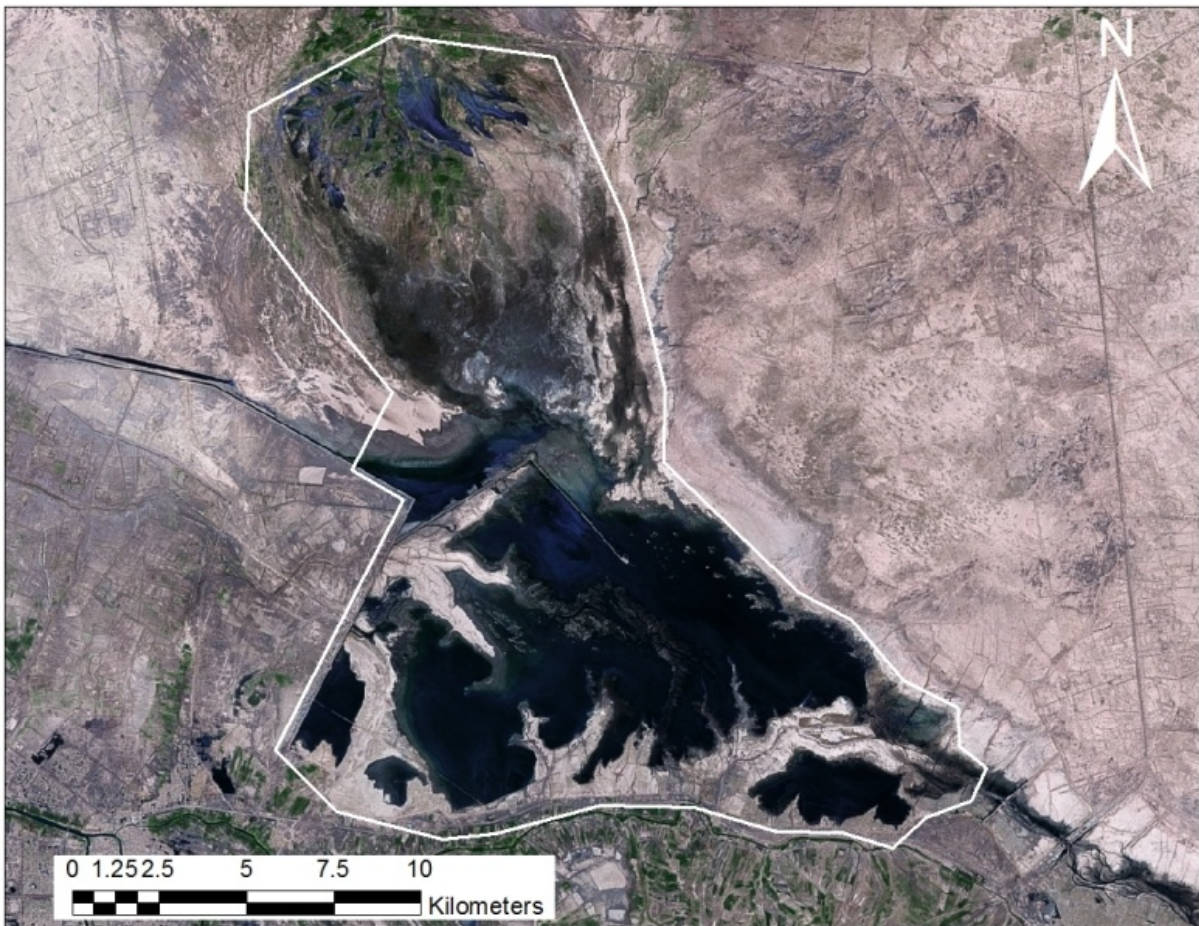
Coordinates: N 31 52 51, E 47 12 56

Unprotected Area

Area: 26049 ha

Altitude: unmeasured

Directional information: this site is located approx 10km northeast of Amara city in Missan governorate.



Sinnaaf Area, Western

SM5



Part of panoramic picture showing the northern West Sinnaaf wetlands

Site Description: Evans describes this area as part of a large complex of marshes on the east of the River Tigris, north of Umm An Niaa’] in Hawizeh Marsh. Many globally, regionally and restricted range species are recorded as using and inhabiting this area. Two sites are surveyed here as part of the KBA program (SM4 & SM5). Evans describes SM4 as marshlands to the east that merge with Haur Chubaisah on its western edge. Today, however, it is a dry, sandy area with halophytic vegetation, bordered by agricultural fields. The KBA survey identifies the SM5 area as lying west of SM4 and the Sinnaaf (what Evans calls Haur Chubaisah) and is presently a dry site featuring saline soils and dominated by halophytic vegetation. It is bordered by agricultural fields and a road between Missan and Al Musharah. There is a village to the west of the site. Hunting poses a serious threat to Waterfowl populations in the area. No changes were found at this site during the summer 2010 visit in comparison to previous surveys. The site continues to receive water from Amara sewage waste but it is still inhabitable for birds, especially Waders.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Limosa limosa</i>	484	
A2. Restricted-range species	<i>Tachybaptus ruficollis</i>		6 -Possible

Birds: Winter total count: 11828. Winter species number: 27. Summer total count: 860. Summer species number: 16. Key winter observations include: Slender-billed Gull *Chroicocephalus genei* and *Limosa limosa*. Key summer observations include: *Tachybaptus ruficollis*, *Vanellus spinosus* and *Glareola pratincola*. Conservation concern species were: *Limosa limosa* (GT), Slender-billed Gull *Chroicocephalus genei*, *Tachybaptus ruficollis* (EN), *Vanellus spinosus*, and *Glareola pratincola*.

Plants: This site is located in the Tigris-Euphrates alluvial salt marsh ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: Based the regular observations and monitoring of the KBA team since winter 2009, this site is significant to regional conservation efforts. We strongly recommend that this site continue to be surveyed on a regular basis. An educational campaign should also be devised targeting local residents who use the site for hunting, to open discussion on the sustainable management of this site for both hunting and species protection.

Special efforts should be made to ensure the local police force properly protect the area, particularly during the winter months when thousands of Flamingos and other Waterfowl flock to the site. Lastly, although the sewage water has helped to attract many birds and probably other species to the area, other problems arise from the dumping of untreated sewage water on the site, posing a risk of long-term health problems for these species and to people who consume species hunted here. It is recommended that these issues be further investigated.

Shuweicha Marsh

SM7

Winter fauna observations: 2/18/2010; no spring plant observations conducted; summer fauna observations: 6/21/2010

Admin Area: Wasit

Coordinates: N 32 42 33, E 45 48 32

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located approx. 20km north of Kut city in Wasit governorate.

Not delineated

Unprotected Area



Panoramic picture showing Shuweicha area (previously wetland)

Site Description: Shuweicha area is a seasonal marsh with no plant coverage other than a scattering of low-growing species. It is located east of the Tigris River and north of Kut city. Seasonal water flows in to the area from the Iranian mountains on to the upper eastern lands after the rainy seasons. This area was directly affected by the recent lack of water with very few water patches found during the current survey. Most of the surveyed area was of muddy/wet terrain, which hindered transportation somewhat within the area.

Conservation Significance:

Birds: Winter total count: 2927. Winter species number: 10. Key observations include: *Oenanthe deserti* (1 seen), *Ciconia ciconia*, *Corvus frugilegus* and *Hirundo rustica*. No birds were observed during the summer survey, possibly due to hot and windy weather conditions. The conservation concern species was *Oenanthe deserti* and *Ciconia ciconia*.

Mammals and other fauna: One Golden jackal was observed at the site in winter.

Plants: This site is located in the Arabian Desert and East Sahero-Arabian Xeric Shrublands ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This site was found to be dry during the surveys of both 2009 and 2010. The team was informed that Iran has blocked the water supply that once fed this area from their side of the border, although this information could not be confirmed. As it is possible that the Iranian waters are not the only source of water to this area the site may also simply be affected by the current drought conditions.

Teeb

SM8

Winter fauna observations: 2/7/2010; spring plant observations: 27/3/2010; summer fauna observations: 6/19/2010:

Admin Area: Missan

Coordinates: N 32 1 22, E 47 24 12

Area: 14827 ha

IBA Criteria: A1, A2, A3, A4i.

IPA Criteria: Criteria C

Unprotected Area

Teeb

SM8

Altitude: unmeasured

Directional information: this site is located approx 40km northeast of Amara city in Maysan governorte.



Panoramic picture showing Teeb wetlands

Site Description: This site is a seasonal wetland, with patches of water that remain throughout the year in scattered depressions. Due to large amounts of rains that were not, in contrast to former times, retained on the Iranian side, this area has recently received higher quantities of water, and the deep pools here currently stretch many kilometers wide. Large numbers of Geese are found here. Plant coverage was found to be healthy, providing a good habitat for the area’s fauna. No changes other than a few small new oil wells and oil exploration developments were observed during the summer 2010 visit, in comparison to previous surveys.

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/breeding data
A1. Globally threatened species	<i>Anser erythropus</i>	70	
A2. Restricted-range	<i>Hypocolius ampelinus</i>		60 -Possible

Nature Iraq & Iraqi Ministry of Environment Report

species			
A3. Biome-restricted species	<i>Vanellus leucurus</i> <i>Pterocles senegallus</i> <i>Oenanthe deserti</i>	6 2 3	7 -Possible 7 - possible
A4. Congregations			
A4i.	<i>Anser anser rubrirostris</i>	18500	
Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)	
C. Threatened habitats	Tigris-Euphrates alluvial salt marsh- Critical	This site is located in a critically threatened ecoregion and is also under threat of livestock production/grazing and garbage/littering.	

Birds: Winter total count: 19825. Winter species number:27. Summer total count: 306. Summer species number: 20. Key winter observations include: Lesser White-fronted Goose *Anser erythropus*, Pin-tailed Sandgrouse *Pterocles alchata*, Eastern Imperial Eagle *Aquila heliaca*, *Vanellus spinosus* and *Vanellus leucurus*. Key summer observations include: Pin-tailed Sandgrouse *Pterocles alchata*, *Vanellus leucurus*, *Glareola pratincola*, *Chlidonias leucopterus* and *Hypocolius ampelinus ampelinus*. Conservation concern species were: Lesser White-fronted Goose *Anser erythropus* (GT), Eastern Imperial Eagle *Aquila heliaca* (GT), *Vanellus spinosus*, *Vanellus leucurus*, Pin-tailed Sandgrouse *Pterocles alchata*, *Vanellus leucurus*, *Chlidonias leucopterus* and *Hypocolius ampelinus ampelinus* (EN).

Plants: One waypoint was chosen at this site during the spring visit. Waypoint 22 (N: 32 10 02.9E: 47 03 03.4) was flooded communities- periodically or occasionally flooded land. The ecological status of the site was rated as 3 due to the environmental threats posed by livestock production and grazing and garbage/littering. 9 species of plant were identified at this site, some of them aquatic and others terrestrial, near the road. The dominant plant was *Aeluropus lagapoides*. The percentage of non-vegetated terrain was 60%. The area is a flat slope of 0° in all directions. The geology and soil type at this waypoint were sedimentary and clay respectively. All identified plants at this site are common in Iraq.

Conservation Issues & Recommendations: The KBA Fauna team has made considerable observations of birds and other fauna at this site since the winter 2009 survey. It is recommended that surveying continue at this site to gain a deep understanding of breeding, migrant and wintering bird populations and that a conservation or restoration plan may be devised.

Suwaibaat, South

TQ1

Winter fauna observations: 1/16/2010; spring plant observations: 19/3/2010; summer fauna observations: 5/11/2010

Admin Area: Thi Qar

IPA Criteria: Criteria C

Coordinates: N 30 28 22, E 45 57 59

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: this site is located approx 35km south of Nassiriya city in Thi-Qar governorate.

Not delineated



Panoramic picture showing Suwaibaat area

Site Description: The site is located south to southwest of Nassiriya city. It is a seasonal wetland, with rainwater running in from the western desert via branched valleys into this large depression. It has historically received large amounts of water from Al-Qadissiya. This site was flooded for several years, during which time it harbored large numbers of Waterfowl and other bird species. The dominant plant is *Tamarix* with small, low shrubs. There are also dry *Phragmites* and dry reed beds scattered throughout the area.

Erido, an ancient Sumerian City lies close to this area, surrounded by a large soil embankment. The Zagurat of Erido emerges as a large hill in the area, with a paved way that leads to the ruins.

During the summer 2010 visit no changes were found in comparison to the previous winter survey. Since 2003-4 the site the regulators upstream on the Euphrates have been closed, causing the site to lose its water source and become dry.

Conservation Significance:

Important Plant Area Criteria	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
C. Threatened habitats	Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and is also under threatened by the drainage of this wetland, in addition to garbage/littering and the remains of military vehicles and weapons.

Birds: Winter total count: 84. Winter species number: 11. Summer total count: 194. Summer species number: 6. Key winter observations include: *Alauda arvensis*, *Hirundo rustica*, *Passer moabiticus* (3 of this biome-restricted species were seen in winter) and *Oenanthe deserti* (2 of this biome-restricted species was seen in winter) . Key summer observations include: *Himantopus himantopus*, *Charadrius alexandrinus*, *Calidris ferruginea*, *Philomachus pugnax*. No birds of conservation concern were found at this site during this survey.

Mammals and other fauna: Many canine tracks were found on the ground in winter.

Plants: Two waypoints were visited at this site: Waypoint 9 (N: 30 54 00.0E: 46 01 10.3), which was desert- desert shrub habitat and Waypoint 10 (N: 30 55 18.3E: 46 01 33.2), also desert- desert shrub habitat.

Waypoint 9: Two species of plant were identified at this waypoint: *Suaeda vermiculata* and *Tamarix aucherana*.

Waypoint 10: This waypoint contains 14 plant species. The dominant species were *Suaeda vermiculata*, *Tamarix aucherana* and *Cressa cretica*. The site was rated as 4 on the ecological scale due to drainage of the wetland, as well as garbage/littering and the remains of military vehicles and weapons. The percentage of non-vegetated terrain was 90%. The area was with a flat slope of 0° fully exposed in all directions. The geology of this area was sedimentary and the soil type was clay. All plant species found here are common in Iraq.

Conservation Issues & Recommendations: Surveys to date suggest that this site today is not particularly rich in biodiversity. As it is a seasonal wetland, summer water shortages in this area are most likely due to the general lack of rainfall and water shortages, and conditions vary throughout the year. It is recommended that an alternative area further west be selected for surveying to observe the discharge of rain water through the valleys to the western edges of Al-Suwaibaat seasonal wetland.

Tell Al-Laham

TQ2

Spring plant observations: 19/3/2010.

Admin Area: Thi Qar

IPA Criteria: B & C

Coordinates: N30 43 39, E46 23 26.6

Unprotected Area

Area: unmeasured

Altitude: unmeasured

Directional information: This site is located 38km southeast of Nasriyah city.

Not delineated



Panoramic picture of the northern view of Tell Al-Laham

Site Description: This site is a desert area located west of the Basra-Baghdad express highway and north of a strategic oil pipeline. There is a paved road in the south of this area. Many species of grasses and herbs grow in depressions along the road, while the surrounding area is sparsely-growing shrub desert terrain.

Conservation Significance:

Important Criteria	Plant Area	List Scientific name or Eco-region type as appropriate	Notes (State evidence)
B. Botanical richness		<i>Astragalus spinosus</i> (Endemic)	The identified plant were 20 species in this site.
C. Threatened habitat		Arabian Desert and East Sahero-Arabian Xeric Shrublands- Critical	This site is located in a critically threatened ecoregion and is also under the threat of livestock grazing and garbage/littering.

Plants: Two waypoints were visited at this site: Waypoint 11 (N: 30 43 39.0 E: 46 23 26.6), which was desert- desert shrub habitat and Waypoint 12 (N: 30 45 10.9 E: 46 20 40.5), also desert- desert shrub habitat (this waypoint is in a depression leading to waypoint 11).

Waypoint 11: 18 species of plant were observed at this waypoint, the dominant species being *Astragalus spinosus* and *Stipagrostis plumose*.

Waypoint 12: This waypoint contains 9 plant species. The dominant species were *Suaeda vermiculata*, *Tamarix aucherana* and *Heliotropium ramosissimum*.

The site was rated 3 on the ecological scale (moderately disturbed) due to the threat of livestock grazing and garbage/littering. The percentage of non-vegetated terrain was 80%. The area had a flat slope of 0° fully exposed in all directions. The geology of this area was sedimentary and the soil type was clay. All identified plant species here are common in Iraq.

Conservation Issues & Recommendations: The site is threatened by garbage/littering and livestock grazing.

Jazman (Zurbatia)

WT1

Jazman (Zurbatia)

WT1

Winter fauna observations: were made on 2/18/2010; summer fauna observations: 6/21/2010

Admin Area: Wasit

IBA Criteria: A2.

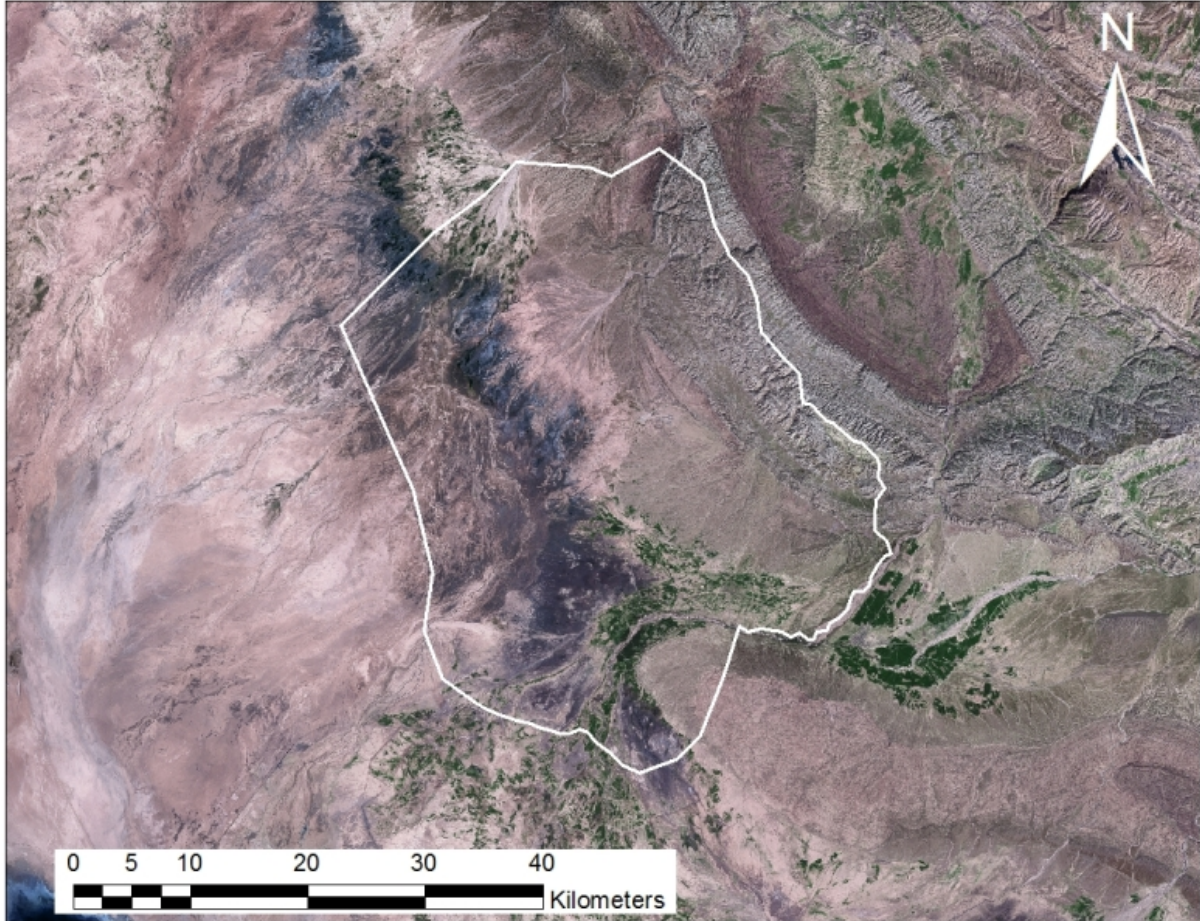
Coordinates: N 33 8 50, E 46 4 39

Unprotected Area

Area: 155095 ha

Altitude: unmeasured

Directional information: this site is located approx 70km northeast of Kut city in Wasit governorate.



Panoramic picture showing Jazman area

Site Description: Jazman (also known as Zurbatia) is a dry area with rich plant coverage. It is located northeast of Kut city close to the Iranian border. The area receives water from a small seasonal river/stream called Galala Badra that feeds the orchards and farms of the area. The site is characterized by the growth of herbs and a few species of shrub. The area is close to Himreen chain on the Iraqi side. The area is rich with canals and dry small water-paths. The area is good for migratory Raptors and Passerines. This area is very famous with Gazalla flocks that run away to the Iranian heights when they face pressure from hunting. During the summer 2010 visit, no changes were found in comparison with the last winter survey.

Nature Iraq & Iraqi Ministry of Environment Report

Conservation Significance:

Important Bird Areas Criteria	Scientific name	Wintering/Migration data	Summer/ breeding data
A2. Restricted-range species	<i>Hypocolius ampelinus</i>	4	9 -Confirmed

Birds: Winter total count: 261. Winter species number: 18. Summer total count: 89 Summer species number: 11. Key winter observations include: *Oenanthe finschii*, *Ammoperdix griseogularis*, *Falco columbarius*, *Falco tinnunculus*, *Vanellus indicus*, and *Passer hispaniolensis*. Key summer observations include: *Hypocolius ampelinus ampelinus*, *Ammoperdix griseogularis*, *Merops persicus*, *Stigmatopelia senegalensis*, *Turdoides buttoni* and *Prinia gracilis*. Conservation concern species were: *Ammoperdix griseogularis*, *Hypocolius ampelinus* (EN), *Prinia gracilis*, *Falco tinnunculus* and *Falco columbarius*.

Plants: This site is located in the South Iran Nubo-Sindian Desert and Semi-Desert ecoregion. It was not surveyed in 2010 and there is currently insufficient plant data to make a full assessment.

Conservation Issues & Recommendations: This site is a good terrestrial area for surveying as it has a diverse fauna in general, and avifauna in particular. We recommend continued monitoring of this area to gain further knowledge about its key bird species.

Summary & Conclusions

Throughout the country-wide Key Biodiversity Areas program, 96 sites were visited in 2010, with over 451104 individual bird observations (412052 for the winter and 39052 during the summer). During winter, there were 154 species seen in the south, 143 species seen in central Iraq and 125 seen in Kurdistan, Northern Iraq. During summer, there were 133 species seen in the south, 150 seen in central Iraq and 138 species seen in Kurdistan, Iraq.

For the spring botany survey in southern Iraq, there were 648 individual plant records obtained from 38 waypoints within 32 sites. During the summer survey of Iraqi Kurdistan, 2297 individual plant records were obtained and 25 waypoints were documented within 20 sites.

Additional information was also obtained on other fauna, such as mammals and reptiles. The quality of information being obtained from locals on other fauna at sites was also improved. A secondary report is being released that provides more details on animal trade and hunting in Iraq.

A full list of the birds seen both the winter and summer 2010 surveys throughout Southern, Central/Western and Northern (Kurdistan) Iraq is provided in Annex A. In addition, 197 plant species were identified in the south and 519 plant species were identified in Kurdistan, northern Iraq and a full list are these are provided in Annex B. Important site information on mammal and other species was also obtained from information on animal markets and zoos. This information is provided in Annex C.

The following sections summarize the results of the three separate surveys in Kurdistan, Central and Southern Iraq during 2010. It also provides a more comprehensive and standardized threat assessment and a discussion of the delineations of the sites. Lastly, it provides recommendations on future actions for the specific Key Biodiversity Areas program, and biodiversity protection in general. Please note that the KBA, IBA & IPA criteria assessments for each site that were presented in the site review and reviewed here are preliminary and further refinements are in progress.

General findings on Birds

During the 2010 winter surveys in Kurdistan Iraq, there were several species observed, including 630 Lesser White-fronted Geese *Anser erythropus* (nearly 3% of the world population), two Red-breasted Geese *Branta ruficollis*, two Pine Buntings *Emberiza leucocephalos*, three Little Bustards *Tetrax tetrax* (the first recorded in Iraq since 1940s), 246 Great Black-headed Gulls *Larus*

Nature Iraq & Iraqi Ministry of Environment Report

ichthyaetus, 14 Alpine Accentors *Prunella collaris*, nine Eastern Imperial Eagles *Aquila heliaca*, one Red Kite *Milvus milvus*, and 20 Eurasian Siskins *Carduelis spinus*.

The central and western deserts of Iraq are one of the main migration routes for the raptors in Iraq. During spring, over 450 Lesser Kestrels *Falco naumanni*, 500 Black Kites *Milvus migrans* and Black-eared Kites *Milvus migrans lineatus*, four Eastern Imperial Eagles *Aquila heliaca* and six Pallid Harriers *Circus macrourus* were observed.

The following species were observed in the southern marshes, a unique place for the wildlife in the world: 7,000 Greater Flamingos *Phoenicopterus roseus*, 30,000 Northern Shovelers *Anas clypeata*, 41,000 Marbled Ducks *Marmaronetta angustirostris*, 19,000 Eastern Greylag Geese, 9,000 Red-crested Pochards *Netta rufina*, 2,500 Ferruginous Ducks *Aythya nyroca*, 6,000 Black-tailed Godwits *Limosa limosa*, 6,000 Pygmy Cormorants *Phalacrocorax pygmeus*, 8,000 Dead Sea Sparrows *Passer moabiticus*, and seven Grey Hypocolius *Hypocolius ampelinus*. The White-crowned Wheatear *Oenanthe leucopyga* was added to the Iraq bird list.

In May and June, Richard Porter, (an ornithology expert who advises Nature Iraq) again joined Nature Iraq and the Iraqi Ministry of Environment's bird team during their Key Biodiversity Areas survey and Nature Iraq/BirdLife International annual training course. Many new breeding areas were discovered and first breedings in Iraq for Common Starling *Sturnus vulgaris*, Upcher's Warbler *Hippolais languida* and Eastern Orphean Warbler *Sylvia crassirostris* (found breeding at six and two sites respectively) were recorded. A total of 26 pairs of Egyptian Vultures *Neophron percnopterus* were located, as well as two pairs of Peregrines *Falco peregrines*, two pairs of Kurdish Wheatears *Oenanthe xanthopygma*, two pairs of Barbary Falcons *Falco pelegrinoides* and a singing Eastern Bonelli's Warbler *Phylloscopus orientalis*. Great Reed Warblers *Acrocephalus arundinaceus* were found nesting at two sites, and Sedge Warblers *Acrocephalus scirpaceus* was found at one site – if breeding is proven here, this would be the first time it is observed in Iraq. A pair of Eastern Mourning Wheatears *Oenanthe lugens* were on territory at Peramagroon and European Rollers *Coracias garrulus* were breeding at nine sites.

In addition, Eastern Cinereous Buntings *Emberiza semenowi* were observed at 12 sites (60 pairs in total). Little Swifts *Apus affinis* were breeding in two colonies of over 10 and 50 pairs in caves at Chami Razan, and Dukan. Alpine Swifts *Tachymarptis melba* were found at two colonies at Ahmed Awa (S4A) and Bekhal Waterfall (Near E12- Gali Ali Beg). Six Desert Finches *Rhodospiza obsoleta* were found at three sites and were probably nesting.

Nature Iraq & Iraqi Ministry of Environment Report

In April, May, and June over 40 sites were visited in southern, western, and central Iraq. Red-crested Pochards *Netta rufina* were observed breeding for the first time in Iraq in the Southern Marshes, and a total of 593 adults were counted. In the south, Ferruginous Ducks *Aythya nyroca* were also discovered nesting at several sites and 129 adults were observed, while over 270 Marbled Ducks *Marmaronetta angustirostris* were found – most appeared to be breeding. The endemic Basra Reed Warbler *Acrocephalus griseldis* were found in good numbers and a total of 129 counted, many in newly flooded areas where the reeds are successfully recolonising. Similarly, the endemic Iraq Babbler *Turdoides altirostris* was present in many sites that were visited and a total of 93 were observed. In various areas around the edge of the marshes 57 individuals of the near-endemic Hypocolius *Hypocolius ampelinus* were also found.

In the central and western Iraq surveys Marbled Ducks were found at four sites where they were most likely breeding. Slender-billed Gulls *Chroicocephalus genei* were observed at 15 sites totalling 467; display and pairing was noted at one site. Over 90 Armenian Gulls *Larus armenicus* were also counted but there was no evidence to suggest breeding. Spur-winged Lapwings *Vanellus spinosus*, White-tailed Lapwings *Vanellus leucurus*, and Collared Pratincoles *Glareola pratincola* were all found in areas where breeding was suspected. Lesser Kestrels *Falco naumanni* and a pair of Egyptian Vultures *Neophron percnopterus* were discovered breeding to the west of their known breeding range in Iraq. In the autumn, during Nature Iraq's searches for migrant Sociable Lapwings *Vanellus gregarius*, a female Red-footed Falcon *Falco vespertinus* (found on 14 October near Tikrit) was the first observed in Iraq.

Later in summer, in a separate survey not covered by the site review in this report, White-winged Snowfinch *Montifringilla nivalis*, Golden Eagle *Aquila chrysaetos*, Lammergeier *Gypaetus barbatus*, Winter Wren *Troglodytes troglodytes* (first breeding record for Iraq) and Black Redstart *Phoenicurus ochruros* were observed at Peramagroon Mountain (S6).

It is important to note that the KBA conservation assessments done in this report are only provisional. The counts for species listed in the criteria table for each site are the actual counts obtained in the field and do not represent any extrapolation. Images of some important Bird species can be found in Annex D.

General findings on plants

Nature Iraq & Iraqi Ministry of Environment Report

Two plant species (*Rumex ribes* and *Firtillaria imperialis*) have always been collected by people for food and ornamental purposes; and are gathered at a rate that may threaten these species at many sites where it has historically been found.

The oak trees (*Quercus* sp.) were the most dominant plants at most of the sites and are considered the representative tree of Kurdistan, northern Iraq. Some plant families such as Poaceae, Fabaceae, Juganaceae, Caryophyllaceae, Lamiaceae, Asteraceae, Fagaceae, Liliaceae, Boraginaceae, Ranunculaceae, Brassicaceae, Apiaceae, and Scrophullaraceae were present at most sites. However, other families, such as Thymelaceae, Zygophyllaceae, Tamaricaceae, Valerianaceae, Orchidaceae and Viscaceae, were only occasionally found in some sites.

A complete list of threatened, rare and/or endemic plants is not yet available for Iraq, but an initial list was completed by the Royal Botanical Gardens Edinburgh. This list requires additional surveys before it is finalized; therefore the findings in this document concerning rare and endemic species are preliminary. There may be many endemic/near-endemic or rare (or both) plants at many of the sites that indicate the high conservation value of the sites. Some of these plants were very rare or restricted to only one site. They may meet the first IPA criteria of being threatened species, but more botanical and Red-listing studies would be needed to determine this. The table below lists the conservation status of plants for Kurdistan (note that the conservation status listed here is provisional):

Table 6: Potential conservation concern plant species and their occurrence in within 2010 survey sites in Iraqi Kurdistan

Scientific Name	Potential conservation status	Found in the following sites
<i>Symphytum kurdicum</i>	Regional Endemic	S6, S11, D5, S33, D2A
<i>Pisum formosum</i>	Regional Endemic	S23, S6, S24, S10, S26, S11, S32B, S4B, E8A, E18, E14, D5, D2A, D18, D16
<i>Onosma albo-roseum</i>	Regional Endemic	S10, S11, S4B, E5A, E18, E14, D2A, D18
<i>Bromus brachystachys</i>	Rare	S11, E8A
<i>Silybum marianum</i>	Regional Endemic	S23, S10, D10
<i>Notobasis syriaca</i>	Regional Endemic	S23, S10, S26, S2, E8A, E18, D10
<i>Hymenocrater longifrons</i>	Regional Endemic	S4B
<i>Orchis colina</i>	Rare	S4B
<i>Quercus macranthera</i>	Rare	S27, S6 (new site), D16, D5, D2B, S32B
<i>Ranunculus sphaerospermus</i>	Rare	S5
<i>Tamarix brachystachys</i>	Rare	S5
<i>Cephalaria syriaca</i>	Regional Endemic	S26, S2, S11, S32B, S4B, E8A, E14, D5, D2A, D18, D16
<i>Paronchylia kurdica</i>	Regional Endemic	S6, S24, E14, D16
<i>Juncus effuses</i>	Very Rare	S2, S32B
<i>Rubus caesius</i>	Rare	S1
<i>Muscari tenuiflorum</i>	Rare	S1
<i>Alcea sulphorum</i>	Rare	S1

Nature Iraq & Iraqi Ministry of Environment Report

<i>Thymus syriacus</i>	Regional Endemic	S6, S2, E8A, D2A
<i>Campanula mardinensis</i>	Regional Endemic	S6, S24, S10
<i>Lactuca hispidus</i>	Very Rare	S6,
<i>Cousinia odontolepis</i>	Very Rare	S6,
<i>Phehyphaea coccinea</i>	Very Rare	S6,
<i>Zengandra iranica</i>	Very Rare	S2, S32B
<i>Salix babylonica</i>	Rare	S2
<i>Cousinia inflata</i>	Regional Endemic	S6 (new site), S24
<i>Aristolochia paecilantha</i>	Rare	S23, S6, E5A, D2A
<i>Allium chryanththerum</i>	Rare	E5A
<i>Astragalus helgurdensis</i>	Regional Endemic & Rare	E14
<i>Fibigia suffroticosa</i>	Rare	S4B, D2A
<i>Tulipa kurdica</i>	Regional Endemic & Rare	E13, E15,
<i>Dianthus asperula</i>	Very Rare	D16,
<i>Astragalus spinosus</i>	Regional Endemic	S23, S11, D5
<i>Linum velutinum</i>	Rare	D5, D2A,
<i>Briza minor</i>	Rare	S23, D5
<i>Asyneuma amplexicaule</i> spp.	Rare	D5,
<i>Amplexicaule</i>		
<i>Delphinium kurdicum</i>	Regional Endemic	D8,
<i>Michauxia tobihatchewii</i>	Rare	D2A
<i>Cicer bijugum</i>	Very Rare	D10
<i>Michauxia nuda</i>	Rare	E5
<i>Iris germanica</i>	Rare	S4B
<i>Hesperis kurdica</i>	Regional Endemic	S32B
<i>Gladiolus kotschyanus</i>	Rare	D16
<i>Iris barnumae</i>	Rare & Regional Endemic	E1
<i>Anacamptis pyramidalis</i>	Very Rare	D2B
<i>Cephalanthera kurdica</i>	Regional Endemic	S11, S4B, E14, D5, D2A
<i>Ornithogalum iraqense</i>	Regional Endemic	E1
<i>Hesperis straussii</i>	Rare	S32B
<i>Himantoglossum bircinum</i>	Regional Endemic	D2A

By evaluating the southern sites based on their plant species richness (strictly by number of plant species), the highest quality sites in the south were: Umm An Ni'aa (HZ1), Udham (HZ2), Bushes near Umm Al Warid (HZ9), Abu Zirig (CM16), Zubaidat (MN2), , Umm Qasr Port (KZ6), Tell Al Laham (TQ2), Jabal Senam (BR1), Al Lehais (BR4), Al Basrogiya (ME 13), Razzaza Lake (ME5), and Wadi Al Waaer (NJ1).

The southern sites were also evaluated on their overall ecological condition on a scale of 1-5, with 1 indicating 0% disturbance, or no impact, and 5 representing 100% disturbance or impact. Given the massive drainage campaign of the 1990s in the Southern Mesopotamian marshlands, no site can be considered to have no impact or disturbance. This scale is considered a rough estimate of ecological recovery. Abu Zirig (CM16) and Bushes near Umm Al Warid (HZ9) are the only sites that were rated at 2 (25% disturbed); Teeb Oasis (MN5) is the only site that rated at

5, or 100% disturbed. All the other sites were rated 3 (50% disturbed) or 4 (75% disturbed) because of changes in these sites mainly due to the water shortage and other threats.

Evaluation of sites based on their richness and habitat types is still an on going process within the Nature Iraq KBA Project. This discussion presents only preliminary findings from the last survey. A list of sites that match these criteria is not complete, but there are some sites that may match one or two of these criteria. The Mesopotamian marshlands (and the survey sites that lay within these marshlands) should be considered key threatened habitats of regional and global importance. Sites such as Umm An Ni'aaj (HZ1), Udhaim (HZ2), Bushes near Umm Al Warid (HZ9), and Abu Zirig (CM16) are relatively rich in plant species, particularly in aquatic plants. Other sites such as Zubaidaat (MN2), Umm Qasar Port (KZ6), Tell Al Laham (TQ2), Jabal Senam (BR1), Al Lehais (BR4), Al Basrogiya (ME 13), Razzaza Lake (ME5), and Wadi Al Waaer (NJ1) are relatively rich with desert or halophytic plants. A complete list of threatened, rare and/or endemic plants is not yet available for Iraq but an initial assessment was done in this report giving the status of most of the plants identified during the last survey (Spring 2010, see Annex B). Images of some of the common and/or important plant species can be found in Annex D.

Issues and areas of importance for other species

Sites

Local interviews conducted as part of the KBA studies identified the possible presence of several globally and national threatened species of animals in areas surveyed. Evidence from interviews revealed the potential presence of the Persian leopard *Panthera pardus saxicolor*, which is classified as globally near-threatened (NT) and was nationally reported as extinct (EX) until two specimens were identified in 2008 in Diyala (from an animal hunted near Mandli (DY4)) and Darbandikhan (S1) (near the village of Mortka from an animal killed by landmines). Sightings of this species were reported at three sites in the current survey: Bradost Mountain (E18), where border guards reported a sighting of the animal in 2008; Ahmed Awa area (S4A), where residents reported that a Persian leopard had been killed by local hunters on the Iran-Iraq border in 2002; and Assos Mountain area (S32), where a Persian leopard was observed by a hunter in a nearby agricultural field in 2009.

Residents interviewed also reported sightings of the Striped hyena *Hyaena hyena* (NT) in the Chumlagh village area near Dukan Lake (S2) and Bradost (E18) and Sakran Mountains (E14).

Nature Iraq & Iraqi Ministry of Environment Report

One was also recently killed by hunters in Dalmaj (ME11). Interviewees also reported sightings of the Eurasian otter *Lutra lutra*, which is recognized as a near-threatened (NT) species by IUCN Red List. At Dukan Lake (S2), a fisherman recalled the killing of an otter in 1996, which was then sold for \$US200. Fishermen at Darbandikhan Lake (S1) also reported observations of otters on separate occasions. Otter sightings were also reported in the areas of Awesar and Bradost, and tracks had been spotted along the Fishkaboor River (D11). In addition, tracks and signs of the Eurasian Otter were found along the Little Zab River in the village of Klesa a few kilometers downstream from Dukan and upstream of Taq Taq (E2). Some tracks and signs (fish scales) were found in West Hammar, which were thought to be for the smooth-coated Otter based on the description of the local fishmen. Wild goats *Capra aegagrus* (VU) are found in considerable numbers in the Barzan area (E8), with the winter count totalling at approximately 80 and a summer count of 12. (Note: an outbreak of PRR virus has caused high mortality in wild goats at Barzan during December 2010/January 2011). Tracks and scats of wild goats were identified in Peramagroon Mountain (S6). Reports of wild goat sightings were also made by the locals interviewed in Darbandikhan (S1), Qara Dagh (S11), Assos Mountain (S32), Awesar (S4B), and Bradost Mountain (E18). Residents also reported 22 wild goats that were hunted in Sakran Mountain (E14) last year.

Data gathered during the survey also suggests the presence of several global and locally threatened species at certain sites. This includes, for example: the Goitered gazelle *Gazella subgutturosa* (VU) and Roe deer *Capreolus capreolus* (LC) in the Maidan area (S22); Persian fallow deer *Dama dama mesopotamica* (EN) was reportedly seen by a local in 2006 in the Ser Amadia area (D2A) (this animal is thought to be extinct in Iraq according to the IUCN); the Eurasian lynx *Lynx lynx* (LC) in the Darbandikhan area (S1) and Mountain sheep *Ovis ammon* (LC) at Daban Mountain (Homer Qawm & Shadala Valley (S24)). There are some reserves in Iraq managed by the Ministry of Agriculture and during 2010 one, the Rutba and Al Massad Gazelles Reserve (AN12), was visited in winter that has several enclosures holding Goitered gazelles *G. subgutturosa* (David Mallon of the IUCN/SSC Antelope Specialist Group indicated that the Rutba gazelles may all be *G.s. marica*, personal communication). The Brown bear *Ursus arctos* (LC) has been reported in Doli Smaquli (E5A), Ahmed Awa (S4A), Sakran Mountain (E14), Garagu (D5) and Dure (D16). Other mammalian species whose status is considered at a level of least concern (i.e. less likely under the threat of population decline locally and globally) and were commonly sighted include: Golden jackal *Canis aureus*, Red fox *Vulpes vulpes*, Grey wolf *Canis lupus*, Indian-crested porcupine *Hystrix indica*, Eastern European hedgehog *Erinacious concolor*, Eurasian badger

Nature Iraq & Iraqi Ministry of Environment Report

Meles meles, Brown hare *Lepus capensis*, Wild boar *Sus scrofa*, Jungle cat *Felis chaus*, Wild cats *Felis silvestris*, Persian squirrel *Sciurus anomalis*, and Common gray mongoose *Herpestes edwardsii*.

Interviews revealed that the majority of sites surveyed are under threat due to uncontrolled hunting. Areas reportedly inhabited by rare animal species are the areas of most intensive uncontrolled hunting activity. As detailed in a recent Nature Iraq report on animal trade and hunting in Iraq, uncontrolled hunting and trade is likely the primary cause of any decreasing population in rare species. The bodies of animals hunted are commonly sold and used for their hides and meat, and consumed for food or traditional medicinal use. Species used for folk remedies include Indian-crested Porcupine *Hystrix Indica*, which is believed to treat high blood pressure, Eurasian Magpie *Pica pica*, which supposedly cures typhoid disease, Eurasian Badger *Meles meles*, which is used for lowering blood cholesterol. Immediate action must be taken to regulate hunting in areas inhabited by rare and endangered animals. Particular attention must be paid to decreasing numbers in areas that once supported high population numbers but have been in continuous decline since the 1980s. Safe regions away from residential or urban areas must be determined to enable a secure distance between rare and endangered species and agricultural/livestock areas. Several incidents have been reported of farmers killing certain species that pose a threat to their herds or crops, most commonly Grey wolves *Canis lupus* (that are reported to have attacked sheep herds) and Wild boars *Sus scrofa* (reported to have destroyed crops).

Animal Markets & Trade Issues

The issue of animal hunting and trade is a recurring issue and one that Nature Iraq survey teams have faced throughout the six years of field survey work conducted within Iraq. Unsustainable and uncontrolled hunting and animal trade issues have been raised repeatedly, and are supported by a vast body of evidence and anecdotal information concerning the negative impact of these activities. Hunting is a significant concern in Iraq as there is no system of classification in place in Iraq by which the endangered animals can be recognized and awareness can be raised amongst the community about their status. It is because of the lack of classification that the hunting of many of endangered animal species (including the Wild goats *Capra aegagrus*, which is considered a vulnerable species according to the IUCN “Red List” of endangered species) continues and is increasing.

Iraqi Law No. 17 of the Iraq Wildlife Protection Law of 2010 recognizes 13 points regarding the issues of hunting and trade. This article aims to promote Iraq’s wildlife as national heritage, and should be protected (with regard to hunting regulations) as such. While this new law gives a

Nature Iraq & Iraqi Ministry of Environment Report

rough outline of hunting procedures, it has not addressed the issue of wildlife trade within the country and between neighboring states. The Iraqi animal market is an unregulated 'black' market through which many endangered species can be viewed and bought. Markets may be attended by people who simply go to view rare species they would otherwise not see, or to purchase animals despite having insufficient knowledge of how to care for them (for example, crocodiles, snakes or even large cats, such as the African lion). Many endangered or rare species are hunted in these regions and transported throughout the country. Persian squirrels *Scuirus anomalus* are hunted in large numbers in the Kurdistan region and transported to south and central Iraqi markets for sale. As the Kurdistan Regional Government (KRG) and its police force have exercised tighter control over the region's markets, hunters and wildlife traders have extended their activities to areas under weaker police jurisdiction.

Animal trade within Iraq includes importing exotic animals through local zookeepers who obtain licenses to import the animals (which are subsequently resold to private zoos and individuals). Zookeepers also import these animals by illegally obtaining them through professional hunters in the region who smuggle the animals in to the country. Various methods are employed by hunters (in one, for example, a hunter in Sulaimani claimed to have smuggled a Wild Goat *Capra aegagrus* to Iraq from Iran by coloring its fur to mislead checkpoint officers who may have no background in identifying internationally protected animal species, such as those listed on the CITES appendices lists. The animal trade is a relatively more open business in south and central Iraq, where law enforcement is more lax compared to the Kurdish region. It is not uncommon to find globally threatened species for sale on roadsides and in small village markets.

The most significant finding in this survey was the implication of government authorities' involvement in the illegal animal trade, whether to exploit animals for their fur, meat, or as private zoo specimens. It is highly likely that officials or anyone else that maintains private zoos in Iraq and pay traders to obtain rare and/or exotic species do not possess adequate knowledge of how to care for these animals. Particularly for large predator species, it is also likely that these animals will be killed when they reach maturity and become too dangerous to handle.

Locals interviewed near KBA survey sites provided a rough outline of hunting activities in the country. There is extensive hunting in the Kurdistan region despite legislation prohibiting hunting within the area. Hunting in the south of Iraq is largely uncontrolled and is suspected to be as equally prevalent, although poor security conditions in some areas may limit such activities or limit it strictly to locals.

Nature Iraq & Iraqi Ministry of Environment Report

Iraqi law has neglected to address animal conservation and hunting issues in anything other than a perfunctory fashion, with few steps taken toward their implementation. The most recent law created in 2010 regarding animal protection has not yet been implemented as most of the law's articles require certification by scientific authorities. As Iraq is not yet a member of CITES, animal species of specific concern to the CITES appendices are not recognized as such. Data on population numbers is insufficient, prolonging the possibility of conclusive statements on the sustainability of current harvesting practices in Iraq. Based on reports by local people interviewed as part of the KBA's survey on the presence and numbers of species in each area, a rough list of species declining in number is being developed. This data can guide future legislation, enforcement and research efforts. Although the uncontrolled hunting and trade of animals is likely to have had a major and adverse impact on the biodiversity of Iraq, there has still been no comprehensive research undertaken to quantify these trends. As Iraq has recently become a signatory to the Convention on Biological Diversity (CBD), it will be required to develop and implement a National Biodiversity Strategy and Action Plan (NBSAP). This plan will require a thorough review of trade and hunting legislations in Iraq and, it is hoped, will take appropriate action to address the declining fauna diversity.

Zoos

Another factor that exacerbates Iraq's illicit animal trade is the level of involvement of zoos. Zoos obtain animals according to their customers' request and continue to fuel the demand for the trade. Zoos have become a market within itself where trade in wild species takes place. Zoos exploit their licensing privileges to receive and maintain exotic species to import species for sale, in addition to their own collection. A preliminary study during the KBA survey shows that the majority of Iraqi animal markets are involved in the animal trade. More critically, the study reveals that local zoos generally do not have staff trained in handling the animals they keep. This lack of vital knowledge may be due to the fact that zoos are run chiefly for profit, resulting in very poor living conditions for the captive animals that do not seek to recreate their natural habitat. Animals imported for zoo collections are generally brought from Thailand, Africa, and Europe. Many species are also captured in the region, including Wild goats *Capra aegagrus*, Gray wolf *Canis lupus*, Brown bear *Ursus arctose*, Striped Hyena *Hyaena hyaena*, Goitered gazelle *Gazella subgutturosa*, Red fox *Vulpes vulpes*, Golden jackal *Canis aureus*, Indian crested porcupine *Hystrix indica*, Cape hare *Lepus capensis*, Eastern European Hedgehog *Erinaceus concolor*, Persian squirrel *Sciurus anomalus*, Jungle cat *Felis chaus*, and many song birds and birds of prey.

Nature Iraq & Iraqi Ministry of Environment Report

Dukan is a district in As-Sulaimaniyah governorate (located at the latitude 35° 15' 0" north and longitude 45° 33' 0" east), Northern Iraq, in which a small, unauthorized zoo of approximately 100m² is known to exist. The zoo functions as a private animal house where most, if not all, of the animals held have been captured in the Kurdistan region. The animals suffer from nutritional deficiencies as they are not given adequate food. Malnutrition and poor treatment in general causes a high level of disease amongst the animals, in turn leading to a high mortality rate, thus requiring the zoos to constantly replace animals. The increasing number of animals in captivity impacts biodiversity in the wild. Little data exists on how these practices are affecting population numbers and the conservation status of species in Iraq. It is clear that the main purpose of Iraqi zoos is for entertainment and profit, rather than education and conservation, as indicated by the poor knowledge of zookeepers in handling and caring for the animals. The health and living conditions of animals in both Iraqi zoos and animal markets are extremely poor, and urgently warrant an improvement in standards of animal care. Zoos must include an educational aspect to their public displays. It is highly recommended that animal facilities display signs on cages that accurately explain the type of species, their origin, diet, behavior, and conservation status. Iraqi law must address the urgent needs for Iraq's wildlife including: the regular conduction of scientific studies on animal populations; the regulation of hunting and trade in compliance with environmental sustainability standards in alliance with the Iraqi Ministry of Environment, Iraqi Ministry of Agriculture and the scientific study groups/think tanks in order to circumvent the impacts of animal hunting and trafficking in Iraq; and the education of local zoo keepers regarding animal care, park management, and their role in wildlife conservation.

Images of some of the common and/or important species can be found in Annex D.

Overall Conservation Concerns & Recommendations

There are many threats that pose a real danger for species, sites, and/or individual habitats. These threats include livestock production/grazing, agriculture (clearing of fields, unsustainable water use, runoff of agricultural chemicals, pesticide use), hunting practices, sewage and garbage from human settlements, and activities and disturbances related to tourism, road infrastructure and other constructions, gravel mining, dams, industrial ground and water pollution, oil development, and land mines. The majority of sites are threatened by one or more of the risks listed above.

Nature Iraq & Iraqi Ministry of Environment Report

In 2010, field teams attempted to assess survey sites based on the eleven threat types (or pressures) defined by the IUCN. Each threat type was assessed; if possible, based on its Timing, Scope and Severity to develop an integrated “Threat Status Score” of four options Low threats, Medium threats, High threats and Very high threats. These threat types are listed below and the results of this first threat assessment are presented in the following maps.

- Agricultural Expansion and intensification (See Plate 4 below);**
- Residential and commercial development (See Plate 5 below);**
- Energy Production and mining (gravel mining, oil development, electrical towers, etc.) (See Plate 6 below);**
- Transportation & service corridors (development of roads and shipping corridors) (See Plate 7 below);**
- Over-exploitation, persecution and control (logging, hunting, over-fishing, etc.) (See Plate 8 below);**
- Human intrusions and disturbance - Effects related to non-consumption of biological resources – recreational activities, war, military exercises, work and other activities (See Plate 9 below);**
- Natural systems modification (dams and changes water mgmt, filling in wetlands, drainage, dredging, canalizations) (See Plate 10 below);**
- Invasive or other problematic species (Was not evaluated due to a lack of information)**
- Pollution (municipal and industrial waste and garbage, noise, air, light, & thermal pollution). (See Plate 11 below);**
- Geological events (threats from catastrophic geological events) (Was not evaluated due to a lack of information), and**
- Climate change, severe weather, drought, floods (See Plate 12 below).**

Note: In some cases, the team had difficulty assessing either the scope, severity and/or timing of a particular threat; therefore, threat assessments that received a final score of 0 should be considered either a low threat or indicate a lack of information to be able to assess the threat.

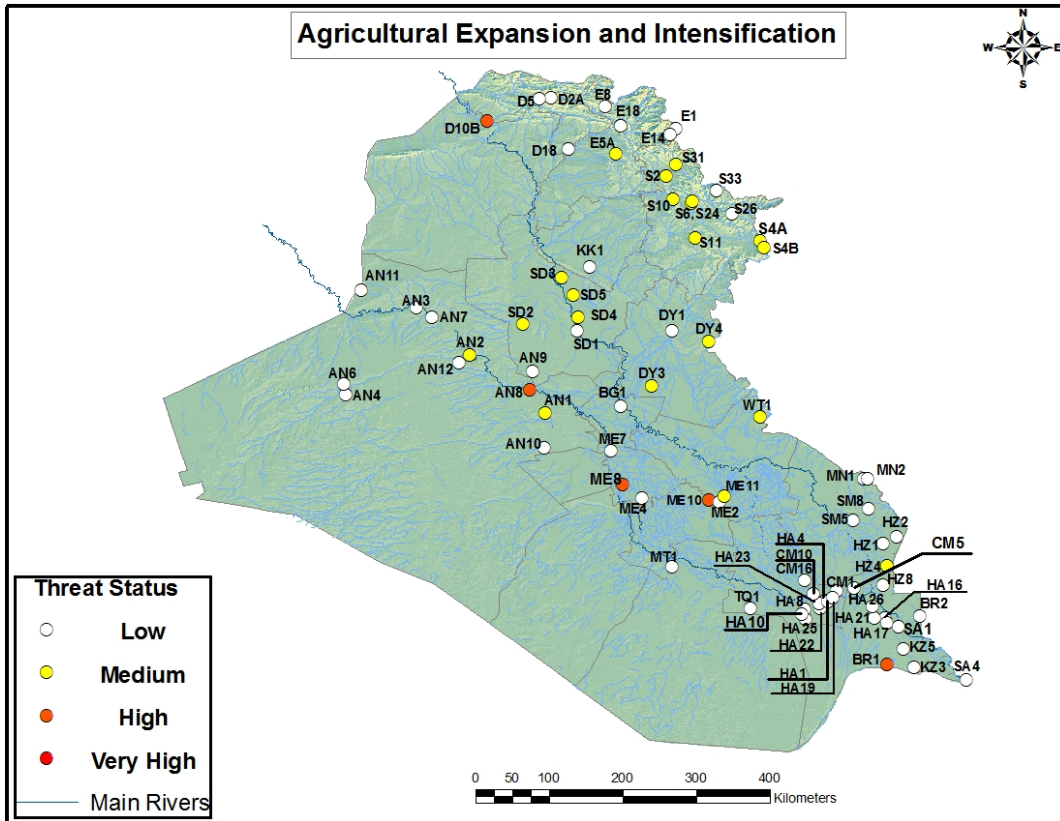


Plate 4: Sites facing Agricultural Expansion & Intensification Threats

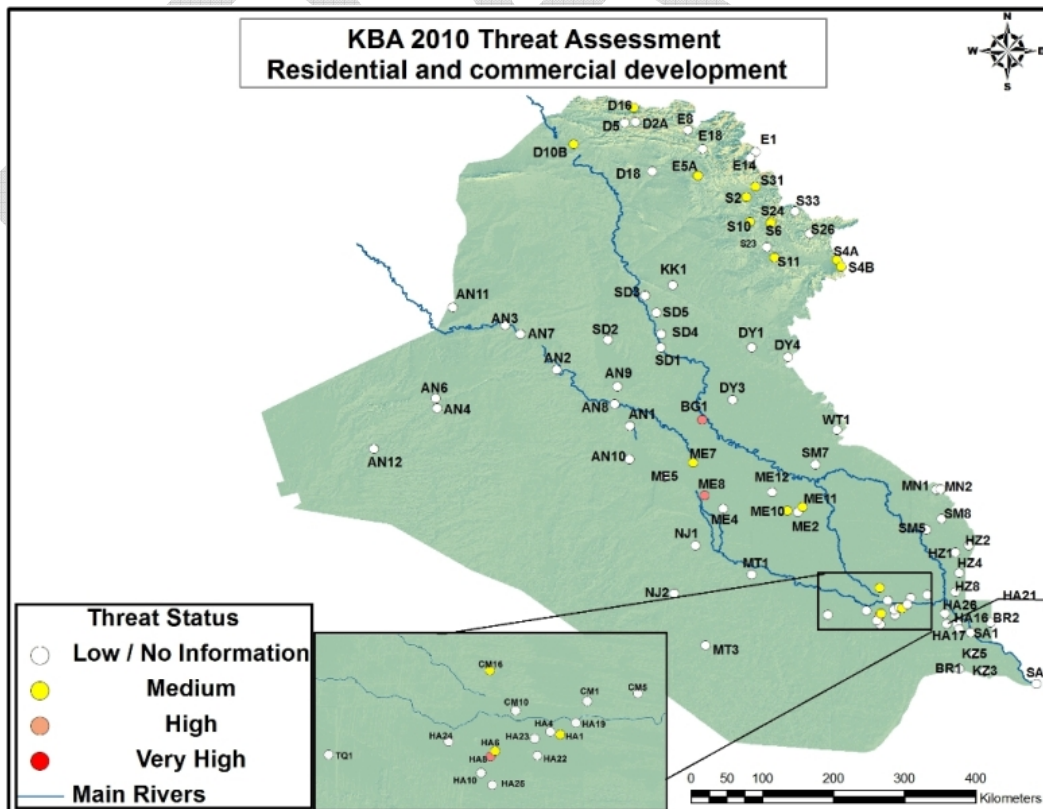


Plate 5: Sites facing Residential and commercial development threat

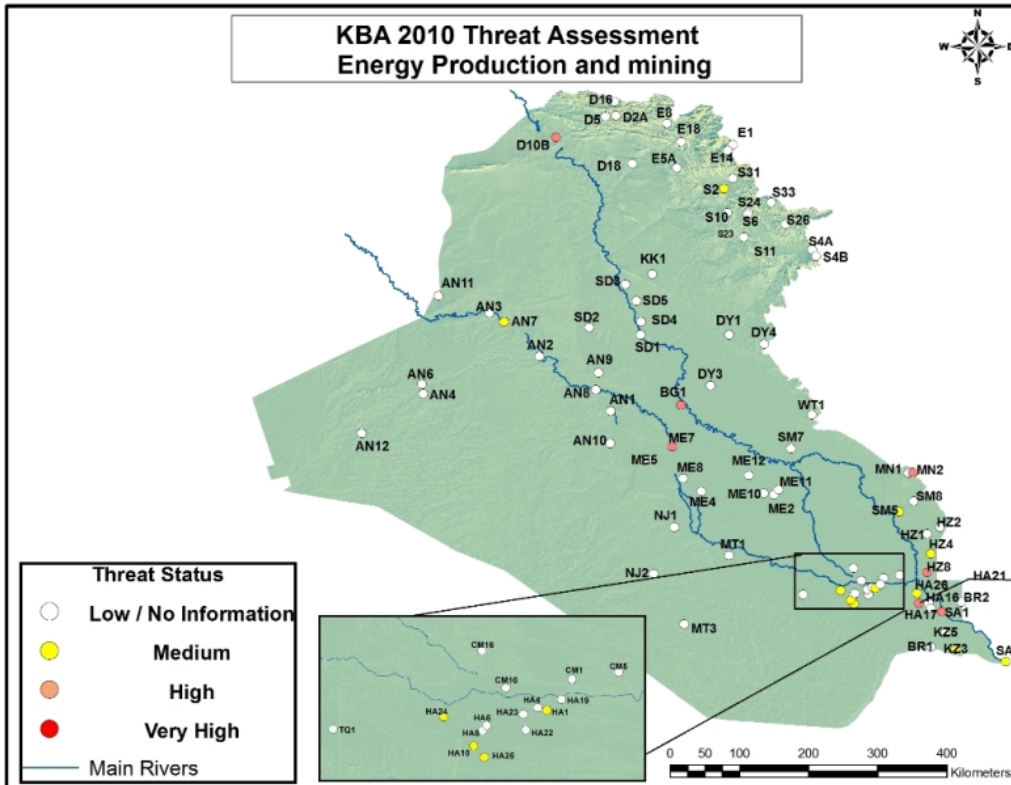


Plate 6: Sites facing Energy Production and mining threats (gravel mining, oil development, electrical towers, etc.)

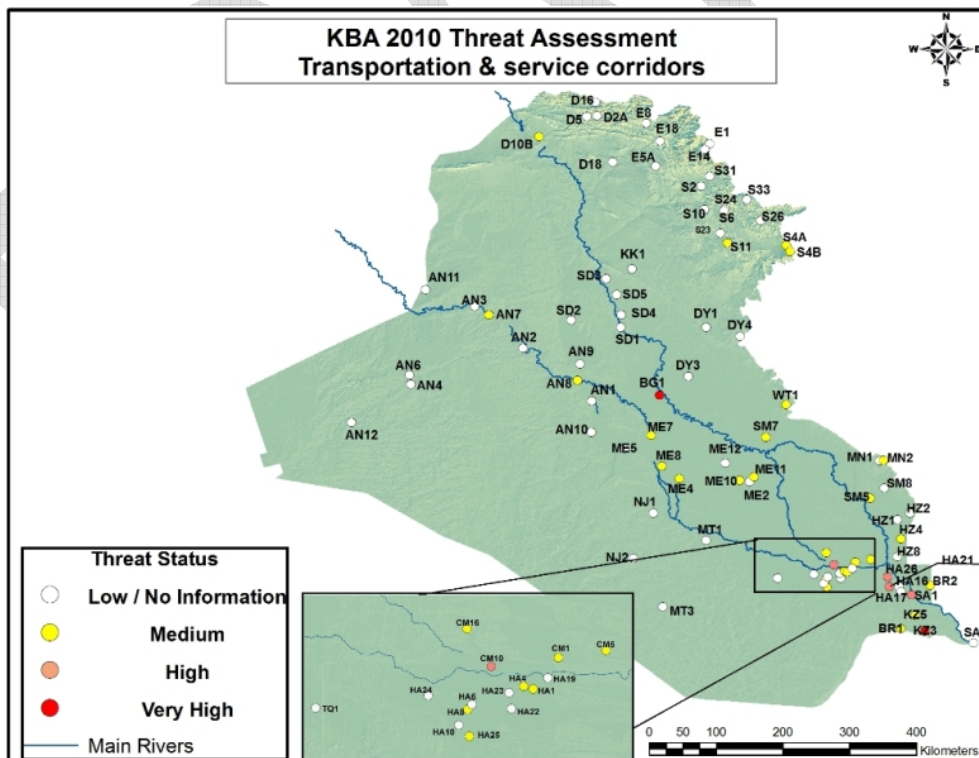


Plate 7: Sites facing Transportation & service corridors threats (development of roads and shipping corridors)

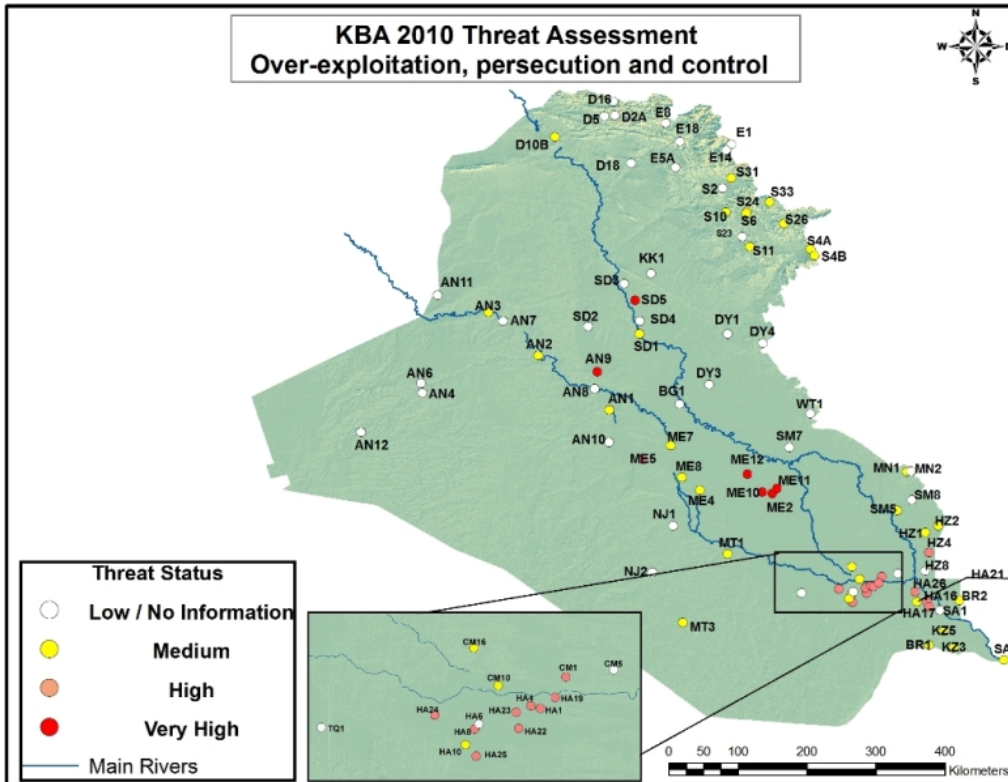


Plate 8: Sites facing Over-exploitation, persecution and control threats (logging, hunting, over-fishing,

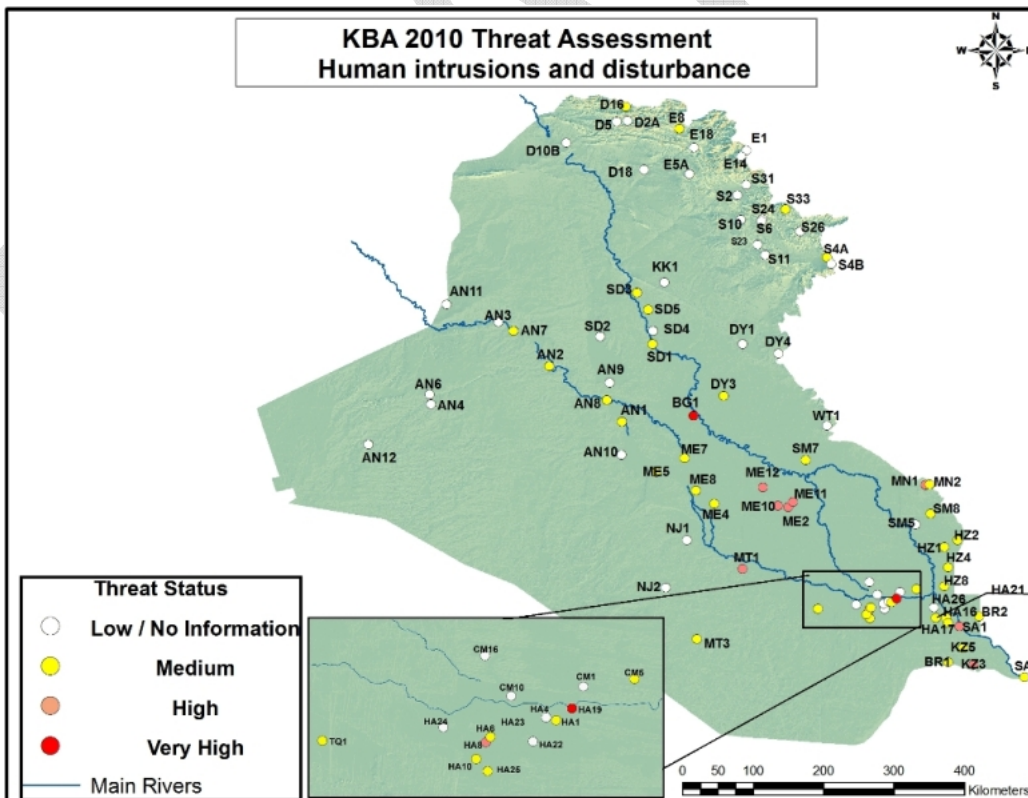


Plate 9: Sites facing Human intrusions and disturbance threats - Effects related to non-consumption of biological resources – recreational activities, war, military exercises, work and other activities

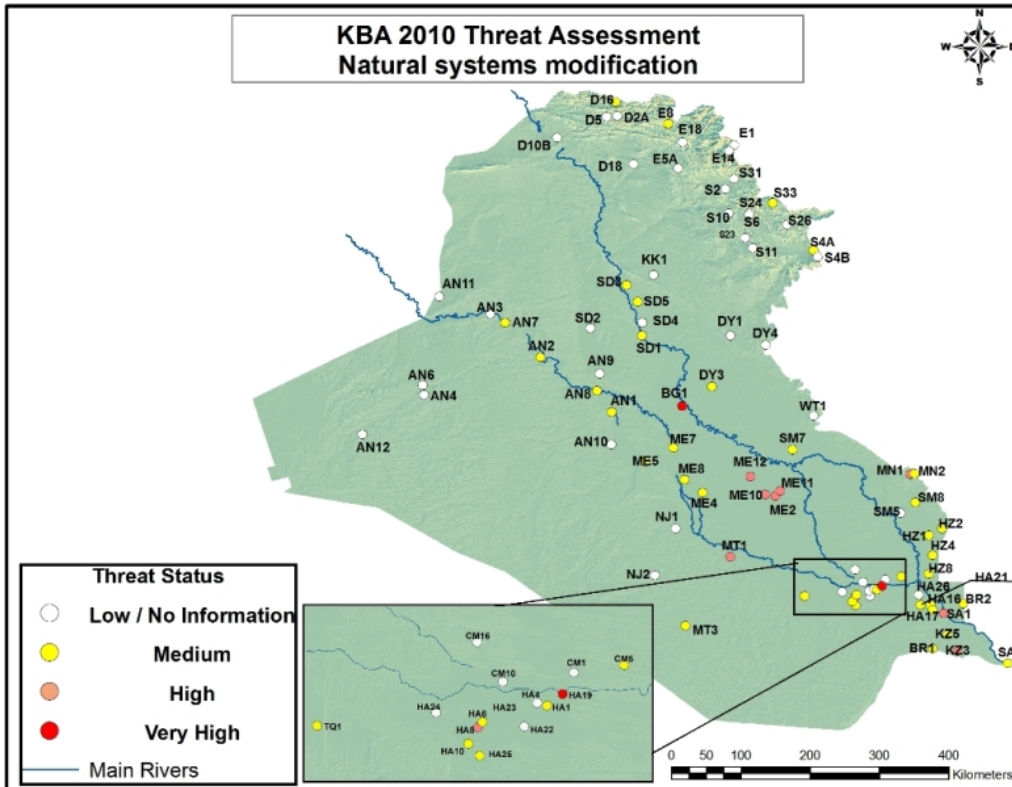


Plate 10: Sites facing Natural systems modification threats (dams and changes water mgmt, filling in wetlands, drainage, dredging, & canalizations)

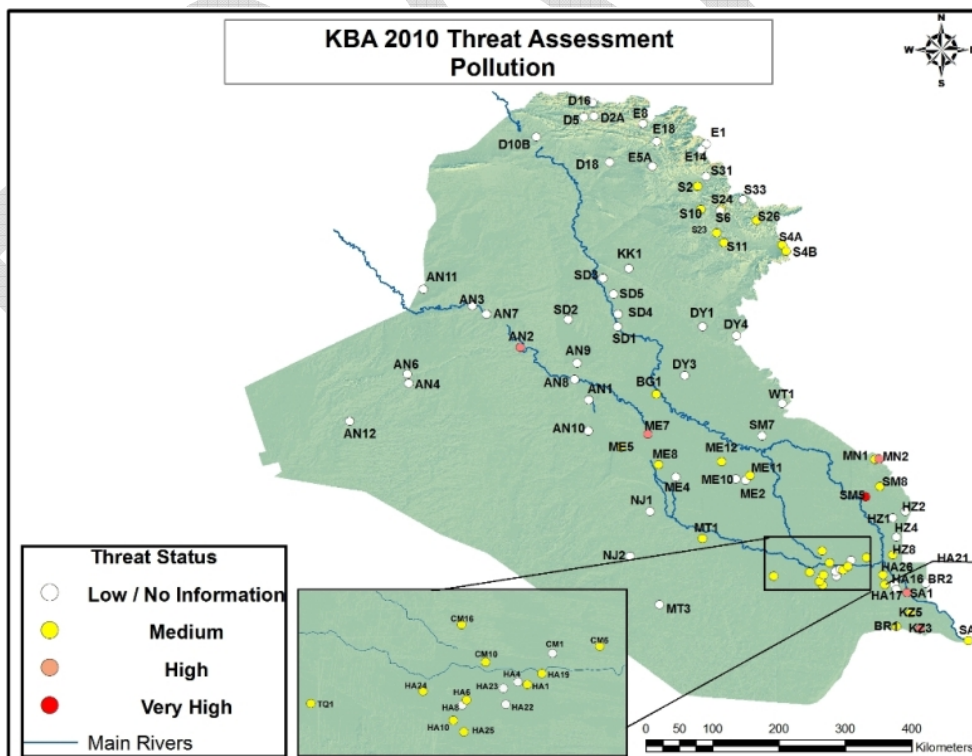


Plate 11: Sites facing Pollution threats (municipal and industrial waste and garbage, noise, air, light, & thermal pollution)

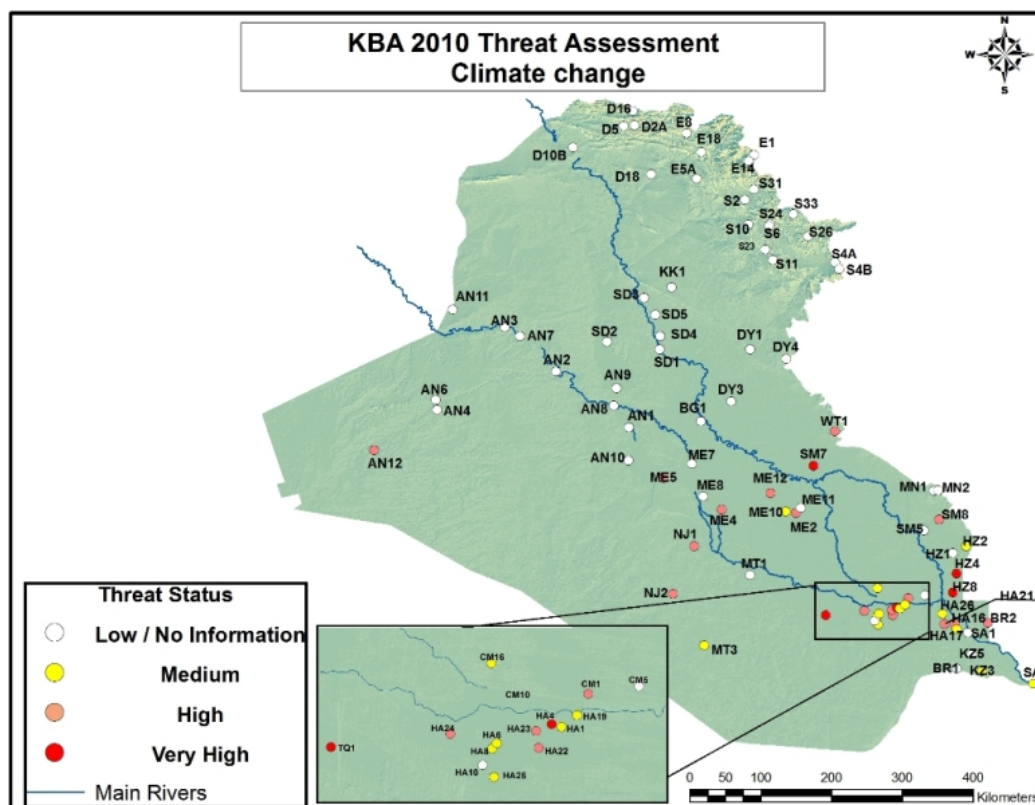


Plate 12: Sites facing Climate change, severe weather, drought, floods Threats

It should be noted that these threat assessments were primarily undertaken during the summer 2010 survey and only represent those threats that the team was able to assess during that period. In addition, the KBA team may not have had access to detailed information about the sites, and these threat assessments should be revised and updated based on additional information and future visits to these sites.

Recommendations on addressing threats to sites

Addressing threats and the need to find real and practical solutions, especially to the long-standing problem of mine fields threatening border areas, will require long-term planning, funding and a cessation of hostilities between Iraq and its neighbors (even in 2010, there were reports of Turkey and Iran laying new mines in the border region). Other areas can produce local solutions by enacting certain restrictions, such as fishing moratoriums (practiced at Darbandikhan (S1) and Dukan (S2)), limitations on hunting (practiced at Barzan (E8) and to a lesser extent in other areas), rules against car washing, and the fencing off of small areas to protect from over-grazing. However, the regional and local governments need to provide much more rigorous support for enforcement. There are several minor anti-littering campaigns, mostly conducted by non-governmental organizations or municipalities, but public compliance is very low and most sites that attract the public for recreation purposes are littered with garbage and

are not provided with appropriate resources for long-term maintenance. Most sites require more signage and facilities for garbage and sewage management. An overall education campaign is needed to change public attitudes and behavior in this regard. Such a campaign should start in the local schools and extend to the general public. In addition, most of Kurdistan's beautiful and easily accessible areas require urgent restoration and remediation. Industrial development such as oil drilling, cement and asphalt factories and gravel mining, must all be subject to environmental impact assessments and be governed by a set of strong environmental regulations that control and limit pollution to the local environment, as well as the destruction of habitats surrounding local rivers and streams. Hunting is also a major threat to wildlife, and long-term education programs are necessary to educate the locals of the importance of wildlife.

Delineation and prioritization of proposed KBA protected areas

In order to successfully carry out a field survey and biological monitoring within these ecosystems, it is necessary to determine the boundaries of the survey site where potential conservation actions may take place. Consideration must be given to the habitat, range, and size of the local plant and animal populations as well as their habitat requirements, in addition to logistical concerns (such as the ease of access to the site, the number of entry and exit points, and its physical size). This process is known as site delineation.

The following map shows the original Important Bird Areas (IBA) of Iraq with their BirdLife International site codes. This was the starting point for the KBA Project surveys that began in 2005. The map that follows this (Plate 14) shows the original IBA sites overlapped by the new delineations initiated in 2009 and refined and extended in 2010 under the KBA Project. A number of the original IBA sites remain to be surveyed in areas where security is still poor; in other areas, old IBA site delineations have been revised (sometimes reduced in size, and sometimes extended) and a number of new KBA sites have been delineated.

Nature Iraq & Iraqi Ministry of Environment Report

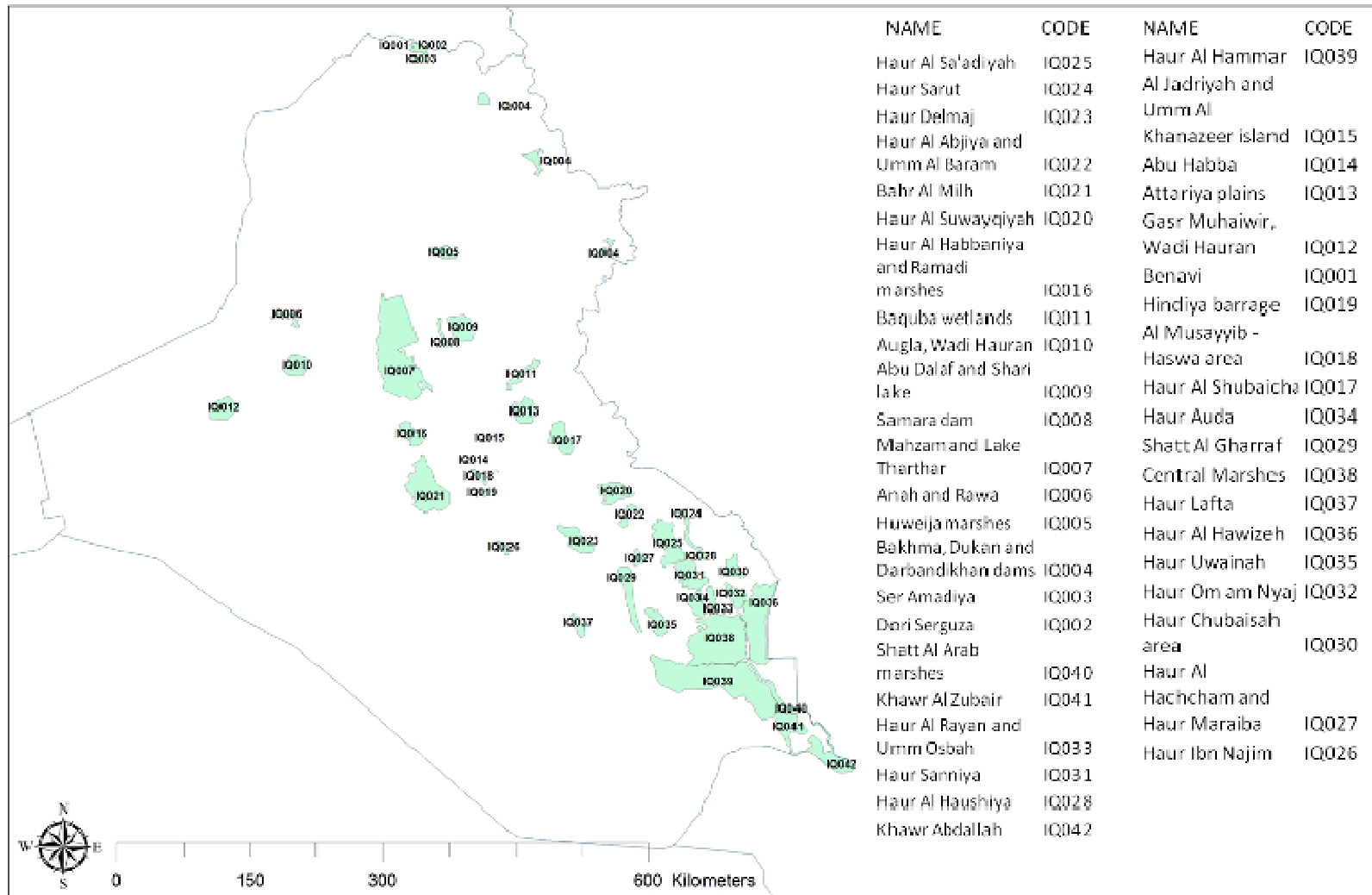


Plate 13: Map of the original Important Bird Areas of Iraq (Birdlife, 2010 based on a map developed at Nature Iraq)

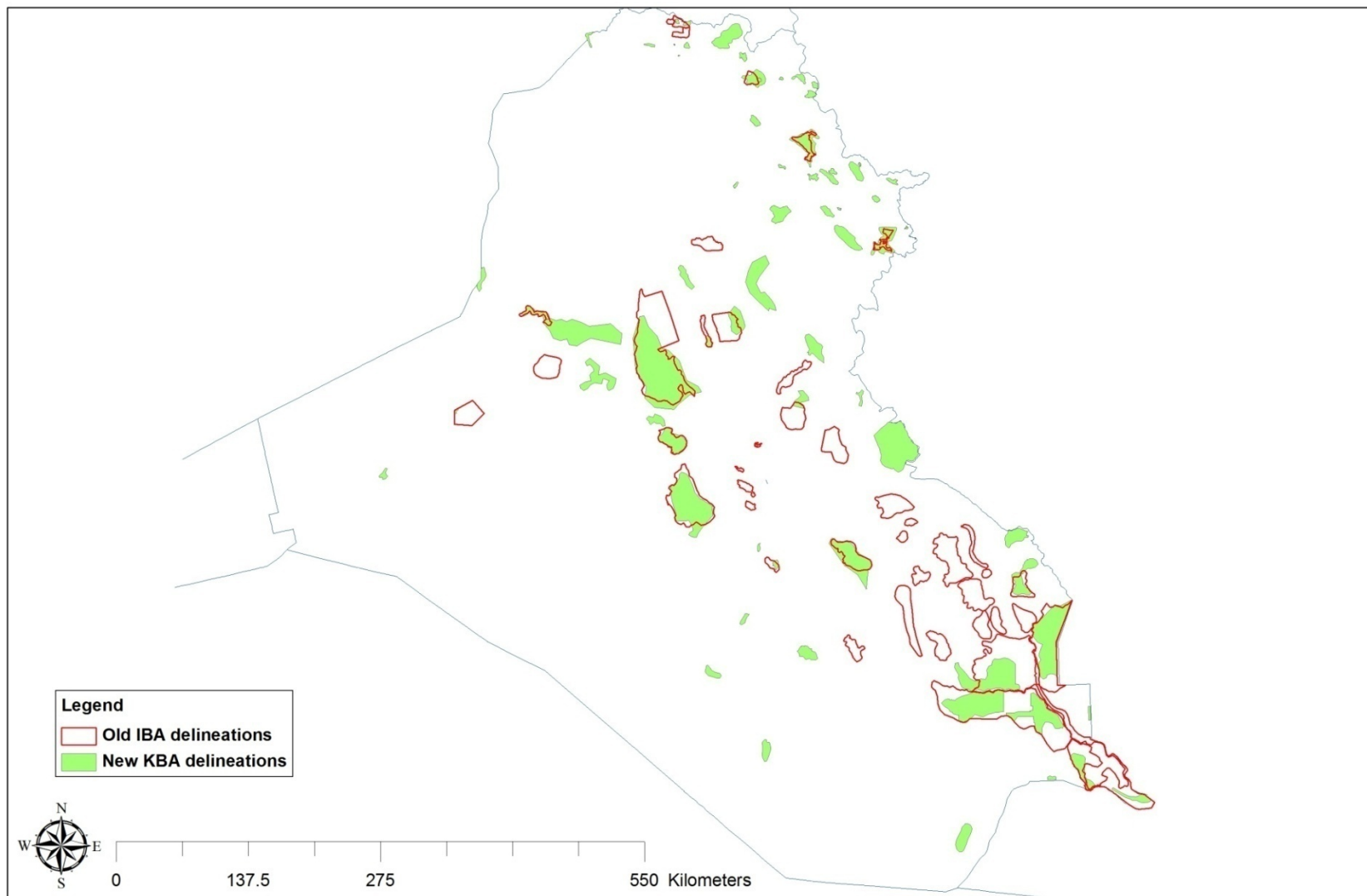


Plate 14: Map showing New 2009/2010 KBA delineations in relation to original Important Bird Areas of Iraq (Nature Iraq, 2010)

Nature Iraq & Iraqi Ministry of Environment Report

The following three maps show a closer examination of the 2009/2010 KBA delineated sites. The KBA team attempted a preliminary delineation of many sites throughout Iraq in 2009. In 2010 the team attempted to further refine these delineations and delineate new priority sites throughout the country. Note in some cases these maps show sites delineated in 2009, but only sites delineated in 2010 are discussed in this report.

It should be noted that not all sites that have been delineated (and shown in these maps) have been confirmed to meet KBA criteria or do not have strong evidence that they meet these criteria. A more comprehensive, multi-year assessment is currently underway to fully document the sites meeting these criteria and prioritize them for conservation action.

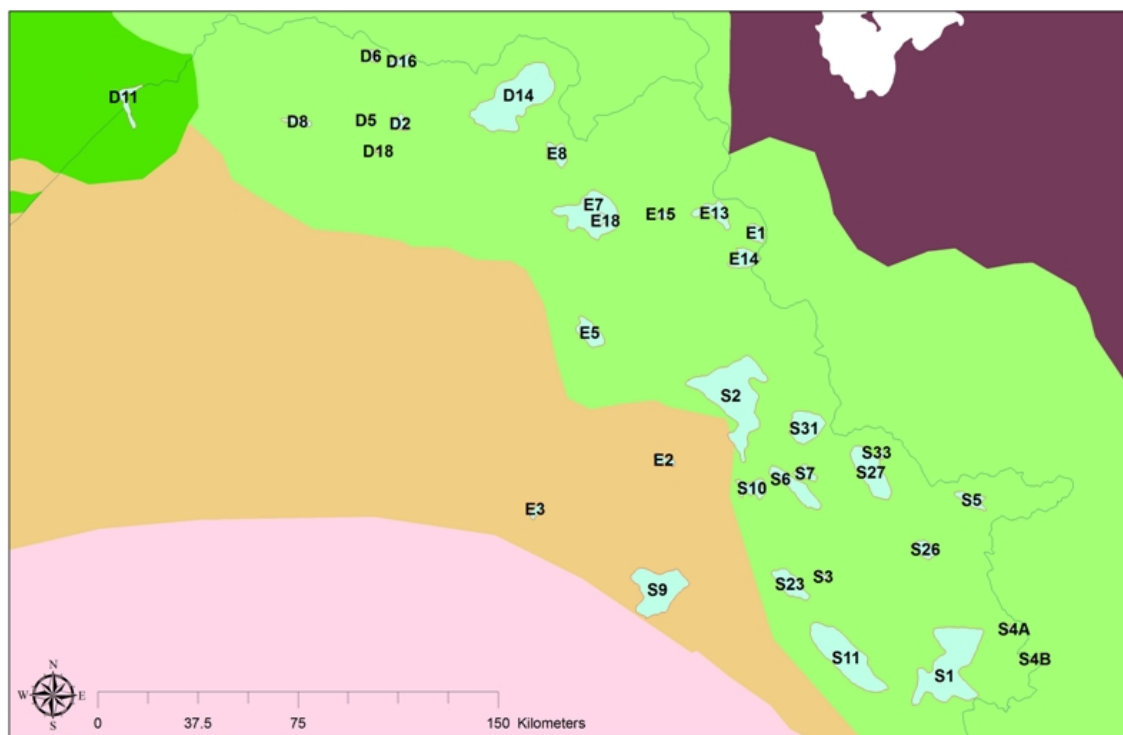


Plate 15: Preliminary Delineation of KBAs in Kurdistan, northern Iraq shown within their ecoregion

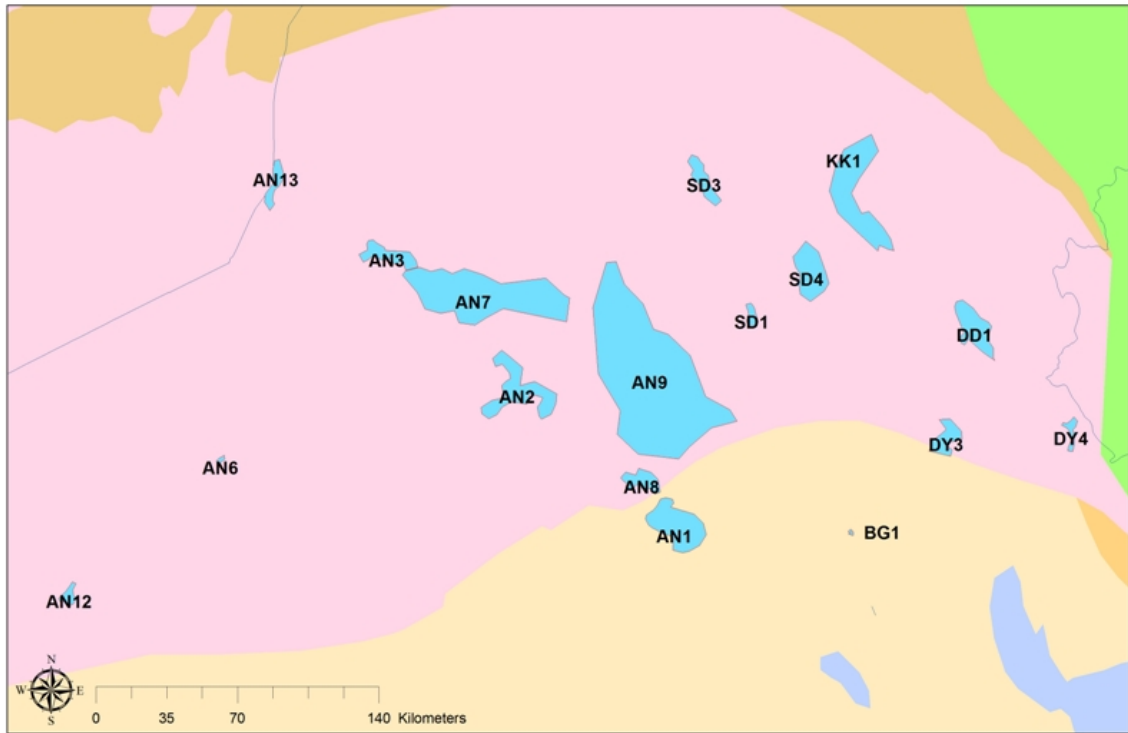


Plate 16: Preliminary Delineation of KBAs in central & western Iraq shown within their ecoregion

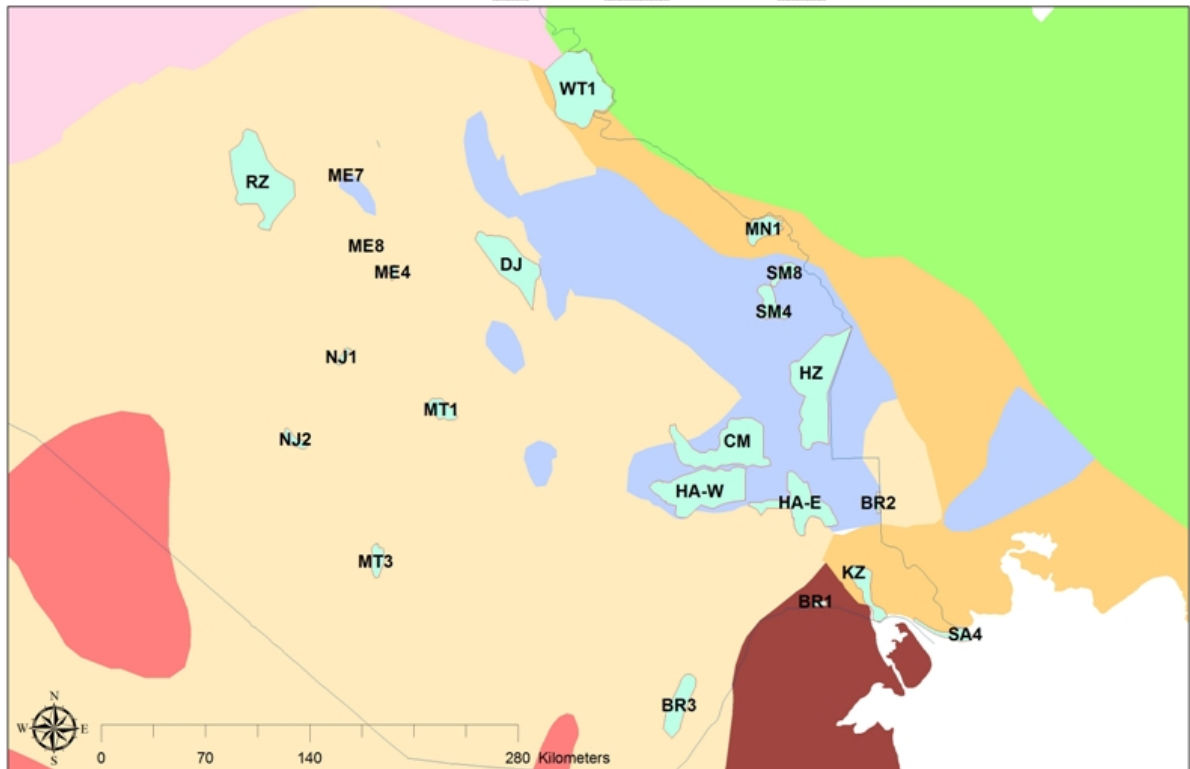


Plate 17: Preliminary Delineation of KBAs in southern Iraq shown within their ecoregion

Site Prioritization

Annex E presents a complete review of criteria findings and scoring for each site in the 2010 surveys. It also provides the area of each delineated site (in hectares), the ecoregion it is associated with, and the percentage of this ecoregion that the KBA covers. Sites were given a weighted score based on each criterion that they met (KBA, IBA, & IPA), but three additional criteria were also considered relevant: Protected Area (PA), Trans-boundary Ecological Corridor (TEC) and High Threat Status (HT). Each score was then added together to form the overall Ecological Value Priority (EVP); this final score was used to prioritize sites. The scores were weighted based on the relative strength of the criteria with a total value of all weighted scores adding up to 1. The following table shows the scoring system that was used in this assessment.

Table 7: Ecological Value Priority (EVP) weighted scoring system

Criteria	Description	EVP Weighted scoring
IBA (Important Bird Area)	As bird surveys in Iraq represent the most extensive and complete biological data on sites, sites that strongly appear to meet the criteria (meeting two or more of the specific IBA Criteria A1, A2, A3, A4i, A4ii, and/or A4iii) received a score of 0.2.	0.2
IBA Potential	Sites that have less evidence that they may meet the criteria (meeting only one IBA Criteria) received a score of 0.15.	0.1
KBA (Key Biodiversity Areas – non-bird species only)	This criterion was used to assess only those sites that met the first KBA Criteria for Vulnerability for other (non-bird) wildlife species. This criteria requires that the site have either have one or more individuals of a critically endangered (CR) or Endangered (EN) species or 30 individuals of a Vulnerable (VU) species) and those sites that met this criteria were given a score of 0.2.	0.2
High Vegetation Richness (HVR)	In the 2010 KBA data, the strongest indication that a site is botanically important is its species richness (number of species) or IPA Criteria B. In the case of the IPA Criteria C, due to the lack of a clear classifications systems for all habitats found in Iraq, only a very broad approached using ecoregions was utilized to evaluate sites based on this criteria but this can only provide a rough and very generalized assessment of habitats and in some areas such as desert, for example the Mesopotamian Shrub Desert (PA1320), there are significant micro-habitats that simply can not be represented in an ecoregion approach. Thus only sites meeting IPA Criteria B were given a score of 0.2.	0.2
Protected Area (PA)	The PA criterion has been used to address the presence in Iraq of existing protective measures to specific areas. This score was given to any site that has some level of protection currently (Barzan (E8) is currently tribally protected from hunting), has been designated for protective status (eg. Hawizeh marshes (HZ) as officially considered a RAMSAR site in Iraq) or for which protective status is planned (e.g. a national park is currently planned in the Central Marshes (CM)). PA sites were given a score of 0.15.	0.15
Trans-boundary	The TEC criterion was added to emphasize sites that occur within border	0.05

Nature Iraq & Iraqi Ministry of Environment Report

Ecological Corridor (TEC)	areas, since ecosystems and their wildlife are crossing (or trying to cross) these borders. Border sites were given a score of 0.1.	
High Treat Status (HT)	All Total Impact scores for every threat that could be evaluated in the field were averaged for all threats resulting in a potential score of 0 (Low or No Threat/No Information) to 9 (Very High threat). As the threat assessment tended to under-report the threats sites actually faced any site that received an average Total Impact score of 4 or above was assigned an HT score of 0.1.	0.1
Total Score		1

The following table provides the EVP scores of the sites based on the strength of the criteria assessment shown in the table in Annex E. This assessment is based only on one year of data, and in some cases, the evidence indicating that a site meets specific criteria may not always be very strong or completely accurate. Lastly, some new sites that were visited only by the botany team have been excluded and the scores of large sites have been averaged from the scores received by the individual survey sites.

Table 8: Ecological Value Priority scoring for 2010 KBA Sites organized by ecoregion (Note: EVP scores for large sites with multiple survey sites have been averaged)

Governate	Site Name	Site Code	EVP (Avg)
Zagros Mountains Forest Steppe (PA0446)			
Erbil	Barzan	E8	0.65
Erbil	Bradost Mountain	E18	0.6
Sulaimani	Qara Dagh	S11	0.6
Sulaimani	Peramagroon Mt & Homer Qawm and Shadala Valley	S6 & S24	0.6
Sulaimani	Parazan	S26	0.6
Erbil	Sakran Mt-Choman Reserve	E14	0.6
Sulaimani	Assos Mountain	S32A & B	0.5
Dohuk	Ser Amadia	D2A	0.4
Erbil	Haji Omran Mountain	E1	0.4
Erbil	Doli (Valley) Smaquly	E5A	0.4
Sulaimani	Chami Razan	S10	0.4
Sulaimani	Dukan Lake and Surrounding Area	S2	0.4
Sulaimani	De Lezha	S23	0.4
Sulaimani	Ahmed Awa	S4A	0.4
Sulaimani	Awesar	S4B	0.4
Dohuk	Dure	D16	0.3
Dohuk	Chamanke	D18	0.3
Dohuk	Garagu	D5	0.3
Sulaimani	Darbandikhan Lake and Surrounded Area	S1	0.3
Sulaimani	Gmo Mountain	S33	0.3
Sulaimani	Hazarmerd	S34	0.2
Sulaimani	Sargalu	S7	0.2
Sulaimani	Maidan Area	S22	0.1
Sulaimani	Qadr Karam	S30	0.1
Erbil	Bahraka	E11	0
Middle East Steppe (PA0812)			
Dohuk	Mosul lake	D10	0.5

Nature Iraq & Iraqi Ministry of Environment Report

Governate	Site Name	Site Code	EVP (Avg)
Erbil	Altun Kopri	E3	0.2
Tigris-Euphrates alluvial salt marsh (PA0906)			
ThiQar & Basrah	Central marshes	CM1, CM5, CM10, & CM16	0.475
Missan & Basrah	Hawizeh marshes	HZ1, HZ2, HZ4, HZ8, & HZ9	0.4
Babylon	Hindiya Barrage	ME7	0.3
Basrah	Euphrates & Tigris Junction	SA1	0.3
Basrah	East Hammar	HA16, HA17, HA21, & HA26	0.275
ThiQar	West Hammar	HA1, HA4, HA6, HA8, HA19, HA22, HA23, HA24, & HA25 (HA3, & HA28 removed because of the group, these two sites were not surveyed for birds)	0.23
Missan	Sinnaaf Area, Western	SM5	0.2
Missan	Teeb	SM8	0.2
Basrah	Kteibaan	BR2	0.05
Wasit	Shuweicha Marsh	SM7	0
Eastern Mediterranean conifer-sclerophyllous-broadleaf forest (PA1207)			
Dohuk	Fishkhaboor	D11	0.1
Arabian Desert and East Sahero-Arabian Xeric Shrublands (PA1303)			
Qadissiya, Najaf & Karbala	Dalmaj Marsh	ME10, ME11, & ME12	0.5
Baghdad	Jadriyah and Umm Al Khanazeer Island	BG1	0.5
Najaf	Wadi Al-W'eir	NJ1	0.4
Karbala	Razzaza Lake	ME5	0.3
Basrah	Kharanij	BR3	0.3
Anbar	Habbaniya Lake	AN1	0.2
Basrah	Lehais	BR4	0.2
Qadissiyah	Basroogiya	ME13	0.2
Babil	Ibn Najm	ME4	0.2
Babil	North IbnNajm	ME8	0.2
Muthanna	Sawa Lake	MT1	0.2
Najaf	Sh'eeb Abu-Talha	NJ2	0.2
Thi Qar	Tell Al-Laham	TQ2	0.2
Muthanna	Salman	MT3	0.1
Thi Qar	Suwaibaat, South	TQ1	0.1
Karbala	Al-Taar	KR1	0
Karbala	'Ein Al-Tamr	KR2	0
Mesopotamian Shrub Desert (PA1320)			
Salah ad Din	Tharthaar Lake & Dhebaaji Field	SD2	0.4
Wasit	Jazman (Zurbatia)	WT1	0.25
Anbar	Rutba and Al Massad Gazelles Reserve	AN12	0.2
Anbar	Rahaliya and Razzaza Lake	AN10	0.2
Anbar	Haditha Wetlands & Baghdadi	AN2	0.2
Anbar	Anah & Rawa	AN3	0.2
Anbar	Al Nekheab District Oases - Al Hussayniyah	AN4	0.2
Anbar	Qadissiya or Haditha Dam	AN7	0.2
Anbar	Hawijat Albu Dheab and Al Ramadi Marshes	AN8	0.2
Diyala	Attariya Plains	DY3	0.2

Nature Iraq & Iraqi Ministry of Environment Report

Governate	Site Name	Site Code	EVP (Avg)
Kirkuk	Huweija Marshes & Beagi	KK1	0.2
Salah ad Din	Mahzam	SD3	0.2
Salah ad Din	Abu Dalaf & Shari Depression	SD4	0.2
Salah ad Din	Jallet Albu Ageel	SD5	0.2
Anbar	Tharthar Lake, Western Edge	AN9	0.2
Diyala	Himreen lake	DY1	0.2
Anbar	Sabkhat Albu Garis	AN11	0.1
Anbar	Gasr Muhaiwir	AN6	0.1
Diyala	Mandli	DY4	0.1
Salah ad Din	Samarra dam & Wetlands	SD1	0
Persian Gulf desert and semi-desert (PA1323)			
Basrah	Jabal Senam	BR1	0.25
South Iran Nubo-Sindian desert and semi-desert (PA1328)			
Missan	Teeb oasis & Zubaidaat	MN1 & MN2	0.325
Basrah	Ras Al-Beesha (Fao)	SA4	0.2
Basrah	Khor Az Zubayr	KZ3, KZ4, KZ5, KZ6	0.15

***Scores for HA3, & HA28 were removed before calculating the average EVP because these two sites were only partially surveyed in 2010.**

Based on the table above, sites in the Zagros Mountains Forest Steppe (PA0446) ecoregion with some of the highest EVP values are: Barzan (E8), Bradost Mountain (E18); Qara Dagh (S11), Homer Qawm, Shadala Valley & Peramagroon Mt (S24, S6), Parazan (S26); Mosul Lake (D10), and Assos Mt (S32A & B).

Mosul Lake (D10) and Altun Kopri (E3) are the only site in the Middle East Steppe ecoregion (PA0812) that were surveyed for 2010.

For the Tigris-Euphrates alluvial salt marsh ecoregion (PA0906), some of the top sites include the Hawizeh Marshes (HZ sites), the Central Marshes (CM sites), Hindiya Barrage (ME7), East Hammar and West Hammar (HA Sites).

Fishkhaboor (D11) is the only site in the Eastern Mediterranean conifer-schlerophyllous-broadleaf forest (PA1207) ecoregion.

Some of the top sites in the Arabian Desert and East Sahero-Arabian Xeric Shrublands (PA1303) are Dalmaj Marsh (a Middle Euphrates site), Jadriayah and Umm Al Khanazeer Island in Baghdad (BG1), Wadi Al W'eir (NJ1), Razzaza Lake (ME5) and Kharanij (BR3). These sites were evaluated by two separate teams and in some cases site were not evaluated for plants or for other species. Thus these sites and their level of prioritizations is likely in need of further field work and review.

The key sites in the Mesopotamian Shrub Desert (PA1320) ecoregion were Tharthaar Lake and Dhebaeji Field (SD2) and Jazman (Zurbatia) (WT1); the latter is a transborder area that is close

Nature Iraq & Iraqi Ministry of Environment Report

to both the Zagros Mountains Forest Steppe (PA0446) and the South Iran Nubo-Sindian desert and semi-desert (PA1328) ecoregions. Please note, the Rutba and Al Massad Gazelle Reserve (AN12) was removed from the table above as it is not a “natural” site due to the presence of large enclosures to contain the gazelles. In addition, none of the sites in central and western Iraq were evaluated by a botanical team therefore this lowered the scoring of these sites. Many of the sites in the table above that received an EVP score of 0.2 are likely also important sites for conservation. In addition, these sites have received the fewest survey visits and more work is necessary to fully characterize them.

Jabal Senam (BR1) remains the only site within the Persian Gulf desert and semi-desert (PA1323).

In the South Iran Nubo-Sindian desert and semi-desert (PA1328), the top sites were Teeb oasis & Zubaidaat (MN1 & MN2) and Khor Az Zubayr (KZ sites).

Much of the criteria assessment provided in the site review and reviewed in the table above should still be considered preliminary. This assessment is based only on the 2010 survey data, and in many cases (as was indicated in the shaded area of the table in Annex E), the KBA Project team is still unable to assess all criteria. Data is primarily anecdotal or based on second hand reports for non-bird fauna species; and the IPA criteria assessments were based primarily on criteria B (species richness), as the C criterion (threatened habitats) still considered to be weak if applied country-wide. As stated previously, a multi-year assessment of sites is currently underway to develop a finalized list of top priority sites and complete the criteria assessment based on all existing data.

Protected Areas Program in Iraq

The Strategic Plan of the Convention on Biological Diversity (CBD) to which Iraq is signatory, has 20 targets, organized under five strategic goals. Goal C is focused on the improvement in the status of biodiversity by safeguarding ecosystems, species and genetic diversity. There are several targets under this goal including the following (CBD, 2010):

Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Iraq has yet to clearly define its national targets under the CBD; however, if this target is adopted in Iraq, priority KBA sites will clearly meet the target because they have been identified

Nature Iraq & Iraqi Ministry of Environment Report

for their importance to biodiversity. In addition, the table below summarizes the results from the table in Annex E to provide an overall understanding of how closely the area covered by the 2010 delineated KBA sites achieves Target 11's 17% coverage of terrestrial ecoregions present in Iraq.

Table 9: Ecoregions in Iraq and the % covered by 2010 KBA Delineated Areas

Ecoregion	Ecoregion Code	Area in Iraq (ha)	% Area covered by 2010 KBA Delineated areas
Tigris-Euphrates alluvial salt marsh	PA0906	3017501	18.53%
Mesopotamian Shrub Desert	PA1320	12990700	10.62%
South Iran Nubo-Sindian desert and semi-desert	PA1328	855179	9.04%
Zagros Mountains Forest Steppe	PA0446	3047020	8.62%
Eastern Mediterranean conifer-sclerophyllous-broadleaf forest	PA1207	121204	3.45%
Persian Gulf desert and semi-desert	PA1323	111335	2.62%
Arabian Desert and East Sahero-Arabian Xeric Shrublands	PA1303	19399482	1.95%
Middle East Steppe	PA0812	3791260	1.31%
Eastern Anatolian montane steppe	PA0805	3	0%
Red Sea Nubo-Sindian Tropical Desert and Semi-Desert	PA1325	518925	0%

As can be seen in this table, over 18% (above the 17% target) of the unique and critically-threatened Tigris-Euphrates alluvial salt marsh ecoregion (PA0906) has been delineated, whereas other ecoregions (Eastern Anatolian montane steppe (PA0805) and Red Sea Nubo-Sindian tropical desert and semi-desert (PA1325) have not been covered at all; though these represent relatively small areas within Iraq. A much larger ecoregion within Iraq, the Middle East Steppe (PA0812), which has a vulnerable status, has received minor attention (1.31% of 2010 KBA sites were delineated in this ecoregion). Other areas that have also receive less attention are the Arabian Desert and East Sahero-Arabian Xeric Shrublands (PA1303), which has a critical status, and only 1.95% of the 2010 KBA sites were delineated in this ecoregion. In large part, poor security in these areas has been the main reason for the lack of sites and delineated areas within these two ecoregions. Coverage has been good to excellent (beginning to approach the 17% target identified above) in the South Iran Nubo-Sindian desert and semi-desert (PA1328), the Zagros Mountains Forest Steppe (PA0446), the Mesopotamian Shrub Desert (PA1320) and the Tigris-Euphrates alluvial salt marsh (PA0906) as mentioned above.

Recommendations and Next Steps

This report has examined the findings from the 2010 survey Key Biodiversity Areas Project survey effort in southern, central and northern (Kurdistan), Iraq. As the Key Biodiversity Areas program enters its seventh year, the KBA Team is initiating a review of all previous projects since the start of the project effort to create a comprehensive list of high priority sites for conservation in Iraq. This section outlines basic goals, next steps, and recommendations for both the KBA Sites and the KBA Project as a whole.

KBA Sites

Previous reports have listed a number of next steps and recommendations that are site specific. These include education and awareness-raising of local stakeholders (children and adults); restoration activities that physically restore damaged sites; sustainable development initiatives adjacent to and within sites; creation and implementation of rules and regulations that control the use of sites, and enforcement to stop the misuse of sites.

These conservation actions need to be implemented both on the site, regional, and national scale. An example of a site scale action is the formation of Local Conservation Groups (LCGs) at individual sites that are made up of community stakeholders who have personal interests in the conservation and protection of a site. An example of a regional scale action is the enforcement of hunting and fishing regulations across districts affecting multiple sites, or a regional environmental education program focused on teaching children about the importance of preserving local biodiversity. An example of a national scale action is the creation of laws and rules that foster protection of important sites, development of national educational curriculum and teacher training focused on raising awareness about biodiversity, or the implementation of a nation-wide Protected Areas Network and Program.

Many of the sites identified in this report should be the subject of conservation actions by local, regional and/or national government stakeholders. Many of these key sites are also at risk from a variety of threats and at grave risk to further deterioration and loss of their globally significant biodiversity if actions are not taken.

Currently, Iraq has a number of laws and regulations that can be helpful in the management of sites, but these are often poorly enforced. Funds dedicated towards conservation actions are also severely lacking, and it is recommended that more training and financial resources be placed in the hands of local community and government stakeholders to begin a process to develop local

plans specifically focused at site-level management of ecosystems and species for their conservation and sustainable use.

Identification of new KBA sites

It is recommended to continue searching for more potential KBAs as many parts of Iraq still have not been visited. This includes directing the survey effort towards the desert and steppe ecosystems that dominate western and southwestern Iraq. As was stated in Table 9 above, extensive areas within specific ecoregions of the country have not yet been covered and these areas should be priorities for future survey efforts to identify new KBA sites.

A gap analysis would also speed up the process of identifying those areas that should be targeted first. The following map gives an idea of the scope of the country that remains to be surveyed (in blue).

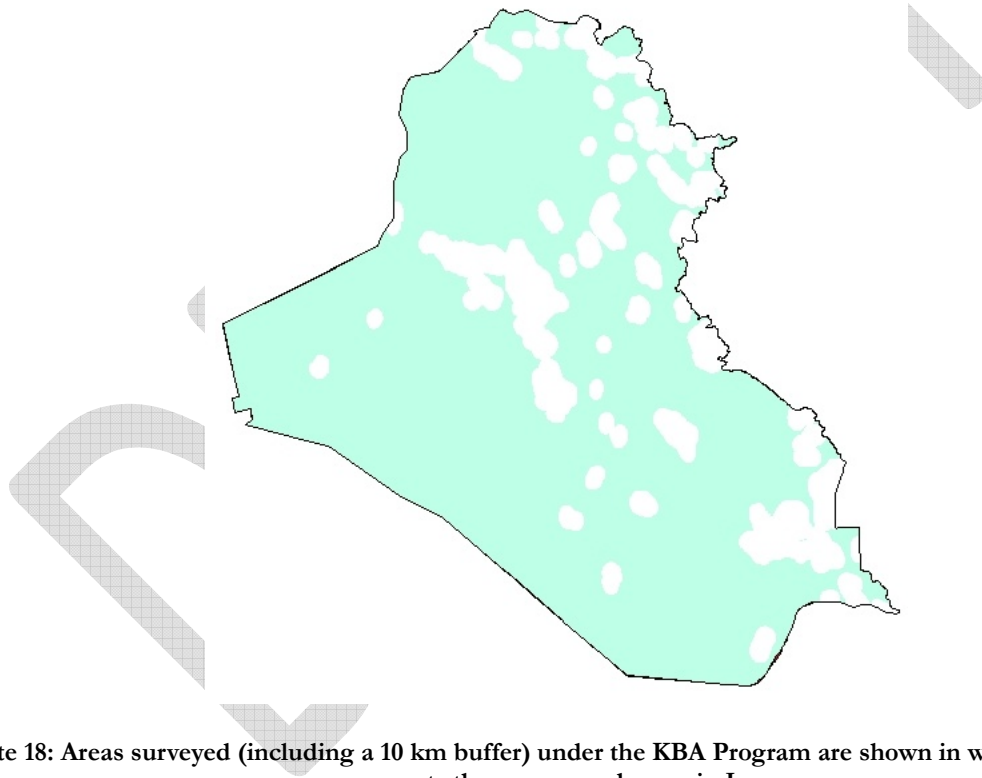


Plate 18: Areas surveyed (including a 10 km buffer) under the KBA Program are shown in white, thus blue represents the unsurveyed areas in Iraq.

In an accurate gap analysis, a vegetation map is needed to help target priority areas. It is also necessary to re-initiate a program to develop a habitat classification system for Iraqi ecosystems. This will greatly assist in the effort to more fully evaluate the Important Plant Areas (IPA) criteria. In addition, both historic and current botany information should be geo-referenced as this will also help to highlight future priority sites. It is important to examine the information on plant distributions (specifically endemics and near endemics) based on the mapping of historical

and current records. Currently, the Royal Botanic Garden Edinburgh is proposing to assist in this effort, and once distribution data becomes available, this will be useful in the effort to complete the flora of Iraq.

Monitoring of high priority sites

Lastly, in terms of the KBA sites themselves, a number of the high priority KBA sites should be the subject of a regular, consistent and long-term monitoring program. They clearly meet KBA Criteria but many of these sites, such as areas in the Mesopotamian marshlands, are facing continual ecological changes and human threats. Others are relatively protected and remain unique refuges for globally threatened species. These sites require further surveys, including expanded survey efforts for different fauna groups, and longer study periods to fully assess and identify all species that are utilizing these sites to understand the role these sites play at global and/or regional levels.

KBA Program

The KBA Program has been a rapid assessment project and not an indepth survey program. Despite this, the program has been highly successful in identifying globally and/or regionally important sites. The program should be assessed based on its six key objectives, which are as follows.

1. Conduct winter and summer surveys of as many potential KBA sites as possible and evaluate these sites to determine if they meet KBA criteria;
2. Record information on the status of the flora, fauna and overall habitats and threats to these sites;
3. Evaluate these sites to determine if they meet KBA criteria, delineate them and determine their conservation status;
4. Provide advice to the Iraq Ministry of Environment and other Iraqi stakeholders on the future management and restoration of KBA sites;
5. Undertake advocacy efforts that promote the protection, conservation and restoration of KBA sites; and
6. Publish relevant scientific and technical findings in reports and papers in peer-reviewed scientific journals to make the information widely available to stakeholders.

In 2010, Nature Iraq conducted a review of the program itself that evaluated how well these six program objectives have been met and developed a list of recommendations and next steps for the program. Each of these key objectives along with their identified recommendations and next steps are reviewed in the table below:

Nature Iraq & Iraqi Ministry of Environment Report

Table 10: KBA Objectives, Recommendations and Next Steps (Nature Iraq, 2010)

Recommendations	Next Steps
<i>KBA Objective 1: Conduct winter and summer surveys of as many potential KBA sites as possible.</i>	
<ul style="list-style-type: none"> • Recommendation No. 1: the IMoE should play a more active role in the management of the KBA Project, as well as take on more responsibility for monitoring of key sites. • Recommendation No. 2: A comprehensive review of older KBA data is needed to assess the reliability and properly catalog and organize this data. • Recommendation No. 3: More Kurdistan sites in Summer Surveys should be included for the Dohuk and Erbil Governorates. • Recommendation No. 4: Focus more on visiting new sites to insure that the KBA Program continues to grow, particularly into un-surveyed areas of Iraq. • Recommendation No. 5: More focus of KBA team members on gap analysis and integration of datasets should be undertaken to allow wider application of these techniques to the KBA Program in Iraq. 	<ol style="list-style-type: none"> 1) The IMoE should identify a project team and a team manager who can work major closely with NI during 2011 to learn all aspects of running the KBA program (including: survey planning, data review & management, and report writing). 2) Restrict surveys to only new sites (or sites that have not yet been fully assessed) identified via gap analysis (this will increasingly require GIS expertise) 3) Return to existing high-priority KBA sites only with clear objectives to gain information that is missing to complete: (a) delineation of the site; (b) threat assessment/conservation status assessment, and/or (c) implement new surveys (e.g. conduct a plant survey in an area that has only received a bird survey or conduct a socio-economy survey at a high priority site). 4) Focus on a priority Kurdistan site with a more intensive Flora and Fauna survey to support a new national park initiative (its goals would be to identify and delineate in a GIS all of the key habitats and obtain socio-economic information on the site and surrounding areas). It should be noted that botany work during 2011 and 2012 may be limited for the KBA due to work being done by the Flora of Iraq (FOI) project. 5) More comprehensive gap analysis methodology should be utilized to locate potentially good survey areas incorporating vegetation maps and geo-referencing of historical data on edemics & globally-threatened species.
<i>KBA Objective 2: Record information on the status of the flora, fauna and overall habitats and threats to these sites.</i>	
<ul style="list-style-type: none"> • Recommendation No 6: Consistent allocation of staff from partner agencies must occur to make best use of the training and field experience they acquire year to year. • Recommendation No. 7: Field data must be uploaded in a more robust SQL database to ensure integration of all field data from year to year with geographic information system technology that is able to be protected and backed up reliably. • Recommendation No 8: Additional training on databases with an emphasis on basic analysis methods using databases is needed for the KBA Team. • Recommendation No 9: Closer attention to data archiving protocols by Nature Iraq staff is required, with more effort needed to ensure this occurs. Some investigation of how other organizations maintain and archive their data would benefit the Program. • Recommendation No 10: Data analysis of Water Quality data (after a review of data to establish its reliability is accomplished) in cooperation with TRI should be conducted and published. 	<ol style="list-style-type: none"> 1) Other sectors require additional training and opportunities to gain expert-supported field experience: Mammals and Botany Staff, other sectors (reptiles, amphibians, and insects). 2) A trip to Iran for staff and colleagues involved in Mammal work is recommended. 3) Training in Plant Red-listing is needed. 4) Training in Participatory Rural Appraisal (PRA) methodology is needed for surveying local peoples. 5) Make sure databases are updated including bird and plant lists. 6) More training is needed on setting up and using the databases for data analysis – SQL Database on a dedicated, backed-up server is needed (perhaps through the American University of Iraq-Sulaimani (AUIS)) 7) Archiving a data needs a complete overhaul 8) A review of all old data is needed to salvage data wherever possible and conduct analysis if feasible. 9) More GIS work needs to be integrated with the KBA Program. 10) NI and the Iraq MoE should discuss ways in which the MoE can assist in this step of the KBA process.

Nature Iraq & Iraqi Ministry of Environment Report

Recommendations	Next Steps
<p>More extensive analysis of year to year trends in water quality, flora and fauna data is needed, particularly in the recovering marshlands to understand how marsh recovery (and set-backs) occurred there between 2005 and the present.</p>	
<p><i>KBA Objective 3: Evaluate these sites to determine if they meet KBA criteria, delineate them and determine their conservation status.</i></p>	
<ul style="list-style-type: none"> • Recommendation No. 11: Proper geographic delineation of all proposed KBA sites in Iraq should be completed as soon as possible, using GIS technology wherever feasible. 	<ol style="list-style-type: none"> 1) Refine the list of KBA sites to define existing, high-priority sites and implement evaluation of new sites (Note: In 2011, a full evaluation of all sites is planned). 2) Refine the evaluation of sites based on Important Plant Area (IPA) Criteria (strengthen the application of these criteria). 3) Evaluate old fisheries data to see if it can be used in this effort. 4) Additional mammal training and mammal specific surveys should be implemented to properly assess sites for other non-bird fauna. 5) The IMoE should assist more closely with NI in this step of the KBA process
<p><i>KBA Objective 4: Provide advice to the Iraqi Ministry of Environment and other Iraqi stakeholders on the future management and restoration of these sites.</i></p>	
	<ol style="list-style-type: none"> 1. NI should promote the list of KBAs to the IMoE and other stakeholders and distribute the future reports widely. 2. Translation of KBA documents into Arabic and Kurdish from the KBA Program is needed and additional support for this must be identified. 3. Training in management and restoration techniques is needed both at NI and the IMoE – such as management/restoration of wetlands, rangelands, forests and watersheds.
<p><i>KBA Objective 5: Undertake advocacy efforts to promote the protection, conservation, and restoration of KBA sites.</i></p>	
<ul style="list-style-type: none"> • Recommendation No. 12: Nature Iraq should build further on its six years of experience in developing the KBA Program, to undertake advocacy efforts to ensure the conservation management of these key areas. This is essential to the protecting the biological health of the nation. 	<ol style="list-style-type: none"> 1. NI should take further steps to support the IMoE in the establishment of Protected Areas legislation, and the establishment of the proposed Mesopotamian Marshlands National Park and other national parks. 2. NI should ensure its advocacy work becomes more publicly known to build local support for these efforts. This can be accomplished through work in stakeholder communities and networks (i.e. town hall meetings, educational events, awareness-raising through public media, etc.).
<p><i>KBA Objective 6: Publish relevant scientific and technical findings in reports and papers in peer-reviewed scientific journals to make the information widely available to stakeholders.</i></p>	
<ul style="list-style-type: none"> • Recommendation No. 13: Reports and papers on KBA results and new findings should be published in peer-reviewed publication, including results related to flora in Iraq that to date is lagging behind the rest of the NI publishing activities. In addition, old data from 2005-2007 should be evaluated and reported on. 	<p>To catch up with issues related to the extensive dataset that Nature Iraq has already developed (but underutilized), in the short term staff should attempt to spend less time in the field and more time in the office reporting on NI results.</p> <ol style="list-style-type: none"> 1) Publishing the findings of the KBA program should be given more emphasis and as has been stated previously during 2011 an assessment is currently underway to review all past data to provide a definitive, prioritized list of key sites visited since the inception of the program. This

Nature Iraq & Iraqi Ministry of Environment Report

Recommendations	Next Steps
	will lead to the development of an atlas of KBAs. 2) Opportunities to speak at more and a greater variety of events should be encouraged with all staff.

KBA Partnership

The KBA Partnership consists of Nature Iraq, the Iraqi Ministry of Environment (under the auspices of the New Eden Group and with financial support from the Italian Ministry of Environment, Land and Sea (IMELS)), and the Kurdistan Commission on the Environment (KCoE). Individual professors and students from different Iraqi universities have also participated in the work of the KBA Project through the years. The ability to conduct extensive and comprehensive country-wide surveys is declining at Nature Iraq due to lack of funding resources. It is important that the IMoE and Iraqi educational institutions play a more active role in both biodiversity monitoring of key sites and the identification of new sites. This effort will require a key process for standardizing, vetting, managing and sharing of data between all the institutions involved.

In 2010, the IMoE attempted to initiate a major biodiversity project that might have greatly assisted in this effort. However, funding was not allocated in 2011, and has yet to meet the country's obligations under the CBD. A large, cross-sectoral program on biodiversity is needed and is a critical if we are to fill the large gaps that remain in our knowledge and protect Iraq's biological diversity.

References

- Allouse, B. (1953). *Avifauna of Iraq*. Baghdad: Iraq Natural History Museum - Al Rabita Press.
- Allouse, B. (1963). *Birds of Iraq. Vols. 1,2 & 3*. Baghdad: Al Rabita Press (in Arabic).
- Armesto, M.J.J., Boehm, C. & C. Bowden (compilers). (2006). International Single Species Action Plan for the Conservation of the Northern Bald Ibis, AEWA Technical Series No. 10.
- Babashekh, S. A. (2006). Asystematic Study of *Dianthus L.* (Caryophyllaceae) Taxa in Iraqi Kurdistan. Sulaimani: University of Sulaimani.
- Baker, K & Baker, J. (1997). *Warblers of Europe, Asia, and North Africa*. Cambridge: Princeton University Press
- Bermani, A. K. (1981). Systematic Study of The Genus *Verbascum* (Scrophulariaceae) as it is Occurs in Iraq. Baghdad: University of Baghdad.
- BirdLife International (2006) *Monitoring Important Bird Areas: a global framework*. Cambridge, UK. BirdLife International. Version 1.2. Compiled by Leon Bennun, Ian Burfield, Lincoln Fishpool, Szabolcs Nagy & Alison Stattersfield.
- CBD (2010). The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, Agenda Item 4.4. UNEP/CBD/COP/DEC/X/2. 29 October 2010. Convention on Biological Diversity (CBD) Secretariat. <http://www.cbd.int/2010-target/goals-targets.shtml> Retrieved on 9 February 2011.
- Clark, W.S. (2000). *A Field Guide to the Raptors of Europe, the Middle East, and North Africa*. USA: Oxford University Press, USA; illustrated edition (January 13, 2000)
- Conservation International. (2008). *Map of Irano-Anatolian Sub-Region*. Website: http://www.biodiversityhotspots.org/xp/hotspots/irano_anatolian/Pages/default.aspx. Retrieved on 25 December 2008 .
- Davis, P.H. (1978). *Flora of Turkey*. (Vol. 6). Edinburgh: University of Edinburgh, University Press.
- Davis, P.H. (1982). *Flora of Turkey and the East Aegean Islands* (Vol. 7). Edinburgh: University of Edinburgh, University Press.
- Davis, P.H. (1984). *Flora of Turkey and the East Aegean Islands* (Vol. 8). Edinburgh: University of Edinburgh, University Press.

Nature Iraq & Iraqi Ministry of Environment Report

- Evans, M. (1994). *Important Bird Areas in the Middle East*. Cambridge: BirdLife International.
- Ghahraman, A. (1983). *Flora Iranica* (Vol. 4). Tehran University, Tehran, Iran. Published and Distributed by RIFR, POB.
- Ghahraman, A. (1987). *Flora Iranica* (Vol. 9). Tehran University, Tehran, Iran. Published and Distributed by RIFR, POB.
- Ghahraman, A. (1999). *Flora Iranica* (Vol. 18). Tehran: Tehran University, Tehran, Iran. Published and Distributed by RIFR, POB.
- Ghahraman, A. (2001). *Flora Iranica* (Vol. 22). Tehran University, Tehran, Iran. Published and Distributed by RIFR, POB.
- Ghahraman, A. (2003). *Flora Iranica* (Vol. 24). Tehran University, Tehran, Iran. Published and Distributed by RIFR, POB.
- Guest, E. (1966). *Flora of Iraq* (Vol. 1). Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- Houri, A. and Houry, N. M. (2001b). *Photographic Guide of Wild Flowers of Lebanon*. Vol II. Beirut, Lebanon: Dots Dar El Kotob s.a.l.
- Houri, A. and Houry, N.M. (2001a). *Photographic Guide of Wild Flowers of Lebanon*. Vol I. Beirut, Lebanon: Chemaly and Chemaly.
- Iraq Government. (2010). Article 1 of the Decree No 17, Wild Animals Hunting Law. Iraqi Official Gazette. Issue: No 4148.
- Iraq Government. (2010). Article 1 of the Decree No 17, Wild Animals Hunting Law. Iraqi Official Gazette. Issue: No 4148.
- IUCN (2001) Categories & Criteria (version 3.1). Retrieved August 17, 2009 from http://www.iucnredlist.org/static/categories_criteria_3_1
- Langhammer, P., Bakarr, M., Bennun, L., Brooks, T., Clay, R., Darwall, W., et al. (2007). *Identification and Gap Analysis of Key Biodiversity Areas*. Gland, Switzerland: IUCN.
- Maahzide, A. M. (2003). A comparative Systematic Study of *Prunus* L. (Rosaceae) in Iraq. Mosul: University of Mosul.

Nature Iraq & Iraqi Ministry of Environment Report

- Mahdi, N. and P. V. George (1969). A Systematic List of the Vertebrates of Iraq. Publication No. 29, Natural History Museum newsletter, 3 edition, April.
- Mashhadani, A. N. (1992). A Comparative Systematic Study of *Onosma* L. Spp. (Boraginaceae) in Iraq. Baghdad: University of Baghdad .
- Moore, HJ & Boswell, C. (1956). Field observations on the birds of Iraq. 1956-1957. Baghdad: Iraqi Natural History Museum. No 9-10, 12
- Mullarney K., Svensson, L., Zetterström, D., and Grant, P.J. (2001). *Collins' Field Guide to the Birds of Britain & Europe*. London: Collins.
- Mullarney, K, Svensson, L, Zetterstrom, D and Grant, P.J. (1999) *Collins' Bird Guide*. London, UK: Collins Publishing.
- Murie, J. O. and Elbroch, M. (2005). *A Guide to Animal Tracks*. New York: Houghton Mifflin Company.
- Nature Iraq. (2009). *Conservation of Iraq Mammals*. Nature Iraq Position Paper. Publication No. NI-0409-001. Available from www.natureiraq.org or info@natureiraq.org.
- Nature Iraq. (2010). 2010 KBA Program Review. Unpublished report for Nature Iraq compiled by A. Bachmann. August, 2010. Available from info@natureiraq.org.
- O'Brian, M., Crossley, R. & Karlson, K.(2008). *The Shorebirds Guide*. United States: Houghton Mifflin Harcourt.
- Porter, R.F, Willis, I., Christansen, S., & Nielson, B. P. (2001). *Flight Identification of European Raptors*. 3 Edition. London: T. & A. D. Poyser; 3 Sub edition.
- Porter, RF, Christensen, S and Schiermacker-Hansen, P (1996) *Field Guide to the Birds of the Middle East*. Helm Field Guides. London, United Kingdom: A&C Black Publishers Ltd.
- Rawi, A. (1964). Wild plants of Iraq with Their Distribution . Baghdad: Government Press.
- Raza, T. J. and Dawd, W. H. . (1983). *Geographical distribution of Wild Vascular Plants* . Baghdad: Ministry of Agriculture and Agrarian Reform Republic.
- Salim, M., Porter, R., Christensen, S., Schiermaker-Hanson, P., & Jbour, S. (1996). *Field Guide to the Birds of Iraq*. Amman: Nature Iraq & BirdLife International. (Arabic).
- Sardar, A. S. (2003). Morphological-Systematic Study of the Genus *Scabiosa* L. (Dipsacaceae) in Kurdistan of Iraq. Erbil: University of Salahadin.

Nature Iraq & Iraqi Ministry of Environment Report

- Sibley, D.I. (2007). *The Sibley Guide to the Bird Life and Behaviour*. New York: Christopher Helm Publishers Ltd
- Stokes, D. W. and Stokes L. Q. (1986). *A Guide to Animal Tracking and Behavior*. Canada: Little, Brown & Company Limited.
- Svensson, L. (1975). *Identification Guide to the European Passerines*. Third revised and enlarged edition, Stockholm, Sweden: Naturhistoriska Riksmuseet.
- Tohme' G. and 'Tome', H. (2002). *A Thousand and One Flowers of Lebanon*. Beirut: Lebanese University.
- Townsend, C. C. and Guest, E. (1966). *Flora of Iraq. Vol. 2*. Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- Townsend, C.C. and Guest, E. (1968). *Flora of Iraq. Vol. 9*. Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- Townsend, C.C. and Guest E. (1974). *Flora of Iraq. Vol. 3*. Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- Townsend, C.C. and Guest E. (1980a). *Flora of Iraq. Vol. 4. Part 1*. Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- Townsend, C.C. and Guest E. (1980b). *Flora of Iraq. Vol. 4. Part 2*. Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- Townsend, C.C. and Guest E. (1985). *Flora of Iraq. Vol. 8*. Baghdad: Ministry of Agriculture of the Republic of Iraq. Printed by Robert Maclehose and Company Limited printers to the University of Glasgow.
- World Wildlife Fund (2006a). Ecoregions, ver. Jan-06 Retrieved 14 Sep 2009 from <http://gis.wwfus.org/wildfinder/>

Also for more information, please see the following websites:

Nature Iraq & Iraqi Ministry of Environment Report

Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) website:

www.aewa.com

BirdLife International (BI) Website: www.birdlife.org

Birds of Oman Website: www.birds of oman.com

Brian Coad Website: www.briancoad.com

Fatbirder website: www.fatbirder.com

IUCN (2010) Red List Website: www.redlist.org

Nature Iraq (NI) Website: www.natureiraq.org

World Wildlife Fund WildFinder Online database of species distributions:
gis.wwfus.org/wildfinder/

DRAFT

Annex A: List of birds seen on the KBA Surveys in Iraq in 2010

#	Order	Scientific Name	Common Name	Conservation Status
1	GALLIFORMES	<i>Alectoris chukar</i>	Chukar Partridge	
2	GALLIFORMES	<i>Ammoperdix griseogularis</i>	See-see Partridge	Biome-Restricted (BR)
3	GALLIFORMES	<i>Francolinus francolinus</i>	Black Francolin	
4	GALLIFORMES	<i>Coturnix coturnix</i>	Common Quail	
5	ANSERIFORMES	<i>Anser anser rubrirostris</i>	Eastern Greylag Goose	Congratory, Waterbirds
6	ANSERIFORMES	<i>Anser albifrons</i>	Greater White-fronted Goose	Congratory, Waterbirds
7	ANSERIFORMES	<i>Anser erythropus</i>	Lesser White-fronted Goose	Globally Threatened (GT), Congratory, Waterbirds
8	ANSERIFORMES	<i>Branta ruficollis</i>	Red-breasted Goose	Globally Threatened (GT)
9	ANSERIFORMES	<i>Cygnus columbianus bewickii</i>	Bewick's Swan	Congratory, Waterbird
10	ANSERIFORMES	<i>Tadorna tadorna</i>	Common Shelduck	Congratory, Waterbird
11	ANSERIFORMES	<i>Tadorna ferruginea</i>	Ruddy Shelduck	Congratory, Waterbird
12	ANSERIFORMES	<i>Anas strepera</i>	Gadwall	Congratory, Waterbird
13	ANSERIFORMES	<i>Anas penelope</i>	Eurasian Wigeon	Congratory, Waterbird
14	ANSERIFORMES	<i>Anas platyrhynchos</i>	Mallard	Congratory, Waterbird
15	ANSERIFORMES	<i>Anas clypeata</i>	Northern Shoveler	Congratory, Waterbird
16	ANSERIFORMES	<i>Anas acuta</i>	Northern Pintail	Congratory, Waterbird
17	ANSERIFORMES	<i>Anas querquedula</i>	Garganey	Congratory, Waterbird
18	ANSERIFORMES	<i>Anas crecca</i>	Eurasian Teal	Congratory, Waterbirds
19	ANSERIFORMES	<i>Marmaronetta angustirostris</i>	Marbled Duck	Globally Threatened (GT), Congratory, Waterbirds
20	ANSERIFORMES	<i>Netta rufina</i>	Red-crested Pochard	Congratory, Waterbirds
21	ANSERIFORMES	<i>Aythya ferina</i>	Common Pochard	Congratory, Waterbirds
22	ANSERIFORMES	<i>Aythya nyroca</i>	Ferruginous Duck	Globally Threatened (GT)
23	ANSERIFORMES	<i>Mergellus albellus</i>	Smew	Congratory, Waterbirds
24	PODICIPEDIFORMES	<i>Tachybaptus ruficollis</i>	Little Grebe	Endemic Race (EndR), Congratory, Waterbirds
25	PODICIPEDIFORMES	<i>Podiceps cristatus</i>	Great Crested Grebe	Congratory, Waterbirds, Seabird
26	PODICIPEDIFORMES	<i>Podiceps nigricollis</i>	Black-necked Grebe	Congratory, Waterbirds, Seabird
27	PHOENOCOPTERIFORMES	<i>Phoenicopterus roseus</i>	Greater Flamingo	Congratory, Waterbirds
28	CICONIIFORMES	<i>Ciconia ciconia</i>	Western White Stork	Congratory, Waterbirds
29	CICONIIFORMES	<i>Threskiornis aethiopicus</i>	African Sacred Ibis	Conservation Concern (CC)
30	CICONIIFORMES	<i>Plegadis falcinellus</i>	Glossy Ibis	Congratory, Waterbirds
31	CICONIIFORMES	<i>Platalea leucorodia</i>	Eurasian Spoonbill	Conservation Concern (CC), Congratory, Waterbirds
32	CICONIIFORMES	<i>Botaurus stellaris</i>	Eurasian Bittern	Conservation Concern (CC), Congratory, Waterbirds
33	CICONIIFORMES	<i>Isobrychus minutus</i>	Little Bittern	Congratory, Waterbirds
34	CICONIIFORMES	<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	Congratory, Waterbirds
35	CICONIIFORMES	<i>Ardeola ralloides</i>	Squacco Heron	Congratory, Waterbirds
36	CICONIIFORMES	<i>Bubulcus ibis</i>	Western Cattle Egret	Congratory, Waterbirds
37	CICONIIFORMES	<i>Ardea cinerea</i>	Grey Heron	Congratory, Waterbirds
38	CICONIIFORMES	<i>Ardea purpurea</i>	Purple Heron	Congratory, Waterbirds
39	CICONIIFORMES	<i>Ardea alba</i>	Western Great Egret	Congratory, Waterbirds
40	CICONIIFORMES	<i>Egretta garzetta</i>	Little Egret	Congratory, Waterbirds
41	CICONIIFORMES	<i>Egretta schistacea</i>	Indian Reef Heron	Congratory, Waterbirds
42	PELECANIFORMES	<i>Pelecanus onocrotalus</i>	Great White Pelican	Congratory, Waterbirds
43	PELECANIFORMES	<i>Pelecanus crispus</i>	Dalmatian Pelican	Globally Threatened (GT)
44	PELECANIFORMES	<i>Phalacrocorax pygmeus</i>	Pygmy Cormorant	Congratory, Waterbirds
45	PELECANIFORMES	<i>Phalacrocorax carbo</i>	Great Cormorant	Congratory, Waterbirds, Seabird
46	PELECANIFORMES	<i>Anbinga rufa</i>	African Darter	Conservation Concern (CC), Congratory,

Nature Iraq & Iraqi Ministry of Environment Report

#	Order	Scientific Name	Common Name	Conservation Status
				Waterbirds
47	FALCONIFORMES	<i>Pernis apivorus</i>	European Honey Buzzard	Congratory
48	FALCONIFORMES	<i>Elanus caeruleus</i>	Black-winged Kite	
49	FALCONIFORMES	<i>Milvus milvus</i>	Red Kite	Globally Threatened (GT)
50	FALCONIFORMES	<i>Milvus migrans</i>	Black Kite	Congratory
51	FALCONIFORMES	<i>Gypaetus barbatus</i>	Lammergeier	
52	FALCONIFORMES	<i>Neophron percnopterus</i>	Egyptian Vulture	Globally Threatened (GT)
53	FALCONIFORMES	<i>Gyps fulvus</i>	Eurasian Griffon Vulture	Congratory
54	FALCONIFORMES	<i>Circus gallicus</i>	Short-toed Snake Eagle	Congratory
55	FALCONIFORMES	<i>Circus aeruginosus</i>	Western Marsh Harrier	Congratory
56	FALCONIFORMES	<i>Circus cyaneus</i>	Hen Harrier	Congratory
57	FALCONIFORMES	<i>Circus macrourus</i>	Pallid Harrier	Globally Threatened (GT)
58	FALCONIFORMES	<i>Circus pygargus</i>	Montagu's Harrier	
59	FALCONIFORMES	<i>Accipiter nisus</i>	Eurasian Sparrowhawk	Congratory
60	FALCONIFORMES	<i>Buteo buteo vulpinus</i>	Steppe Buzzard	Congratory
61	FALCONIFORMES	<i>Buteo rufinus</i>	Long-legged Buzzard	Congratory
62	FALCONIFORMES	<i>Aquila clanga</i>	Greater Spotted Eagle	Globally Threatened (GT)
63	FALCONIFORMES	<i>Aquila nipalensis</i>	Steppe Eagle	Congratory
64	FALCONIFORMES	<i>Aquila beliaea</i>	Eastern Imperial Eagle	Globally Threatened (GT)
65	FALCONIFORMES	<i>Aquila chrysaetos</i>	Golden Eagle	
66	FALCONIFORMES	<i>Aquila pennata</i>	Booted Eagle	Congratory
67	FALCONIFORMES	<i>Aquila fasciatus</i>	Bonelli's Eagle	
68	FALCONIFORMES	<i>Falco naumanni</i>	Lesser Kestrel	Globally Threatened (GT)
69	FALCONIFORMES	<i>Falco tinnunculus</i>	Common Kestrel	Congratory
70	FALCONIFORMES	<i>Falco columbarius</i>	Merlin	Congratory
71	FALCONIFORMES	<i>Falco subbuteo</i>	Eurasian Hobby	Congratory
72	FALCONIFORMES	<i>Falco cherrug</i>	Saker Falcon	Globally Threatened (GT)
73	FALCONIFORMES	<i>Falco peregrinus</i>	Peregrine Falcon	Congratory
74	FALCONIFORMES	<i>Falco pelegrinoides</i>	Barbary Falcon	
75	GRUIFORMES	<i>Chlamydotis macqueenii</i>	Macqueen's Bustard	Globally Threatened (GT)
76	GRUIFORMES	<i>Tetrax tetrax</i>	Little Bustard	Globally Threatened (GT)
77	GRUIFORMES	<i>Rallus aquaticus</i>	Water Rail	Waterbird
78	GRUIFORMES	<i>Crex crex</i>	Corncrake	Congratory, Waterbirds
79	GRUIFORMES	<i>Porzana porzana</i>	Spotted Crake	Congratory, Waterbirds
80	GRUIFORMES	<i>Porphyrio porphyrio</i>	Purple Swamphen	Congratory, Waterbirds
81	GRUIFORMES	<i>Gallinula chloropus</i>	Common Moorhen	Congratory, Waterbirds, Seabird
82	GRUIFORMES	<i>Fulica atra</i>	Eurasian Coot	Congratory, Waterbirds
83	GRUIFORMES	<i>Grus grus</i>	Common Crane	Congratory, Waterbirds
84	CHARADRIIFORMES	<i>Burhinus oedinenus</i>	Eurasian Stone-curlew	Congratory, Waterbirds
85	CHARADRIIFORMES	<i>Himantopus himantopus</i>	Black-winged Stilt	Congratory, Waterbirds, Seabird
86	CHARADRIIFORMES	<i>Recurvirostra avosetta</i>	Pied Avocet	Congratory, Waterbirds
87	CHARADRIIFORMES	<i>Vanellus vanellus</i>	Northern Lapwing	Congratory, Waterbirds
88	CHARADRIIFORMES	<i>Vanellus spinosus</i>	Spur-winged Lapwing	Congratory, Waterbirds
89	CHARADRIIFORMES	<i>Vanellus indicus</i>	Red-wattled Lapwing	Congratory, Waterbirds
90	CHARADRIIFORMES	<i>Vanellus leucurus</i>	White-tailed Lapwing	Biome-Restricted (BR), Congratory, Waterbirds
91	CHARADRIIFORMES	<i>Pluvialis squatarola</i>	Grey Plover	Congratory, Waterbirds
92	CHARADRIIFORMES	<i>Charadrius hiaticula</i>	Common Ringed Plover	Congratory, Waterbirds
93	CHARADRIIFORMES	<i>Charadrius dubius</i>	Little Ringed Plover	Congratory, Waterbirds
94	CHARADRIIFORMES	<i>Charadrius alexandrinus</i>	Kentish Plover	Congratory, Waterbirds
95	CHARADRIIFORMES	<i>Charadrius leschenaultii</i>	Greater Sand Plover	Biome-Restricted (BR), Congratory, Waterbirds
96	CHARADRIIFORMES	<i>Gallinago gallinago</i>	Common Snipe	Congratory, Waterbirds
97	CHARADRIIFORMES	<i>Limosa limosa</i>	Black-tailed Godwit	Globally Threatened (GT)
98	CHARADRIIFORMES	<i>Numenius arquata</i>	Eurasian Curlew	Congratory, Waterbirds
99	CHARADRIIFORMES	<i>Tringa erythropus</i>	Spotted Redshank	Congratory, Waterbirds
100	CHARADRIIFORMES	<i>Tringa totanus</i>	Common Redshank	Congratory, Waterbirds
101	CHARADRIIFORMES	<i>Tringa stagnatilis</i>	Marsh Sandpiper	Congratory, Waterbirds

Nature Iraq & Iraqi Ministry of Environment Report

#	Order	Scientific Name	Common Name	Conservation Status
102	CHARADRIIFORMES	<i>Tringa nebularia</i>	Common Greenshank	Congratory, Waterbirds
103	CHARADRIIFORMES	<i>Tringa ochropus</i>	Green Sandpiper	Congratory, Waterbirds
104	CHARADRIIFORMES	<i>Tringa glareola</i>	Wood Sandpiper	Congratory, Waterbirds
105	CHARADRIIFORMES	<i>Xenus cinereus</i>	Terek Sandpiper	Congratory, Waterbirds
106	CHARADRIIFORMES	<i>Actitis hypoleucos</i>	Common Sandpiper	Congratory, Waterbirds
107	CHARADRIIFORMES	<i>Arenaria interpres</i>	Ruddy Turnstone	Congratory, Waterbirds
108	CHARADRIIFORMES	<i>Calidris alba</i>	Sanderling	Congratory, Waterbirds
109	CHARADRIIFORMES	<i>Calidris minuta</i>	Little Stint	Congratory, Waterbirds
110	CHARADRIIFORMES	<i>Calidris ferruginea</i>	Curlew Sandpiper	Congratory, Waterbirds
111	CHARADRIIFORMES	<i>Calidris alpina</i>	Dunlin	Congratory, Waterbirds
112	CHARADRIIFORMES	<i>Philomachus pugnax</i>	Ruff	Congratory, Waterbirds
113	CHARADRIIFORMES	<i>Cursorius cursor</i>	Cream-coloured Courser	Biome-Restricted (BR), Congratory, Waterbirds
114	CHARADRIIFORMES	<i>Glareola pratincola</i>	Collared Pratincole	Congratory, Waterbirds
115	CHARADRIIFORMES	<i>Chroicocephalus geni</i>	Slender-billed Gull	Congratory, Waterbirds, Seabird
116	CHARADRIIFORMES	<i>Chroicocephalus ridibundus</i>	Common Black-headed Gull	Congratory, Waterbirds, Seabird
117	CHARADRIIFORMES	<i>Larus ichthyaetus</i>	Great Black-headed Gull	Congratory, Waterbirds, Seabird
118	CHARADRIIFORMES	<i>Larus canus</i>	Common Gull	Congratory, Waterbirds, Seabird
119	CHARADRIIFORMES	<i>Larus michahellis</i>	Yellow-legged Gull	Congratory, Waterbirds, Seabird
120	CHARADRIIFORMES	<i>Larus armenicus</i>	Armenian Gull	Waterbird, Seabirds
121	CHARADRIIFORMES	<i>Gelochelidon nilotica</i>	Gull-billed Tern	Congratory, Waterbirds, Seabird
122	CHARADRIIFORMES	<i>Hydroprogne caspia</i>	Caspian Tern	Congratory, Waterbirds, Seabird
123	CHARADRIIFORMES	<i>Sterna bergii</i>	Swift Tern	Congratory, Waterbirds, Seabird
124	CHARADRIIFORMES	<i>Sternula albifrons</i>	Little Tern	Congratory, Waterbirds, Seabird
125	CHARADRIIFORMES	<i>Sterna hirundo</i>	Common Tern	Congratory, Waterbirds, Seabird
126	CHARADRIIFORMES	<i>Sterna repressa</i>	White-cheeked Tern	Congratory, Waterbirds, Seabird
127	CHARADRIIFORMES	<i>Chlidonias hybrida</i>	Whiskered Tern	Congratory, Waterbirds
128	CHARADRIIFORMES	<i>Chlidonias leucopterus</i>	White-winged Tern	Congratory, Waterbirds
129	CHARADRIIFORMES	<i>Pterocles alchata</i>	Pin-tailed Sandgrouse	
130	CHARADRIIFORMES	<i>Pterocles senegallus</i>	Spotted Sandgrouse	Biome-Restricted (BR)
131	CHARADRIIFORMES	<i>Larus sp</i>	Gull sp.	
132	COLUMBIFORMES	<i>Columba livia</i>	Rock Dove	
133	COLUMBIFORMES	<i>Columba palumbus</i>	Common Woodpigeon	
134	COLUMBIFORMES	<i>Streptopelia turtur</i>	European Turtle Dove	
135	COLUMBIFORMES	<i>Streptopelia decaocto</i>	Eurasian Collared Dove	
136	COLUMBIFORMES	<i>Stigmatopelia senegalensis</i>	Laughing Dove	
137	PSITTACIFORMES	<i>Psittacula krameri</i>	Rose-ringed Parakeet	
138	CUCULIFORMES	<i>Cuculus canorus</i>	Common Cuckoo	
139	STRIGIFORMES	<i>Otus scops</i>	Eurasian Scops Owl	
140	STRIGIFORMES	<i>Bubo bubo</i>	Eurasian Eagle Owl	
141	STRIGIFORMES	<i>Strix aluco</i>	Tawny Owl	
142	STRIGIFORMES	<i>Athene noctua</i>	Little Owl	
143	STRIGIFORMES	<i>Asio flammens</i>	Short-eared Owl	
144	CAPRIMULGIFORMES	<i>Caprimulgus aegyptius</i>	Egyptian Nightjar	Biome-Restricted (BR)
145	APODIFORMES	<i>Tachymarptis melba</i>	Alpine Swift	
146	APODIFORMES	<i>Apus apus</i>	Common Swift	
147	APODIFORMES	<i>Apus pallidus</i>	Pallid Swift	
148	APODIFORMES	<i>Apus affinis</i>	Little Swift	
149	CORACIFORMES	<i>Coracias benghalensis</i>	Indian Roller	
150	CORACIFORMES	<i>Coracias garrulus</i>	European Roller	Globally Threatened (GT)

Nature Iraq & Iraqi Ministry of Environment Report

#	Order	Scientific Name	Common Name	Conservation Status
151	CORACIFORMES	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	
152	CORACIFORMES	<i>Alcedo cristata</i>	Common Kingfisher	
153	CORACIFORMES	<i>Ceryle rudis</i>	Pied Kingfisher	
154	CORACIFORMES	<i>Merops persicus</i>	Blue-cheeked Bee-eater	
155	CORACIFORMES	<i>Merops apiaster</i>	European Bee-eater	Congratory
156	CORACIFORMES	<i>Upupa epops</i>	Eurasian Hoopoe	
157	PICIFORMES	<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker	
158	PICIFORMES	<i>Dendrocopos medius</i>	Middle Spotted Woodpecker	
159	PICIFORMES	<i>Dendrocopos syriacus</i>	Syrian Woodpecker	
160	PICIFORMES	<i>Picus viridis</i>	European Green Woodpecker	
161	PASSERIFORMES	<i>Oenanthe leucopyga</i>	White-crowned Black Wheatear	
162	PASSERIFORMES	<i>Lanius collurio</i>	Red-backed Shrike	
163	PASSERIFORMES	<i>Lanius isabellinus</i>	Daurian Isabelline Shrike	
164	PASSERIFORMES	<i>Lanius phoenicuroides</i>	Turkestan Isabelline Shrike	
165	PASSERIFORMES	<i>Lanius minor</i>	Lesser Grey Shrike	
166	PASSERIFORMES	<i>Lanius pallidirostris</i>	Steppe Grey Shrike	
167	PASSERIFORMES	<i>Lanius meridionalis</i>	Southern Grey Shrike	
168	PASSERIFORMES	<i>Lanius senator</i>	Woodchat Shrike	
169	PASSERIFORMES	<i>Lanius nubicus</i>	Masked Shrike	Biome-Restricted (BR)
170	PASSERIFORMES	<i>Oriolus oriolus</i>	Eurasian Golden Oriole	
171	PASSERIFORMES	<i>Garrulus glandarius</i>	Eurasian Jay	
172	PASSERIFORMES	<i>Pica pica</i>	Eurasian Magpie	
173	PASSERIFORMES	<i>Pyrrhocorax pyrrhocorax</i>	Red-billed Chough	
174	PASSERIFORMES	<i>Pyrrhocorax graculus</i>	Yellow-billed Chough	
175	PASSERIFORMES	<i>Corvus monedula</i>	Western Jackdaw	
176	PASSERIFORMES	<i>Corvus frugilegus</i>	Rook	
177	PASSERIFORMES	<i>Corvus cornix</i>	Hooded Crow	
178	PASSERIFORMES	<i>Corvus capellanus</i>	Mesopotamian Crow	Endemic Race (EndR)
179	PASSERIFORMES	<i>Corvus ruficollis</i>	Brown-necked Raven	Biome-Restricted (BR)
180	PASSERIFORMES	<i>Corvus corax</i>	Northern Raven	
181	PASSERIFORMES	<i>Hypocolius ampelinus</i>	Hypocolius	Endemic (End???)
182	PASSERIFORMES	<i>Poecile lugubris</i>	Sombre Tit	
183	PASSERIFORMES	<i>Parus major</i>	Great Tit	
184	PASSERIFORMES	<i>Cyanistes caeruleus</i>	Eurasian Blue Tit	
185	PASSERIFORMES	<i>Alaemon alaudipes</i>	Greater Hoopoe-Lark	Biome-Restricted (BR)
186	PASSERIFORMES	<i>Melanocorypha calandra</i>	Calandra Lark	
187	PASSERIFORMES	<i>Melanocorypha bimaculata</i>	Bimaculated Lark	
188	PASSERIFORMES	<i>Ammomanes deserti</i>	Desert Lark	Biome-Restricted (BR)
189	PASSERIFORMES	<i>Calandrella brachydactyla</i>	Greater Short-toed Lark	
190	PASSERIFORMES	<i>Calandrella rufescens</i>	Lesser Short-toed Lark	
191	PASSERIFORMES	<i>Galerida cristata</i>	Crested Lark	
192	PASSERIFORMES	<i>Lullula arborea</i>	Woodlark	
193	PASSERIFORMES	<i>Alauda arvensis</i>	Eurasian Skylark	
194	PASSERIFORMES	<i>Pycnonotus leucotis</i>	White-eared Bulbul	Biome-Restricted (BR)
195	PASSERIFORMES	<i>Riparia riparia</i>	Sand Martin	Congratory
196	PASSERIFORMES	<i>Hirundo rustica</i>	Barn Swallow	Congratory
197	PASSERIFORMES	<i>Cecropis daurica</i>	Red-rumped Swallow	
198	PASSERIFORMES	<i>Delichon urbicum</i>	Common House Martin	
199	PASSERIFORMES	<i>Cettia cetti</i>	Cetti's Warbler	
200	PASSERIFORMES	<i>Aegithalos caudatus</i>	Long-tailed Tit	
201	PASSERIFORMES	<i>Phylloscopus trochilus</i>	Willow Warbler	
202	PASSERIFORMES	<i>Phylloscopus collybita</i>	Common Chiffchaff	
203	PASSERIFORMES	<i>Phylloscopus sindianus</i>	Mountain Chiffchaff	
204	PASSERIFORMES	<i>Phylloscopus orientalis</i>	Eastern Bonelli's Warbler	
205	PASSERIFORMES	<i>Acrocephalus griseldis</i>	Basra Reed Warbler	Globally Threatened

Nature Iraq & Iraqi Ministry of Environment Report

#	Order	Scientific Name	Common Name	Conservation Status
				(G'T),Endemic (End), Restricted Range (RR), Biome-Restricted (BR)
206	PASSERIFORMES	<i>Acrocephalus arundinaceus</i>	Great Reed Warbler	
207	PASSERIFORMES	<i>Acrocephalus stentoreus</i>	Clamorous Reed Warbler	
208	PASSERIFORMES	<i>Acrocephalus menanopogon</i>	Moustached Warbler	
209	PASSERIFORMES	<i>Acrocephalus schoenobaenus</i>	Sedge Warbler	
210	PASSERIFORMES	<i>Iduna pallida</i>	Eastern Olivaceous Warbler	
211	PASSERIFORMES	<i>Hippolais languida</i>	Upcher's Warbler	Biome-Restricted (BR)
212	PASSERIFORMES	<i>Cisticola juncidis</i>	Zitting Cisticola	
213	PASSERIFORMES	<i>Prinia gracilis</i>	Graceful Prinia	
214	PASSERIFORMES	<i>Turdoides altirostris</i>	Iraq Babbler	Endemic (End), Restricted Range (RR), Biome- Restricted (BR)
215	PASSERIFORMES	<i>Turdoides buttoni</i>	Afgan Babbler	
216	PASSERIFORMES	<i>Sylvia atricapilla</i>	Eurasian Blackcap	
217	PASSERIFORMES	<i>Sylvia borin</i>	Garden Warbler	
218	PASSERIFORMES	<i>Sylvia nisoria</i>	Barred Warbler	
219	PASSERIFORMES	<i>Sylvia curruca</i>	Lesser Whitethroat	
220	PASSERIFORMES	<i>Sylvia crassirostris</i>	Eastern Orphean Warbler	
221	PASSERIFORMES	<i>Sylvia communis</i>	Common Whitethroat	
222	PASSERIFORMES	<i>Sylvia mystacea</i>	Menetries's Warbler	Biome-Restricted (BR)
223	PASSERIFORMES	<i>Troglodytes troglodytes</i>	Winter Wren	
224	PASSERIFORMES	<i>Sitta europaea</i>	Eurasian Nuthatch	
225	PASSERIFORMES	<i>Sitta neumayer</i>	Western Rock Nuthatch	Biome-Restricted (BR)
226	PASSERIFORMES	<i>Sitta tephronota</i>	Eastern Rock Nuthatch	Biome-Restricted (BR)
227	PASSERIFORMES	<i>Tichodroma muraria</i>	Wallcreeper	Biome-Restricted (BR)
228	PASSERIFORMES	<i>Sturnus vulgaris</i>	Common Starling	
229	PASSERIFORMES	<i>Turdus merula</i>	Eurasian Blackbird	
230	PASSERIFORMES	<i>Turdus viscivorus</i>	Mistle Thrush	
231	PASSERIFORMES	<i>Erithacus rubecula</i>	European Robin	
232	PASSERIFORMES	<i>Luscinia svecica</i>	Bluethroat	
233	PASSERIFORMES	<i>Luscinia luscinia</i>	Thrush Nightingale	
234	PASSERIFORMES	<i>Luscinia megarhynchos</i>	Common Nightingale	
235	PASSERIFORMES	<i>Trania gutturalis</i>	White-throated Robin	Biome-Restricted (BR)
236	PASSERIFORMES	<i>Cercotrichas galactotes</i>	Rufous-tailed Scrub Robin	
237	PASSERIFORMES	<i>Phoenicurus oebrius</i>	Western Black Redstart	
238	PASSERIFORMES	<i>Phoenicurus phoenicuroides</i>	Eastern Black Redstart	
239	PASSERIFORMES	<i>Phoenicurus phoenicurus</i>	Common Redstart	
240	PASSERIFORMES	<i>Saxicola rubetra</i>	Whinchat	
241	PASSERIFORMES	<i>Saxicola rubicola</i>	European Stonechat	
242	PASSERIFORMES	<i>Saxicola maurus</i>	Siberian Stonechat	
243	PASSERIFORMES	<i>Oenanthe isabellina</i>	Isabelline Wheatear	
244	PASSERIFORMES	<i>Oenanthe oenanthe</i>	Northern Wheatear	
245	PASSERIFORMES	<i>Oenanthe xanthopyrma</i>	Kurdistan Wheatear	Biome-Restricted (BR)
246	PASSERIFORMES	<i>Oenanthe chrysopygia</i>	Red-tailed Wheatear	Biome-Restricted (BR)
247	PASSERIFORMES	<i>Oenanthe pleschanka</i>	Pied Wheatear	Biome-Restricted (BR)
248	PASSERIFORMES	<i>Oenanthe melanoleuca</i>	Eastern Black-eared Wheatear	
249	PASSERIFORMES	<i>Oenanthe deserti</i>	Desert Wheatear	Biome-Restricted (BR)
250	PASSERIFORMES	<i>Oenanthe lugens</i>	Eastern Mourning Wheatear	Biome-Restricted (BR)
251	PASSERIFORMES	<i>Oenanthe leucopyga</i>	White-crowned Wheatear	
252	PASSERIFORMES	<i>Oenanthe finschii</i>	Finsch's Wheatear	Biome-Restricted (BR)
253	PASSERIFORMES	<i>Oenanthe albonigra</i>	Hume's Wheatear	Biome-Restricted (BR)
254	PASSERIFORMES	<i>Monticola saxatilis</i>	Rufous-tailed Rock Thrush	
255	PASSERIFORMES	<i>Monticola solitarius</i>	Blue Rock Thrush	

Nature Iraq & Iraqi Ministry of Environment Report

#	Order	Scientific Name	Common Name	Conservation Status
256	PASSERIFORMES	<i>Muscicapa striata</i>	Spotted Flycatcher	
257	PASSERIFORMES	<i>Cinclus cinclus</i>	White-throated Dipper	
258	PASSERIFORMES	<i>Passer domesticus</i>	House Sparrow	
259	PASSERIFORMES	<i>Passer hispaniolensis</i>	Spanish Sparrow	
260	PASSERIFORMES	<i>Passer moabiticus</i>	Dead Sea Sparrow	Biome-Restricted (BR)
261	PASSERIFORMES	<i>Passer montanus</i>	Eurasian Tree Sparrow	
262	PASSERIFORMES	<i>Carpospiza brachydactyla</i>	Pale Rockfinch	
263	PASSERIFORMES	<i>Petronia petronia</i>	Rock Sparrow	
264	PASSERIFORMES	<i>Gymnoris xanthocollis</i>	Yellow-throated Sparrow	
265	PASSERIFORMES	<i>Prunella collaris</i>	Alpine Accentor	Biome-Restricted (BR)
266	PASSERIFORMES	<i>Prunella modularis</i>	Duncock	
267	PASSERIFORMES	<i>Motacilla flava</i>	Western Yellow Wagtail (includes all races)	Congratory
268	PASSERIFORMES	<i>Motacilla flava feldegg</i>	Black-headed Wagtail	Congratory
269	PASSERIFORMES	<i>Motacilla citreola</i>	Citrine Wagtail	
270	PASSERIFORMES	<i>Motacilla cinerea</i>	Grey Wagtail	
271	PASSERIFORMES	<i>Motacilla alba</i>	White Wagtail	
272	PASSERIFORMES	<i>Anthus campestris</i>	Tawny Pipit	
273	PASSERIFORMES	<i>Anthus pratensis</i>	Meadow Pipit	
274	PASSERIFORMES	<i>Anthus trivialis</i>	Tree pipit	
275	PASSERIFORMES	<i>Anthus cervinus</i>	Red-throated Pipit	
276	PASSERIFORMES	<i>Anthus spinoletta</i>	Water Pipit	Biome-Restricted (BR)
277	PASSERIFORMES	<i>Fringilla coelebs</i>	Common Chaffinch	
278	PASSERIFORMES	<i>Serinus pusillus</i>	Red-fronted Serin	
279	PASSERIFORMES	<i>Carduelis chloris</i>	European Greenfinch	
280	PASSERIFORMES	<i>Carduelis spinus</i>	Eurasian Siskin	
281	PASSERIFORMES	<i>Carduelis carduelis</i>	European Goldfinch	
282	PASSERIFORMES	<i>Carduelis cannabina</i>	Common Linnet	
283	PASSERIFORMES	<i>Bucanetes githagineus</i>	Trumpeter Finch	Biome-Restricted (BR)
284	PASSERIFORMES	<i>Rhodospiza obsoletus</i>	Desert Finch	Biome-Restricted (BR)
285	PASSERIFORMES	<i>Emberiza calandra</i>	Corn Bunting	
286	PASSERIFORMES	<i>Emberiza leucocephalos</i>	Pine Bunting	
287	PASSERIFORMES	<i>Emberiza cia</i>	Rock Bunting	
288	PASSERIFORMES	<i>Emberiza semenovi</i>	Smyrna Bunting	Globally Threatened (GT)
289	PASSERIFORMES	<i>Emberiza hortulana</i>	Ortolan Bunting	
290	PASSERIFORMES	<i>Emberiza melanocephala</i>	Black-headed Bunting	Biome-Restricted (BR)
291	PASSERIFORMES	<i>Emberiza schoeniclus</i>	Common Reed Bunting	

Annex B: List of plants seen on the KBA Surveys in Iraq in 2010

#	Family	Scientific Name	Citations
1	Acanthaceae	<i>Acanthus dioscoridis</i> L.	Fl Iranica 24. (1966)
2	Aceraceae	<i>Acer monspessulanum</i> L.	Fl Iraq 4, 1. (1980)
3	Adiantaceae	<i>Adiantum capillus-veneris</i> L.	Fl Iraq 2. (1966)
4	Adiantaceae	<i>Cheilanthes persica</i>	Fl Iraq 2. (1966)
5	Algae	<i>Anisosciadium lanatum</i>	
6	Algae	<i>Chara</i> sp.	
7	Amaryllidaceae	<i>Ixilirion tataricum</i>	Fl Iraq 8. (1985)
8	Anacardiaceae	<i>Pistacia eurycarpa</i>	Fl Iraq 4, 1. (1980)
9	Anacardiaceae	<i>Pistacia kbinjuk</i> Stocks	Fl Iraq 4, 1. (1980)
10	Anacardiaceae	<i>Rhus coriaria</i> L.	Fl Iraq 4, 1. (1980)
11	Apocynaceae	<i>Nerium oleander</i> L.	Fl Iraq 4, 1. (1980)
12	Araliaceae	<i>Hedera helix</i> L.	Fl Iraq 4, 1. (1980)
13	Aristolochiaceae	<i>Aristolochia bottae</i>	Fl Iraq 4, 2. (1980)
14	Aristolochiaceae	<i>Aristolochia mororum</i>	
15	Aristolochiaceae	<i>Aristolochia paecilantha</i>	Fl Iraq 4, 2. (1980)
16	Asclepiadaceae	<i>Fagonia</i> L.	Fl Iraq 4, 1. (1980)
17	Aspleniaceae	<i>Ceterach officinarum</i>	Fl Iraq 2. (1966)
18	Boraginaceae	<i>Alkanna kotschyana</i> .	
19	Boraginaceae	<i>Anchusa italica</i>	Fl Iranica 48. (1967)
20	Boraginaceae	<i>Anchusa strigosa</i>	Fl Iranica 48. (1967)
21	Boraginaceae	<i>Asperugo procumbens</i> L.	Fl Iranica 48. (1967)
22	Boraginaceae	<i>Cynoglossum creticum</i>	Fl Iranica 48. (1967)
23	Boraginaceae	<i>Echium italicum</i> L.	Fl Iranica 48. (1967)
24	Boraginaceae	<i>Myosotis</i> L.	
25	Boraginaceae	<i>Myosotis refracta</i>	Fl Iranica 48. (1967)
26	Boraginaceae	<i>Myosotis sparsiflora</i>	Fl Iranica 48. (1967)
27	Boraginaceae	<i>Nonnea caspica</i>	Fl Iranica 48. (1967)
28	Boraginaceae	<i>Onosma albo-roseum</i>	Fl Iranica 48. (1967)
29	Boraginaceae	<i>Onosma albo-roseum</i> var. <i>albo-roseum</i>	Fl Iranica 48. (1967)
30	Boraginaceae	<i>Onosma rostellatum</i>	Fl Iranica 48. (1967)
31	Boraginaceae	<i>Onosma sericea</i> .	
32	Boraginaceae	<i>Onosma</i> sp.	
33	Boraginaceae	<i>Polycarpea repens</i>	Fl Iranica 48. (1967)
34	Boraginaceae	<i>Rindera lanata</i>	Fl Iranica 48. (1967)
35	Boraginaceae	<i>Salsola kali</i> L.	
36	Boraginaceae	<i>Solenanthes stamineus</i>	Fl Iranica 48. (1967)
37	Boraginaceae	<i>Symphytum kurdicum</i>	Fl Iranica 48. (1967)
38	Caesalpinaceae	<i>Caesalpinia bonduc</i>	Fl Iraq 3. (1974)
39	Caesalpinaceae	<i>Prosopis farcta</i>	Fl Iraq 3. (1974)
40	Campanulaceae	<i>Asyneuma amplexicanle</i>	Fl Iranica 13. (1965)
41	Campanulaceae	<i>Asyneuma</i> sp.	
42	Campanulaceae	<i>Campanula mardinensis</i>	Fl Iranica 13. (1965)
43	Campanulaceae	<i>Campanula propinqua</i>	
44	Campanulaceae	<i>Campanula retrorsa</i>	Fl Iranica 13. (1965)
45	Campanulaceae	<i>Campanula</i> sp.	
46	Campanulaceae	<i>Campanula strigosa</i> .	
47	Campanulaceae	<i>Legousia falcata</i>	Fl Iranica 13. (1965)
48	Campanulaceae	<i>Legousia</i> sp.	
49	Campanulaceae	<i>Legousia speculum-veneris</i>	Fl Iranica 13. (1965)
50	Campanulaceae	<i>Michauxia lanigata</i> .	
51	campanulaceae	<i>Michauxia nuda</i>	
52	Campanulaceae	<i>Michauxia tchibatchewii</i> .	
53	Campanulaceae	<i>Zeugandra iranica</i> .	
54	Capparaceae	<i>Capparis spinosa</i> L.	Fl Iraq 4, 1. (1980)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
55	Caryophyllaceae	<i>Agrostemma githago.</i>	
56	Caryophyllaceae	<i>Arenaria L.</i>	
57	Caryophyllaceae	<i>Caryophyllaceae Juss.</i>	
58	Caryophyllaceae	<i>Cerastium dichotomum.</i>	
59	Caryophyllaceae	<i>Cerastium inflatum Link.</i>	Zohary Fl Iraq. (1950)
60	Caryophyllaceae	<i>Cerastium sp</i>	
61	Caryophyllaceae	<i>Daphne mucronata Royle</i>	Fl Iraq 4, 1. (1980)
62	Caryophyllaceae	<i>Dianthus pendulus Boiss.</i>	Zohary Fl Iraq. (1950)
63	Caryophyllaceae	<i>Dianthus strictus Banks 7 Sol.</i>	Zohary Fl Iraq. (1950)
64	Caryophyllaceae	<i>Gypsophila sp.</i>	
65	Caryophyllaceae	<i>Silene aegyptiaca (L.) L.f.</i>	Zohary Fl Iraq. (1950)
66	Caryophyllaceae	<i>Silene aucheriana Boiss.</i>	Zohary Fl Iraq. (1950)
67	Caryophyllaceae	<i>Silene longipetala Vent.</i>	Zohary Fl Iraq. (1950)
68	Caryophyllaceae	<i>Silene odontopetala Fenzl.</i>	Zohary Fl Iraq. (1950)
69	Caryophyllaceae	<i>Silene sefidiana.</i>	
70	Caryophyllaceae	<i>Silene sp.</i>	
71	Caryophyllaceae	<i>Silene vulgaris</i>	
72	Caryophyllaceae	<i>Silene vulgaris.</i>	
73	Caryophyllaceae	<i>Stellaria media (L.) Vül.</i>	Zohary Fl Iraq. (1950)
74	Caryophyllaceae	<i>Vaccaria grandiflora.</i>	
75	Caryophyllaceae	<i>Velesia rigida L.</i>	Zohary Fl Iraq. (1950)
76	Cerotohyllaceae	<i>Cleome amblyocarpa Barr. & Murb.</i>	Fl Iraq 4, 2. (1980)
77	Cerotohyllaceae	<i>Cornulaca monocantha Chenopodiaceae</i>	Fl Iraq 4, 2. (1980)
78	Cerotohyllaceae	<i>Emex spinosus (L.) Campd.</i>	Fl Iraq 4, 2. (1980)
79	Cerotohyllaceae	<i>Najas marina L.</i>	Fl Iraq 4, 2. (1980)
80	Cerotohyllaceae	<i>Nymphoides indica</i>	Fl Iraq 4, 2. (1980)
81	Charyophyllaceae	<i>Vaccaria pyramidata.</i>	
82	Charyophyllaceae	<i>Vaccaria sp.</i>	
83	Chenopodiaceae	<i>Anabasis setifera</i>	
84	Chenopodiaceae	<i>Anisosciadium lanatum. Umbelliferae</i>	
85	Chenopodiaceae	<i>Anthemis tinctoria L.</i>	
86	Chenopodiaceae	<i>Artemisia herba alba. Compositae</i>	
87	Chenopodiaceae	<i>Asphodelus tenuifolius.</i>	
88	Chenopodiaceae	<i>Calligonum polygonoides L.</i>	
89	Chenopodiaceae	<i>Diploaxis barra (Forssk.) Boiss.</i>	
90	Chenopodiaceae	<i>Gymnarrhena Desf.</i>	
91	Chenopodiaceae	<i>Helianthemum ledifolium (L.) Mill.</i>	
92	Chenopodiaceae	<i>Heliotropium ramosissimum (Lehm.) DC.</i>	
93	Chenopodiaceae	<i>Lemna minor L.</i>	Fl Iranica 172. (1997)
94	Chenopodiaceae	<i>Moltkiopsis ciliata (Forssk.) I.M. Johnston</i>	
95	Chenopodiaceae	<i>Rhazya stricta Decne.</i>	
96	Chenopodiaceae	<i>Salsola imbricata Chenopodiaceae</i>	
97	Chenopodiaceae	<i>Vallisneria spiralis L.</i>	Fl Iranica 172. (1997)
98	Cistaceae	<i>Achillea fragrantissima. Compositae</i>	Fl Iraq 4, 1. (1980)
99	Cistaceae	<i>Fumana arabica (L.) Spach</i>	Fl Iraq 4, 1. (1980)
100	Cistaceae	<i>Helianthemum salicifolium (L.) Mill.</i>	Fl Iraq 4, 1. (1980)
101	Cistaceae	<i>Helianthemum sp</i>	
102	Compositae	<i>Achillea eriophora.</i>	
103	Compositae	<i>Achillea filipendulina Boiss. & Buhse</i>	Fl Iranica 158. (1986)
104	Compositae	<i>Achillea sp.</i>	
105	Compositae	<i>Anchusa L.</i>	
106	Compositae	<i>Anthemis altissima L.</i>	Fl Iranica 158. (1986)
107	Compositae	<i>Anthemis sp.</i>	
108	Compositae	<i>Artemisia L.</i>	
109	Compositae	<i>Calendula L.</i>	
110	Compositae	<i>Carduus pycnocephalus L.</i>	Fl. Iranica 139A . (1979)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
111	Compositae	<i>Carthamus curdicus</i> Hanelt	Fl Iranica 139b. (1980)
112	Compositae	<i>Carthamus oxyacantha</i> M.B.	Fl Iranica 139b. (1980)
113	Compositae	<i>Centaurea briguietana</i> (DC.) Hand.-Mzt.	Fl Iranica 139b. (1980)
114	Compositae	<i>Centaurea longipedunculata</i> Schultz-Bip. ex Boiss.	Fl Iranica 139b. (1980)
115	Compositae	<i>Centaurea solstitialis</i> L.	Fl Iranica 139b. (1980)
116	Compositae	<i>Centaurea</i> sp	
117	Compositae	<i>Centaurea triumfettii</i> All.	Fl Iranica 139b. (1980)
118	Compositae	<i>Cichorium intybus</i> L.	Fl. Iranica 122. (1977)
119	Compositae	<i>Cirsium</i> sp.	
120	Compositae	<i>Compositae</i> Giseke	
121	Compositae	<i>Cousinia inflata</i> Boiss. & Hausskn.	Fl. Iranica 90. (1972)
122	Compositae	<i>Cousinia mobayenii</i>	
123	Compositae	<i>Cousinia odontolepis</i> DC.	Fl. Iranica 90. (1972)
124	Compositae	<i>Cousinia rhabdiostegia</i> .	
125	Compositae	<i>Cousinia</i> sp	
126	Compositae	<i>Crepis alpina</i> L.	Fl. Iranica 122. (1977)
127	Compositae	<i>Crepis capillaris</i>	
128	Compositae	<i>Crepis</i> L.	
129	Compositae	<i>Crupina crupinastrum</i> (Moris) Vis.	Fl Iranica 139b. (1980)
130	Compositae	<i>Echinops</i> sp.	
131	Compositae	<i>Fagonia glutinosa</i> Del.	
132	Compositae	<i>Filago pyramidata</i> L.	Fl Iranica 145. (1980)
133	Compositae	<i>Gundelia tournefortii</i> L.	Fl Iranica 145. (1980)
134	Compositae	<i>Haplophyllum buxbaumii</i> (Poir.) G.Don	
135	Compositae	<i>Haplophyllum tuberculatum</i> (Forssk.) A. Juss.	
136	Compositae	<i>Helianthemum lippii</i> (L.) Dum.-Cours.	
137	Compositae	<i>Helichrysum</i> sp	
138	Compositae	<i>Heliotropium</i> L.	Fl Iranica 139b. (1980)
139	Compositae	<i>Launaea mucronata</i> (Forssk.) Muschl.	Fl. Iranica 122. (1977)
140	Compositae	<i>Malcolmia africana</i> . <i>Crucoiferae</i>	Fl. Iranica 139A . (1979)
141	Compositae	<i>Matricaria chamomilla</i> .	
142	Compositae	<i>Matricaria</i> sp	
143	Compositae	<i>Neurada procumbens</i> L.	
144	Compositae	<i>Notobasis syriaca</i> (L.) Cass.	Fl. Iranica 139A . (1979)
145	Compositae	<i>Onopordum heteracanthum</i> C.A.Mey.	Fl. Iranica 139A . (1979)
146	Compositae	<i>Onopordum</i> sp.	
147	Compositae	<i>Picnomon acarna</i> (L.) Cass	Fl. Iranica 139A . (1979)
148	Compositae	<i>Picris strigosa</i> M.Bieb.	Fl. Iranica 122. (1977)
149	Compositae	<i>Punica granatum</i> L.	Fl Iraq 4, 1. (1980)
150	Compositae	<i>Rhagadiolus stellatus</i> (L.) Gaertn.	Fl. Iranica 122. (1977)
151	Compositae	<i>Salicornia europaea</i> .	
152	Compositae	<i>Salix euphratica</i> .	
153	Compositae	<i>Scorzonera bulbipes</i> Boiss. & Hausskn.	Fl. Iranica 122. (1977)
154	Compositae	<i>Scorzonera</i> L.	
155	Compositae	<i>Scorzonera</i> sp	
156	Compositae	<i>Senecio</i> sp.	
157	Compositae	<i>Senecio vulgaris</i> L.	Fl Iranica 145. (1980)
158	Compositae	<i>Serratula cerinthifolia</i> (SM.) Boiss.	Fl Iranica 139b. (1980)
159	Compositae	<i>Serratula grandifolia</i> P. H. Davis	Fl Iranica 139b. (1980)
160	Compositae	<i>Serratula</i> sp.	
161	Compositae	<i>Sherardia arvensis</i> L.	Fl Iraq 4, 1. (1980)
162	Compositae	<i>Silybum marianum</i> (L.) Gaertn.	Fl. Iranica 139A . (1979)
163	Compositae	<i>Sonchus</i> L.	
164	Compositae	<i>Taraxacum</i> sp.	
165	Compositae	<i>Tragopogon longirostris</i> Bisch.ex Sch.-Bip.	Fl. Iranica 122. (1977)
166	Compositae	<i>Tragopogon</i> sp.	

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
167	Compositae	<i>Xeranthemum cylindraceum</i> Sibth. & Sm.	Fl. Iranica 139A . (1979)
168	Compositae	<i>Xeranthemum longepaposum</i>	
169	Compositae	<i>Zoegea leptaurea</i> L.	Fl Iranica 139b. (1980)
170	Convolvulaceae	<i>Anthemis deserti</i> .	Fl Iranica 2. (1963)
171	Convolvulaceae	<i>Convolvulus arvensis</i> L.	Fl Iranica 2. (1963)
172	Convolvulaceae	<i>Convolvulus</i> sp.	
173	Convolvulaceae	<i>Nigella arvensis</i> L.	Fl Iranica 2. (1963)
174	Crassulaceae	<i>Rosularia sempervivum</i> (M.B.) Berger in Engler & Prantl	Fl Iranica 72. (1970)
175	Crassulaceae	<i>Sedum</i> L.	
176	Crassulaceae	<i>Sedum</i> sp	
177	Crassulaceae	<i>Umbilicus intermedius</i> Boiss.	Fl Iranica 72. (1970)
178	Crassulaceae	<i>Umbilicus tropaeolifolius</i> Boiss.	Fl Iranica 72. (1970)
179	Cruciferae	<i>Aethionema carneum</i> (Banks & Soland.) B. Fedtsch.	Fl Iraq 4, 2. (1980)
180	Cruciferae	<i>Aethionema froedinii</i> Rech.f.	Fl Iraq 4, 2. (1980)
181	Cruciferae	<i>Aethionema grandiflorum</i> Boiss. & Hoben.	Fl Iraq 4, 2. (1980)
182	Cruciferae	<i>Alliaria petiolata</i> (M. Bieb.) Cavara & Grande	Fl Iraq 4, 2. (1980)
183	Cruciferae	<i>Abyssum menicoides</i> Boiss.	Fl Iraq 4, 2. (1980)
184	Cruciferae	<i>Abyssum</i> sp.	
185	Cruciferae	<i>Abyssum stapfi</i> Vierh.	Fl Iraq 4, 2. (1980)
186	Cruciferae	<i>Abyssum strictum</i> Willd.	Fl Iraq 4, 2. (1980)
187	Cruciferae	<i>Arabis caucasica</i> Willd.	Fl Iraq 4, 2. (1980)
188	Cruciferae	<i>Arabis</i> L.	
189	Cruciferae	<i>Astragalus annularis</i> Forssk.	
190	Cruciferae	<i>Aubretia parviflora</i> Boiss.	Fl Iraq 4, 2. (1980)
191	Cruciferae	<i>Barbarea plantaginea</i> DC.	Fl Iraq 4, 2. (1980)
192	Cruciferae	<i>Barbarea</i> R.Br.	
193	Cruciferae	<i>Biscutella didyma</i> L.	Fl Iraq 4, 2. (1980)
194	Cruciferae	<i>Brassica nigra</i> (L.) W.D.J. Koch	Fl Iraq 4, 2. (1980)
195	Cruciferae	<i>Brassica</i> sp.	
196	Cruciferae	<i>Bryonia multiflora</i> Boiss. & Heldr. In Boiss.	Fl Iraq 4, 1. (1980)
197	Cruciferae	<i>Calendula arvensis</i> .	
198	Cruciferae	<i>Capsella bursa-pastoris</i> (L.) Medic.	Fl Iraq 4, 2. (1980)
199	Cruciferae	<i>Cardaria draba</i> (L.) Desv.	Fl Iraq 4, 2. (1980)
200	Cruciferae	<i>Cladium mariscus</i> (L.) Pohl	
201	Cruciferae	<i>Chypeola jonthlaspi</i> L.	Fl Iraq 4, 2. (1980)
202	Cruciferae	<i>Chypeola</i> L.	
203	Cruciferae	<i>Cruciferae</i>	
204	Cruciferae	<i>Descurainia sophia</i> (L.) Webb & Berth.	Fl Iraq 4, 2. (1980)
205	Cruciferae	<i>Eruca sativa</i> Mill.	Fl Iraq 4, 2. (1980)
206	Cruciferae	<i>Erysimum repandum</i> L.	Fl Iraq 4, 2. (1980)
207	Cruciferae	<i>Erysimum</i> sp.	
208	Cruciferae	<i>Fibigia chypeata</i> (L.) Medic.	Fl Iraq 4, 2. (1980)
209	Cruciferae	<i>Fibigia macrocarps</i> .	
210	Cruciferae	<i>Fibigia multicaulis</i> (Boiss. & Hoben.) Boiss.	Fl Iraq 4, 2. (1980)
211	Cruciferae	<i>Fibigia</i> sp.	
212	Cruciferae	<i>Fibigia suffruticosa</i> (Vent.) Sweet	Fl Iraq 4, 2. (1980)
213	Cruciferae	<i>Hirschfeldia incana</i> (L.) Lag.-Foss.	Fl Iraq 4, 2. (1980)
214	Cruciferae	<i>Isatis cappadocica</i> Desv.	Fl Iraq 4, 2. (1980)
215	Cruciferae	<i>Isatis cochlearis</i> Boiss.	Fl Iraq 4, 2. (1980)
216	Cruciferae	<i>Isatis</i> L.	
217	Cruciferae	<i>Isatis lusitanica</i> L.	Fl Iraq 4, 2. (1980)
218	Cruciferae	<i>Ledidium</i> L.	
219	Cruciferae	<i>Leptaleum filifolium</i> (Willd.) DC.	Fl Iraq 4, 2. (1980)
220	Cruciferae	<i>Lycium barbarum</i> . Solanaceae	
221	Cruciferae	<i>Matthiola incana</i> (L.) R. Br.	Fl Iraq 4, 2. (1980)
222	Cruciferae	<i>Nasturtium officinale</i> R.Br.	Fl Iraq 4, 2. (1980)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
223	Cruciferae	<i>Neslia apiculata</i> Fisch., C.A. Mey. & Ave-Lall.	Fl Iraq 4, 2. (1980)
224	Cruciferae	<i>Paronychia arabica</i> (L.) DC..	Fl Iraq 4, 2. (1980)
225	Cruciferae	<i>Sameraria</i> Desv.	
226	Cruciferae	<i>Sinapis arvensis</i> L.	Fl Iraq 4, 2. (1980)
227	Cruciferae	<i>Sisymbrium septulatum</i> DC.	Fl Iraq 4, 2. (1980)
228	Cruciferae	<i>Thlaspi perfoliatum</i> L.	Fl Iraq 4, 2. (1980)
229	Cruciferae	<i>Thlaspi</i> sp.	
230	Cruciferae.	<i>Microthlaspi perfoliatum</i> .	
231	Crucoiferae	<i>Malcolmia africana</i> .	
232	Cucurbitaceae	<i>Pulicaria undulata</i> (L.) Lack	Fl Iraq 4, 1. (1980)
233	Cupressaceae	<i>Cuscuta approximata</i> Babingt.	Fl Iranica 8. (1964)
234	Cupressaceae	<i>Juniperus oxycedrus</i> L.	Fl Iraq 2. (1966)
235	Cuscutacea	<i>Cuscuta</i> sp	
236	Cuscutacea	<i>Cyperaceae</i>	
237	Cyperaceae	<i>Carex</i> sp	
238	Cyperaceae	<i>Kickxia</i> Blume	Fl Iraq 8. (1985)
239	Cyperaceae	<i>Potamogeton lucens</i> L.	Fl Iraq 8. (1985)
240	Cyperaceae	<i>Schoenoplectus litoralis</i> (Schrud.) Palla	Fl Iraq 8. (1985)
241	Cyperaceae	<i>Scirpoides holoschoenus</i> (L.) Sojak	Fl Iraq 8. (1985)
242	Cyperaceae	<i>Sclerocephalus arabicus</i> .	Fl Iraq 8. (1985)
243	Cyperaceae	<i>Tribulus macropterus</i> Boiss.	Fl Iraq 8. (1985)
244	Daticaceae	<i>Tamus communis</i> L.	Fl Iraq 8. (1985)
245	Dioscoreaceae	<i>Cephalaria dichaeophora</i> Boiss.	Fl Iranica 168. (1991)
246	Dipsacaceae	<i>Cephalaria syriaca</i> (L.) Roemer & Schultes	Fl Iranica 168. (1991)
247	Dipsacaceae	<i>Pterocephalus plumulosus</i> (L.) Coult.	Fl Iranica 168. (1991)
248	Dipsacaceae	<i>Scabiosa palastina</i> .	
249	Equisetaceae	<i>Equisetum ramosissimum</i> Desf.	Fl Iraq 2. (1966)
250	Euphorbiaceae	<i>Euphorbia condylocarpa</i> M. Bieb.	Fl Iraq 4, 1. (1980)
251	Euphorbiaceae	<i>Euphorbia denticulata</i> Lam.	Fl Iraq 4, 1. (1980)
252	Euphorbiaceae	<i>Euphorbia macroclada</i> Boiss.	Fl Iraq 4, 1. (1980)
253	Euphorbiaceae	<i>Euphorbia</i> sp	
254	Fabaceae	<i>Alhagi maurorum</i>	
255	Fagaceae	<i>Quercus aegilops</i> L.	Fl Iraq 4, 1. (1980)
256	Fagaceae	<i>Quercus aegilops</i> subsp. <i>persica</i> (Jaub. & Spach) Blakelock	Fl Iraq 4, 1. (1980)
257	Fagaceae	<i>Quercus infectoria</i> Oliv.	Fl Iraq 4, 1. (1980)
258	Fagaceae	<i>Quercus libani</i> Oliv.	Fl Iraq 4, 1. (1980)
259	Fagaceae	<i>Quercus macranthera</i> Fisch. & C.A. Mey. Ex Hoben.	Fl Iraq 4, 1. (1980)
260	Frankeniaceae	<i>Frankenia pulverulenta</i> L.	Fl Iraq 4, 1. (1980)
261	Fumariaceae	<i>Corydalis rutifolia</i> (Sm.) DC.	Fl Iraq 4, 2. (1980)
262	Fumariaceae	<i>Fumaria densiflora</i> DC.	Fl Iraq 4, 2. (1980)
263	Gentianaceae	<i>Biebersteinia multifida</i> DC	Fl Iranica 69. (1970)
264	Gentianaceae	<i>Centaurium tenuiflorum</i> .	
265	Gentianaceae	<i>Gentiana olivieri</i> Griseb.	Fl Iranica 41. (1967)
266	Geraniaceae	<i>Atriplex leuoclada</i> Boiss.	
267	Geraniaceae	<i>Erodium</i> sp	
268	Geraniaceae	<i>Geranium lucidum</i> L.	Fl Iranica 69. (1970)
269	Geraniaceae	<i>Geranium tuberosum</i> L.	Fl Iranica 69. (1970)
270	Geraniaceae	<i>Geranium</i> sp	
271	Globulariaceae	<i>Gramineae</i>	
272	Graminae	<i>Aegilops</i> sp	
273	Gramineae	<i>Aegilops columnaris</i> Zhuk.	Fl Iraq 9. (1968)
274	Gramineae	<i>Aegilops crassa</i> Boiss.	Fl Iraq 9. (1968)
275	Gramineae	<i>Aegilops umbellulata</i> Zhuk.	Fl Iraq 9. (1968)
276	Gramineae	<i>Aeluropus lagapoides</i> (L.) Trin.	Fl Iraq 9. (1968)
277	Gramineae	<i>Aizoon hispanicum</i> L.	Fl Iraq 9. (1968)
278	Gramineae	<i>Arundo donax</i> L.	Fl Iraq 9. (1968)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
279	Gramineae	<i>Astragalus bauarensis</i> Boiss.	Fl Iraq 9. (1968)
280	Gramineae	<i>Astragalus schimperii</i> Boiss.	Fl Iraq 9. (1968)
281	Gramineae	<i>Avena fatua</i> L.	Fl Iraq 9. (1968)
282	Gramineae	<i>Bacopa monniera</i> (L.) Hayata & Matsum.	Fl Iraq 9. (1968)
283	Gramineae	<i>Briza humilis</i> M. Bieb.	Fl Iraq 9. (1968)
284	Gramineae	<i>Briza minor</i> L.	Fl Iraq 9. (1968)
285	Gramineae	<i>Bromus brachystachys</i> Horn.	Fl Iraq 9. (1968)
286	Gramineae	<i>Bromus danthoniae</i> Trin.	Fl Iraq 9. (1968)
287	Gramineae	<i>Bromus diandrus</i> Roth.	Fl Iraq 9. (1968)
288	Gramineae	<i>Bromus</i> sp	
289	Gramineae	<i>Chenopodiaceae</i> Vent.	Fl Iraq 9. (1968)
290	Gramineae	<i>Chenopodium</i> L.	Fl Iraq 9. (1968)
291	Gramineae	<i>Chrozophora tinctoria</i> (L.) Raf.	Fl Iraq 9. (1968)
292	Gramineae	<i>Cynodon dactylon</i> (L.) Pers.	Fl Iraq 9. (1968)
293	Gramineae	<i>Echinaria capitata</i> (L.) Desf.	Fl Iraq 9. (1968)
294	Gramineae	<i>Haloxyylon salicornicum</i> <i>Chenopodiaceae</i>	Fl Iraq 9. (1968)
295	Gramineae	<i>Heterantheum piliferum</i> (Banks & Soland.) Hochst.	Fl Iraq 9. (1968)
296	Gramineae	<i>Hordeum bulbosum</i> L.	Fl Iraq 9. (1968)
297	Gramineae	<i>Hordeum glaucum</i> Steud.	Fl Iraq 9. (1968)
298	Gramineae	<i>Hordeum</i> sp.	
299	Gramineae	<i>Imperata cylindrica</i> (L.) P. Beauv.	Fl Iraq 9. (1968)
300	Gramineae	<i>Launaea capitata</i> (Spreng.) Dandy	Fl Iraq 9. (1968)
301	Gramineae	<i>Ledidium aucheri</i> Boiss.	Fl Iraq 9. (1968)
302	Gramineae	<i>Lolium</i> L.	
303	Gramineae	<i>Lolium rigidum</i> Gaud.	Fl Iraq 9. (1968)
304	Gramineae	<i>Lolium</i> sp	
305	Gramineae	<i>Lolium temulentum</i> L.	Fl Iraq 9. (1968)
306	Gramineae	<i>Peganum harmala</i> L.	Fl Iraq 9. (1968)
307	Gramineae	<i>Phalaris</i> L.	
308	Gramineae	<i>Phleum exaratum</i> Griseb.	Fl Iraq 9. (1968)
309	Gramineae	<i>Phragmites australis</i> (Cav.) Trin. Ex Steud.	Fl Iraq 9. (1968)
310	Gramineae	<i>Plantago boissieri</i> Hausskn. & Bornm.	Fl Iraq 9. (1968)
311	Gramineae	<i>Poa bulbosa</i> L.	Fl Iraq 9. (1968)
312	Gramineae	<i>Potamogeton perfoliatus</i> L.	Fl Iraq 9. (1968)
313	Gramineae	<i>Rhanterium epapposum</i> .	Fl Iraq 9. (1968)
314	Gramineae	<i>Rumex cyprius</i> Murb.	Fl Iraq 9. (1968)
315	Gramineae	<i>Sorghum bicolor</i> (L.) Moench.	Fl Iraq 9. (1968)
316	Gramineae	<i>Stipagrostis plumosa</i> (L.) Munro ex T. Anders.	Fl Iraq 9. (1968)
317	Gramineae	<i>Taeniatherum asperum</i> (Simonkai) Nevski	Fl Iraq 9. (1968)
318	Gramineae	<i>Taeniatherum crinitum</i> (Schreb.) Nevski	Fl Iraq 9. (1968)
319	Gramineae	<i>Triticum</i> L.	
320	Haloragaceae	<i>Ranunculus aquatica</i> .	
321	Helleboraceae	<i>Delphinium</i> L.	
322	Helleboraceae	<i>Eranthis hyemalis</i> (L.) Salisb.	Fl Iraq 4, 2. (1980)
323	Hydrocharitaceae	<i>Hypericum</i> L.	
324	Hypericaceae	<i>Hypericum triquetrifolium</i> Turra	Fl Iraq 4, 1. (1980)
325	Hypericaceae	<i>Hypericum vermiculare</i> Boiss. & Hausskn.	Fl Iraq 4, 1. (1980)
326	Iridaceae	<i>Gladiolus atroviolaceus</i> Boiss.	Fl Iraq 8. (1985)
327	Iridaceae	<i>Gladiolus italicus</i> Mill.	Fl Iraq 8. (1985)
328	Iridaceae	<i>Iris aucheri</i> (Bak.) Sealy	Fl Iraq 8. (1985)
329	Iridaceae	<i>Iris barnumae</i> Bak. & Foster	Fl Iraq 8. (1985)
330	Iridaceae	<i>Iris germanica</i> L.	Fl Iraq 8. (1985)
331	Iridaceae	<i>Iris reticulata</i> M. Bieb.	Fl Iraq 8. (1985)
332	Juglandaceae	<i>Juglans regia</i>	Fl Iraq 4, 1. (1980)
333	Juncaceae	<i>Juncaceae</i>	
334	Juncaceae	<i>Juncus hybridus</i> Brot.	Fl Iraq 8. (1985)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
335	Juncaceae	<i>Juncus rigidus</i> Desf.	Fl Iraq 8. (1985)
336	Juncaceae	<i>Juncus</i> sp.	
337	Juncaceae	<i>Scabiosa</i> L.	Fl Iraq 8. (1985)
338	Juncaginaceae	<i>Labiatae</i> A.L. De Jussieu	
339	Labiatae	<i>Ajuga chia</i> .	
340	Labiatae	<i>Ajuga</i> L.	
341	Labiatae	<i>Cakile arabica</i> Bel. & Bornm.	Fl Iraq 8. (1985)
342	Labiatae	<i>Eremostachys laciniata</i> .	
343	Labiatae	<i>Eremostachys</i> sp.	
344	Labiatae	<i>Lamium amplexicanle</i> L.	Fl Iranica 150. (1982)
345	Labiatae	<i>Lamium</i> L.	
346	Labiatae	<i>Lamium striatum</i> .	
347	Labiatae	<i>Marrubium</i> L.	
348	Labiatae	<i>Mentha</i> L.	
349	Labiatae	<i>Mentha longifolia</i> (L.) Hudson	Fl Iranica 150. (1982)
350	Labiatae	<i>Phlomis</i> L.	
351	Labiatae	<i>Phlomis olivieri</i> Benth.	Fl Iranica 150. (1982)
352	Labiatae	<i>Salvia indica</i> L.	Fl Iranica 150. (1982)
353	Labiatae	<i>Salvia</i> L.	
354	Labiatae	<i>Salvia macrosiphon</i> Boiss.	Fl Iranica 150. (1982)
355	Labiatae	<i>Salvia multicaulis</i> Vahl	Fl Iranica 150. (1982)
356	Labiatae	<i>Salvia palaestina</i> Benth.	Fl Iranica 150. (1982)
357	Labiatae	<i>Salvia</i> sp	
358	Labiatae	<i>Stachys byzantina</i>	
359	Labiatae	<i>Stachys</i> L.	
360	Labiatae	<i>Stachys lavandulifolia</i> Vahl	Fl Iranica 150. (1982)
361	Labiatae	<i>Teucrium</i> L.	
362	Labiatae	<i>Teucrium polium</i> L.	Fl Iranica 150. (1982)
363	Labiatae	<i>Thymbra spicata</i> L.	Fl Iranica 150. (1982)
364	Labiatae	<i>Thymus</i> L.	
365	Labiatae	<i>Thymus syriacus</i> Boiss.	Fl Iranica 150. (1982)
366	Labiatae	<i>Thymus syriacus</i> Boiss. var. <i>syriacus</i>	Fl Iranica 150. (1982)
367	Labiatae	<i>Ziziphora capitata</i> L.	Fl Iranica 150. (1982)
368	Lamiaceae	<i>Salvia spinosa</i> L.	
369	Leguminosae	<i>Trifolium</i> sp	
370	Lemnaceae	<i>Bongardia chrysopogon</i> (L.) Spach	Fl Iraq 4, 2. (1980)
371	Lemnaceae	<i>Savignya parviflora</i> (Del.) Webb.	Fl Iraq 8. (1985)
372	Leonticaceae	<i>Allium</i> L.	
373	Leonticaceae	<i>Leontice leontopetalum</i> L.	Fl Iraq 4, 2. (1980)
374	Leonticaceae	<i>Liliaceae</i>	
375	Leonticaceae	<i>Zizphus mauritiana</i> Lam.	
376	Liliaceae	<i>Allium nigrum</i> .	
377	Liliaceae	<i>Allium chrysantherum</i> Boiss. & Reut. Ex Boiss.	Fl Iraq 8. (1985)
378	Liliaceae	<i>Asparagus</i> L.	
379	Liliaceae	<i>Bellavalia</i> sp	
380	Liliaceae	<i>Cochicum kotschy</i> Boiss.	Fl Iraq 8. (1985)
381	Liliaceae	<i>Cochicum</i> L.	
382	Liliaceae	<i>Eremurus spectabilis</i> M. Bieb.	Fl Iraq 8. (1985)
383	Liliaceae	<i>Fritillaria crassifolia</i> Boiss. & Huet	Fl Iraq 8. (1985)
384	Liliaceae	<i>Fritillaria imperialis</i> L.	Fl Iraq 8. (1985)
385	Liliaceae	<i>Fritillaria</i> L.	
386	Liliaceae	<i>Gagea</i> sp.	
387	Liliaceae	<i>Muscari comosum</i> (L.) Mill.	Fl Iraq 8. (1985)
388	Liliaceae	<i>Muscari</i> sp.	
389	Liliaceae	<i>Narcissus tazetta</i> .	
390	Liliaceae	<i>Ornithogalum brachysachyus</i> C. Koch	Fl Iraq 8. (1985)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
391	Liliaceae	<i>Ornithogalum iraqense</i> Feinbrun	Fl Iraq 8. (1985)
392	Liliaceae	<i>Ornithogalum persicum</i> Hausskn. Ex Bornm.	Fl Iraq 8. (1985)
393	Liliaceae	<i>Ornithogalum</i> sp.	
394	Liliaceae	<i>Puschkinia scilloides</i> Adams	Fl Iraq 8. (1985)
395	Liliaceae	<i>Scilla</i> L.	
396	Liliaceae	<i>Tulipa kurdica</i> Agnew & Hadac ex Wendelbo	Fl Iraq 8. (1985)
397	Liliaceae	<i>Tulipa systola</i> Stapf	Fl Iraq 8. (1985)
398	Linaceae	<i>Linum mucronatum</i> Bertol.	Fl Iraq 4, 1. (1980)
399	Linaceae	<i>Linum nodiflorum</i> L.	Fl Iraq 4, 1. (1980)
400	Linaceae	<i>Linum strictum</i> L.	Fl Iraq 4, 1. (1980)
401	Linaceae	<i>Linum sulphureum</i> .	
402	Linaceae	<i>Linum velutinum</i> Steud. Ex Planch.	Fl Iraq 4, 1. (1980)
403	Malvaceae	<i>Alcea kurdica</i> (Schlecht) Alef.	Fl Iraq 4, 1. (1980)
404	Malvaceae	<i>Alcea</i> L.	
405	Malvaceae	<i>Althaea</i> L.	
406	Malvaceae	<i>Bassia eriophora</i> (Schrad.) Aschers. In Schweinf.	Fl Iraq 4, 1. (1980)
407	Malvaceae	<i>Mahva aegyptia</i> L.	Fl Iraq 4, 1. (1980)
408	Malvaceae	<i>Mahva</i> L.	
409	Malvaceae	<i>Mahva parviflora</i> L.	Fl Iraq 4, 1. (1980)
410	Marsileaceae	<i>Matricaria aurea</i> (Loefl.) Schultz Bip.	Fl Iranica 158. (1986)
411	Moraceae	<i>Ficus carica</i> L.	Fl Iraq 4, 1. (1980)
412	Moraceae	<i>Ficus carica</i> var. <i>rupestris</i> Hausskn. Ex Boiss.	Fl Iraq 4, 1. (1980)
413	Myrtaceae	<i>Eucalyptus torquata</i> Luehm	Fl Iraq 4, 1. (1980)
414	Najadaceae	<i>Calligonum tetrapterum</i> Jaub. & Spach	Fl Iraq 8. (1985)
415	Najadaceae	<i>Suaeda vermiculata</i> Chenopodiaceae	Fl Iraq 8. (1985)
416	Oleaceae	<i>Fraxinus angustifolia</i> Vahl	Fl Iraq 4, 1. (1980)
417	Oleaceae	<i>Fraxinus syriaca</i> Boiss.	Fl Iraq 4, 1. (1980)
418	Onagraceae	<i>Anacamptis pyramidalis</i> (L.) L.C. Rich.	Fl Iraq 8. (1985)
419	Onagraceae	<i>Orchidaceae</i>	
420	Orchidaceae	<i>Cephalanthera kurdica</i> Bornm. Ex Kraenzl.	Fl Iraq 8. (1985)
421	Orchidaceae	<i>Dactylorhiza umbrosa</i> (Kar. & Kir.) Nevski	Fl Iraq 8. (1985)
422	Orchidaceae	<i>Dactylorhiza umbrosa</i> (Kar. & Kir.) Nevski var. <i>umbrosa</i>	Fl Iraq 8. (1985)
423	Orchidaceae	<i>Epipactis veratrifolia</i> Boiss. & Hob.	Fl Iraq 8. (1985)
424	Orchidaceae	<i>Himantoglossum hircinum</i> (L.) W.D.J. Koch	Fl Iraq 8. (1985)
425	Orchidaceae	<i>Himantoglossum hircinum</i> var. <i>affine</i> (Boiss.) J.J. Wood	Fl Iraq 8. (1985)
426	Orchidaceae	<i>Himantoglossum hircinum</i> var. <i>pseudocaprinum</i> J.J. Wood	Fl Iraq 8. (1985)
427	Orchidaceae	<i>Ophrys bornmuelleri</i> M. Schulze ex Bornm.	Fl Iraq 8. (1985)
428	Orchidaceae	<i>Ophrys</i> L.	
429	Orchidaceae	<i>Orchis anatolica</i> Boiss.	Fl Iraq 8. (1985)
430	Orchidaceae	<i>Orchis collina</i> Banks & Soland.	Fl Iraq 8. (1985)
431	Orchidaceae	<i>Orchis coriophora</i> L.	Fl Iraq 8. (1985)
432	Orchidaceae	<i>Orchis</i> sp	
433	Orobanchaceae	<i>Orobanche aegyptiaca</i> Pers.	Fl Iranica 5. (1964)
434	Orobanchaceae	<i>Orobanche</i> L.	
435	Orobanchaceae	<i>Orobanche ramosa</i> L.	Fl Iranica 5. (1964)
436	Orobanchiaceae	<i>Phelypaea coccinea</i> .	
437	Papaveraceae	<i>Albagi</i> Adans.	
438	Papaveraceae	<i>Papaver fugax</i> Poir.	Fl Iraq 4, 2. (1980)
439	Papaveraceae	<i>Papaver macrostomum</i> Boiss. & Huet	Fl Iraq 4, 2. (1980)
440	Papaveraceae	<i>Papaver rhoeas</i> L.	Fl Iraq 4, 2. (1980)
441	Papaveraceae	<i>Papaver somniferum</i> L.	Fl Iraq 4, 2. (1980)
442	Papaveraceae	<i>Papaver</i> sp.	
443	Papilionaceae	<i>Albagi graecorum</i> Boiss.	Fl Iraq 3. (1974)
444	Papilionaceae	<i>Anagyris foetida</i> L.	Fl Iraq 3. (1974)
445	Papilionaceae	<i>Astragalus hamosus</i> L.	Fl Iraq 3. (1974)
446	Papilionaceae	<i>Astragalus</i> sp.	

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
447	Papilionaceae	<i>Astragalus spinosus</i> (Forssk.) Muschl.	Fl Iraq 3. (1974)
448	Papilionaceae	<i>Cicer bijugum</i> Rech.f.	Fl Iraq 3. (1974)
449	Papilionaceae	<i>Cistanche tubulosa</i> (Schenk) R. Wight	
450	Papilionaceae	<i>Colutea cilicica</i> Boiss. & Bal.	Fl Iraq 3. (1974)
451	Papilionaceae	<i>Coronilla scorpioides</i> (L.) W.D.J. Koch	Fl Iraq 3. (1974)
452	Papilionaceae	<i>Fagonia bruguieri</i> DC.	
453	Papilionaceae	<i>Hedysarum</i> L.	
454	Papilionaceae	<i>Hippocrepis unisiliquosa</i> L.	Fl Iraq 3. (1974)
455	Papilionaceae	<i>Hymenocarpus circinnatus</i> (L.) Savi	Fl Iraq 3. (1974)
456	Papilionaceae	<i>Lathyrus aphaca</i> L.	Fl Iraq 3. (1974)
457	Papilionaceae	<i>Lathyrus boissieri</i> Sirj.	Fl Iraq 3. (1974)
458	Papilionaceae	<i>Lathyrus</i> L.	
459	Papilionaceae	<i>Lathyrus sativus</i> L.	Fl Iraq 3. (1974)
460	Papilionaceae	<i>Lens orientalis</i> (Boiss.) Handl.-Mazz.	Fl Iraq 3. (1974)
461	Papilionaceae	<i>Medicago constricta</i> Dur.	Fl Iraq 3. (1974)
462	Papilionaceae	<i>Medicago coronata</i> (L.) Bartal.	Fl Iraq 3. (1974)
463	Papilionaceae	<i>Medicago</i> L.	
464	Papilionaceae	<i>Medicago laciniata</i> (L.) Mill.	Fl Iraq 3. (1974)
465	Papilionaceae	<i>Medicago orbicularis</i> (L.) Bartal.	Fl Iraq 3. (1974)
466	Papilionaceae	<i>Medicago rigidula</i> (L.) All.	Fl Iraq 3. (1974)
467	Papilionaceae	<i>Melilotus indica</i> (L.) All.	Fl Iraq 3. (1974)
468	Papilionaceae	<i>Onobrychis</i> Mill.	
469	Papilionaceae	<i>Parentucella latifolia</i> (L.) Caruel	Fl Iranica 147. (1981)
470	Papilionaceae	<i>Pisum formosum</i> (Steud.) Alef.	Fl Iraq 3. (1974)
471	Papilionaceae	<i>Pisum</i> sp.	
472	Papilionaceae	<i>Prosopis juliflora</i> (Sw.) DC	Fl Iraq 3. (1974)
473	Papilionaceae	<i>Scorpiurus</i> L.	
474	Papilionaceae	<i>Scorpiurus muricatus</i> var. <i>subvillosus</i> (L.) Lam.	Fl Iraq 3. (1974)
475	Papilionaceae	<i>Suaeda fruticosa</i> .	
476	Papilionaceae	<i>Trifolium campestre</i> Schreb. In Sturm	Fl Iraq 3. (1974)
477	Papilionaceae	<i>Trifolium dasyurum</i> Presl.	Fl Iraq 3. (1974)
478	Papilionaceae	<i>Trifolium pauciflorum</i> .	
479	Papilionaceae	<i>Trifolium purpureum</i> Lois.	Fl Iraq 3. (1974)
480	Papilionaceae	<i>Trifolium repens</i> L.	Fl Iraq 3. (1974)
481	Papilionaceae	<i>Trifolium spumosum</i> L.	Fl Iraq 3. (1974)
482	Papilionaceae	<i>Trifolium stellatum</i> L.	Fl Iraq 3. (1974)
483	Papilionaceae	<i>Trifolium tomentosum</i> L.	Fl Iraq 3. (1974)
484	Papilionaceae	<i>Trigonella</i> L.	
485	Papilionaceae	<i>Trigonella spruneriana</i> Boiss.	Fl Iraq 3. (1974)
486	Papilionaceae	<i>Vicia hyaeniscyamus</i> .	
487	Papilionaceae	<i>Vicia sativa</i> L.	Fl Iraq 3. (1974)
488	Papilionaceae	<i>Vicia</i> sp.	
489	Papilionaceae	<i>Vicia tenuifolia</i> Roth.	Fl Iraq 3. (1974)
490	Papilionaceae	<i>Vicia villosa</i> Roth.	Fl Iraq 3. (1974)
491	Papilionaceae	<i>Phoenx dactylifera</i> L.	
492	Parnassiaceae	<i>Paronychia kurdica</i> Boiss.	Fl Iranica 144. (1980); Zohary Fl Iraq. (1950)
493	Pedaliaceae	<i>Pedicularis caucasica</i> M.B.	Fl Iranica 147. (1981)
494	Periplocaceae	<i>Phagnalon rupestre</i> (L.) DC.	Fl Iranica 145. (1980)
495	Pinaceae	<i>Pinus halepensis</i> Mill.	Fl Iraq 2. (1966)
496	Pinaceae	<i>Pinus halepensis</i> Mill. var. <i>prutia</i> .	
497	Pittosporaceae	<i>Plantago</i> L.	
498	Plantaginaceae	<i>Plantago lanceolata</i> L.	Fl Iranica 15. (1965)
499	Plantaginaceae	<i>Platanus orientalis</i> L.	Fl Iraq 4, 1. (1980)
500	Plantaginaceae	<i>Senecio glaucus</i> L.	Fl Iranica 15. (1965)
501	Platanaceae	<i>Acantholimon</i> sp.	Fl Iranica 108. (1974)
502	Plumbaginaceae	<i>Acantholimon astragalinum</i> Mobayen	Fl Iranica 108. (1974)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
503	Polygalaceae	<i>Dendrostellera lessertii</i> (Wilkstr.) van Tiegh.	
504	Polygalaceae	<i>Malcolmia grandiflora</i> . Cruciferae	
505	Polygalaceae	<i>Polygonaceae</i> Juss.	
506	Polygonaceae	<i>Cyperus</i> L.	Fl Iranica 56. (1968)
507	Polygonaceae	<i>Polygonum</i> sp.	
508	Polygonaceae	<i>Rheum ribes</i> L.	Fl Iranica 56. (1968)
509	Polygonaceae	<i>Rumex crispus</i> L.	Fl Iranica 56. (1968)
510	Polygonaceae	<i>Rumex ribes</i> .	
511	Polygonaceae	<i>Rumex</i> sp.	
512	Polygonaceae	<i>Tamarix aphylla</i> (L.) Karsten	Fl Iranica 56. (1968)
513	Polygonidaceae	<i>Rumex chalepensis</i> .	
514	Potamogetonaceae	<i>Anagallis arvensis</i> L.	Fl Iranica 9. (1965)
515	Potamogetonaceae	<i>Centaurea ammocyanus</i> Boiss.	Fl Iraq 8. (1985)
516	Potamogetonaceae	<i>Ceratophyllum demersum</i> L.	Fl Iraq 8. (1985)
517	Potamogetonaceae	<i>Citrullus colocynthis</i> (L.) Schrad.	Fl Iraq 8. (1985)
518	Potamogetonaceae	<i>Cressa cretica</i> L.	Fl Iraq 8. (1985)
519	Potamogetonaceae	<i>Hydrilla verticillata</i>	Fl Iraq 8. (1985)
520	Potamogetonaceae	<i>Lemna gibba</i> L.	Fl Iraq 8. (1985)
521	Potamogetonaceae	<i>Melilotus indicus</i> .	Fl Iraq 8. (1985)
522	Potamogetonaceae	<i>Mesembryanthemum nodiflorum</i> L.	Fl Iraq 8. (1985)
523	Potamogetonaceae	<i>Myriophyllum verticillatum</i>	Fl Iraq 8. (1985)
524	Potamogetonaceae	<i>Potamogeton pectinatus</i> L.	Fl Iraq 8. (1985)
525	Potamogetonaceae	<i>Salvinia natans</i> (L.) All.	Fl Iraq 8. (1985)
526	Potamogetonaceae	<i>Suaeda</i> sp.	Fl Iraq 8. (1985)
527	Potamogetonaceae	<i>Torularia torulosa</i> (Desf.) O. E. Schulz.	Fl Iraq 8. (1985)
528	Primulaceae	<i>Dionysia odora</i> Fenzl	Fl Iranica 9. (1965)
529	Rafflesiaceae	<i>Ranunculaceae</i>	
530	Ranunculaceae	<i>Adonis annua</i> L.	Fl Iraq 4, 2. (1980)
531	Ranunculaceae	<i>Adonis microcarpa</i> DC.	Fl Iraq 4, 2. (1980)
532	Ranunculaceae	<i>Anenome coronaria</i> L.	Fl Iraq 4, 2. (1980)
533	Ranunculaceae	<i>Anenome</i> L.	
534	Ranunculaceae	<i>Cyperus rotundus</i> L.	
535	Ranunculaceae	<i>Ranunculus arvensis</i> L.	Fl Iraq 4, 2. (1980)
536	Ranunculaceae	<i>Ranunculus aucheri</i> Boiss.	Fl Iraq 4, 2. (1980)
537	Ranunculaceae	<i>Ranunculus</i> sp.	
538	Ranunculaceae	<i>Thalictrum sultanabadense</i> Stapf	Fl Iraq 4, 2. (1980)
539	Rhamnaceae	<i>Paliurus spina-christi</i> Mill.	Fl Iraq 4, 1. (1980)
540	Rhamnaceae	<i>Zizyphus jujuba</i> Mill.	Fl Iraq 4, 1. (1980)
541	Rosaceae	<i>Asperula</i> L.	
542	Rosaceae	<i>Crataegus azorolus</i> L.	Fl Iraq 2. (1966)
543	Rosaceae	<i>Crataegus</i> L.	
544	Rosaceae	<i>Geum urbanum</i> L.	Fl Iraq 2. (1966)
545	Rosaceae	<i>Prunus amygdalus</i> Batsch.	Fl Iraq 2. (1966)
546	Rosaceae	<i>Prunus arabica</i> (Oliv.) Meickle	Fl Iraq 2. (1966)
547	Rosaceae	<i>Prunus kotschy</i> (Boiss. & Hohen.) Meickle	Fl Iraq 2. (1966)
548	Rosaceae	<i>Prunus microcarpa</i>	
549	Rosaceae	<i>Prunus microcarpa</i> C.A.Mey.	Fl Iraq 2. (1966)
550	Rosaceae	<i>Prunus orientalis</i>	
551	Rosaceae	<i>Prunus</i> sp.	
552	Rosaceae	<i>Pyrus</i> sp.	
553	Rosaceae	<i>Pyrus syriaca</i> Boiss.	Fl Iraq 2. (1966)
554	Rosaceae	<i>Rosa canina</i> L.	Fl Iraq 2. (1966)
555	Rosaceae	<i>Rosa canina</i> L. var. <i>canina</i>	Fl Iraq 2. (1966)
556	Rubiaceae	<i>Rubiaceae</i> Ehbendorfer & Schoenbeck-Temesy	
557	Rosaceae	<i>Rubus sanctus</i> Schreb.	Fl Iraq 2. (1966)
558	Rosaceae	<i>Sanguisorba minor</i>	

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
559	Rosaceae	<i>Zilla spinosa</i> (Turra) Prantl	Fl Iraq 2. (1966)
560	Rubiaceae	<i>Aethionema</i> R.Br.	
561	Rubiaceae	<i>Asperula arvensis</i> L.	Fl Iraq 4, 1. (1980)
562	Rubiaceae	<i>Callipeltis cucullaris</i> (L.) Rothm.	Fl Iraq 4, 1. (1980)
563	Rubiaceae	<i>Cruciata</i> Mill.	
564	Rubiaceae	<i>Cruciata taurica</i> (Pall. Ex Willd.) Ebrend.	Fl Iraq 4, 1. (1980)
565	Rubiaceae	<i>Galium</i> L.	
566	Rubiaceae	<i>Galium pestalozzae</i> .	
567	Rubiaceae	<i>Galium setaceum</i> Lam.	Fl Iraq 4, 1. (1980)
568	Rubiaceae	<i>Galium</i> sp	
569	Rubiaceae	<i>Galium verum</i> L.	Fl Iraq 4, 1. (1980)
570	Rutaceae	<i>Populus alba</i> L.	Fl Iraq 4, 1. (1980)
571	Rutaceae	<i>Suaeda maritima</i> .	Fl Iraq 4, 1. (1980)
572	Salicaceae	<i>Populus euphratica</i> Olin.	Fl Iraq 4, 1. (1980)
573	Salicaceae	<i>Salix acmophylla</i> Boiss.	Fl Iraq 4, 1. (1980)
574	Salicaceae	<i>Salix babylonica</i> L.	Fl Iraq 4, 1. (1980)
575	Salicaceae	<i>Sclerocephalus arabicus</i> . Caryophyllaceae	Fl Iraq 4, 1. (1980)
576	Salixaceae	<i>Alkanna hirsutissima</i> (Bertol.) A. DC..	
577	Salviniaceae	<i>Juncus acutus</i> L.	Fl Iraq 2. (1966)
578	Salviniaceae	<i>Phyla canescens</i> (Kunth.) Greene	Fl Iraq 2. (1966)
579	Scrophulariaceae	<i>Cardus</i> sp	
580	Scrophulariaceae	<i>Pedicularis</i> L.	
581	Scrophulariaceae	<i>Salsola</i> L.	Fl Iranica 147. (1981); Zohary Fl Iraq. (1950)
582	Scrophulariaceae	<i>Scrophularia deserti</i> Del.	Fl Iranica 147. (1981); Zohary Fl Iraq. (1950)
583	Scrophulariaceae	<i>Scrophularia</i> L.	
584	Scrophulariaceae	Scrophulariaceae Juss.	
585	Scrophulariaceae	<i>Verbascum</i> L.	
586	Scrophulariaceae	<i>Verbascum macrocarpum</i> Boiss.	Zohary Fl Iraq. (1950)
587	Scrophulariaceae	<i>Verbascum</i> sp	
588	Scrophulariaceae	<i>Veronica anagalis-aquatica</i> L.	Fl Iranica 147. (1981)
589	Scrophulariaceae	<i>Veronica persica</i> Poir.	Fl Iranica 147. (1981)
590	Scrophulariaceae	<i>Veronica</i> sp.	
591	Solanaceae	<i>Hyoscyamus reticulatus</i> L.	Fl Iranica 100. (1972)
592	Tamaricaceae	<i>Convolvulus cephalopodus</i> Convolvulaceae	Fl Iraq 4, 1. (1980)
593	Tamaricaceae	<i>Haloxyton salicornicum</i> .	
594	Tamaricaceae	<i>Helianthemum kabircum</i> Del.	Fl Iraq 4, 1. (1980)
595	Tamaricaceae	<i>Nitraria retusa</i> (Forrsk.) Aschers.	
596	Tamaricaceae	<i>Seidlitzia rosmarinus</i> Ebrend. Ex Boiss.	Fl Iraq 4, 1. (1980)
597	Tamaricaceae	<i>Tamarix aucherana</i> (Decne ex Walp.) Baum	Fl Iraq 4, 1. (1980)
598	Tamaricaceae	<i>Tamarix brachystachys</i> Bunge	Fl Iraq 4, 1. (1980)
599	Tamaricaceae	<i>Tamarix</i> sp.	
600	Tamaricaceae	<i>Zizphus nummularia</i> (Brum.f.) Wight & Arn.	
601	Typhaceae	<i>Cynachum acutum</i> L.	Fl Iraq 8. (1985)
602	Typhaceae	<i>Potamogeton crispus</i> L.	Fl Iraq 8. (1985)
603	Typhaceae	Tamaricaceae	Fl Iraq 8. (1985)
604	Typhaceae	<i>Typha domingensis</i> Pers.	Fl Iraq 8. (1985)
605	Ulmaceae	Umbelliferae A.L. De Jussieu	
606	Umbellifera	<i>Torilis</i> sp.	
607	Umbelliferae	<i>Ammi majus</i> L.	Fl. Iranica 162. (1987)
608	Umbelliferae	<i>Artedia squamata</i> L.	Fl. Iranica 162. (1987)
609	Umbelliferae	<i>Daucus</i> L.	
610	Umbelliferae	<i>Eryngium creticum</i> Lam.	Fl. Iranica 162. (1987)
611	Umbelliferae	<i>Eryngium</i> L.	
612	Umbelliferae	<i>Ferula</i> L.	
613	Umbelliferae	<i>Ferulago angulata</i> (Schlect.) Boiss.	Fl. Iranica 162. (1987)

Nature Iraq & Iraqi Ministry of Environment Report

#	Family	Scientific Name	Citations
614	Umbelliferae	<i>Ferulago angulata</i> (Schlect.) Boiss. subsp. <i>angulata</i>	Fl. Iranica 162. (1987)
615	Umbelliferae	<i>Lagoecia cuminoides</i> L.	Fl. Iranica 162. (1987)
616	Umbelliferae	<i>Malabaila secacul</i> (Miller) Boiss. subsp. <i>secacul</i>	Fl. Iranica 162. (1987)
617	Umbelliferae	<i>Parietaria</i> L.	
618	Umbelliferae	<i>Prangos ferulacea</i> (L.) Lindl.	Fl. Iranica 162. (1987)
619	Umbelliferae	<i>Scandix</i> L.	
620	Umbelliferae	<i>Scandix pecten-veneris</i> L.	Fl. Iranica 162. (1987)
621	Umbelliferae	<i>Smyrniium cordifolium</i> Boiss.	Fl. Iranica 162. (1987)
622	Umbelliferae	<i>Torilis leptocarpa</i> (Hochst.) Townsend	Fl. Iranica 162. (1987)
623	Umbelliferae	<i>Torilis leptophylla</i> (L.) Reichenbach	Fl. Iranica 162. (1987)
624	Umbelliferae	<i>Torilis nodosa</i> (L.)	Fl. Iranica 162. (1987)
625	Umbelliferae	<i>Turgenia latifolia</i> (L.) Hoffm.	Fl. Iranica 162. (1987)
626	Umbelliferae	<i>Prangos acaulis</i>	
627	Urticaceae	<i>Urtica pilulifera</i> L.	Fl Iraq 4, 1. (1980)
628	Urticaceae	<i>Urtica urens</i> L.	Fl Iraq 4, 1. (1980)
629	Valerianaceae	<i>Valeriana discoridis</i> .	
630	Valerianaceae	<i>Valerianella</i> sp	
631	Valerianaceae	<i>Valerianella vesicaria</i> (L.) Moench	Fl Iranica 62. (1969)
632	Verbenaceae	<i>Cornulaca aucheri</i> Moq.	Fl Iraq 4, 2. (1980)
633	Verbenaceae	<i>Phyla nodiflora</i> (L.) Greene	Fl Iraq 4, 2. (1980)
634	Verbenaceae	<i>Vitex</i> L.	
635	Verbenaceae	<i>Vitex pseudo-negunda</i> (Hauussnk. Ex Bornm.) Hand.-Mazz.	Fl Iraq 4, 2. (1980)
636	Verbenaceae	<i>Zygophyllum fabago</i> L.	Fl Iraq 4, 2. (1980)
637	Violaceae	<i>Viola modesta</i> Fenzl	Fl Iraq 4, 1. (1980)
638	Vitaceae	<i>Vitis</i> sp.	
639	Vitaceae	<i>Vitis vinifera</i> L.	Fl Iraq 4, 1. (1980)
640	Zannichelliaceae	<i>Chenopodium murale</i> L.	Fl Iraq 4, 1. (1980)
641	Zannichelliaceae	<i>Salicornia herbacea</i> Chenopodiaceae	Fl Iraq 4, 1. (1980)
642	Zygophyllaceae	<i>Carthamus</i> L.	Fl Iraq 4, 1. (1980)
643	Zygophyllaceae	<i>Fagonia indica</i>	
644	Zygophyllaceae	<i>Rumex vesicarius</i> L.	Fl Iraq 4, 1. (1980)

Annex C: Mammals & other fauna

List of mammals and other fauna seen during 2010 KBA in Iraqi Kurdistan:

Order	Common Name	Latin Name	Conservation Status
Rodentia	Persian squirrel	<i>Sciurus anomalus</i>	LC
Artiodactyla	Wild goats	<i>Capra aegagrus</i>	VU
Testudines	Spur-thighed tortoise	<i>Testudo graeca</i>	VU
Squamata	European green lizard	<i>Lacerta viridis</i>	LC
Squamata	Yellow-headed (rock) agama	<i>Laudakia nupta</i>	LC
Squamata	Horn-scaled agama	<i>Trapelus ruderatus</i>	
Squamata	European legless lizard	<i>Ophisaurus apodus</i>	
Squamata	Dwarf racer snake	<i>Eirenis</i> sp.	
Squamata	Lined dwarf racer	<i>Eirenis decemlineata</i>	
Squamata	Blunt-nosed viper	<i>Macrovipera lebetina</i>	CITES Appendix II
Squamata	Coin-marked snake	<i>Hemorrhois nummifer</i>	
Squamata	Schneider's skink	<i>Eumeces schneideri</i>	
Caudata	Urmia newt	<i>Neuregus crocatus</i>	VU
Anura	Lemon-yellow tree frog	<i>Hyla savignyi</i>	LC
Lepidoptera	Dingy skipper	<i>Erynnis tages</i>	
Lepidoptera	Green-striped white	<i>Euchloe belemia</i>	
Lepidoptera	Southern grayling	<i>Hipparchia aristaens</i>	LC
Lepidoptera	Eastern rock grayling	<i>Hipparchia syriaca</i>	
Lepidoptera	White-edged rock brown	<i>Hipparchia parisatis</i>	
Lepidoptera	Oriental meadow brown	<i>Hyponphebe lupina</i>	
Lepidoptera	Sardinian small tortoiseshell	<i>Aglais urticae</i>	LC
Lepidoptera	Silver-washed fritillary	<i>Argynnis paphia</i>	
Lepidoptera	Mountain small white	<i>Artogeia ergane</i>	
Lepidoptera	Danube clouded yellow	<i>Colias myrmidone</i>	
Lepidoptera	Painted lady (cosmopolitan)	<i>Vanessa cardui</i>	
Lepidoptera	Eastern festoon	<i>Zerynthia (Allancastris) cerisyi</i>	
Lepidoptera	Purple hairstreak	<i>Quercusia quercus</i>	
Lepidoptera	Zephyr blue	<i>Plebejus pylaon</i>	
Lepidoptera	Southern grizzled skipper	<i>Pyrgus malvae</i>	LC
Lepidoptera	Northern wall brown	<i>Lassiomata petropolitana</i>	
Lepidoptera	Southern white admiral	<i>Limenitis reducta</i>	
Lepidoptera	Glanville fritillary	<i>Melitaea cinxia</i>	
Lepidoptera	Old world swallowtail	<i>Papilio machaon</i>	
Lepidoptera	Lattice brown	<i>Kirinia roxelana</i>	
Scorpiones	Central Asian scorpion	<i>Orthochirus scrobiculosus</i>	

List of mammals and other fauna seen in local animal zoos in Iraq in 2010

Sulaimani Governorate:

Order	Common Name	Latin Name	Conservation Status
Carnivora	Domestic cat	<i>Felis catus</i>	
Carnivora	African lion	<i>Panthera leo</i>	VU
Carnivora	Red fox	<i>Vulpes vulpes</i>	LC
Carnivora	Gray wolf	<i>Canis lupus</i>	LC
Artiodactyla	Goitered gazelle (jaziry ghazal)	<i>Gazella subgutturosa</i>	VU
Artiodactyla	Domestic goat	<i>Capra aegagrus bircus</i>	
Carnivora	Brown bear	<i>Ursus arctose</i>	LC

Nature Iraq & Iraqi Ministry of Environment Report

Order	Common Name	Latin Name	Conservation Status
Primates	Indian & African monkey	Unknown	
Crocodylia	Crocodile	<i>Crocodylus</i> sp.	

Erbil Governorate:

Order	Common Name	Latin Name	Conservation Status
Artiodactyla	Goitered gazelle (jaziry ghazal)	<i>Gazella subgutturosa</i>	VU
Artiodactyla	Domestic goat	<i>Capra aegagrus hircus</i>	
Carnivora	Domestic dog	<i>Canis lupus familiaris</i>	
Carnivora	Red fox	<i>Vulpes vulpes</i>	LC
Carnivora	Gray wolf	<i>Canis lupus</i>	LC
Carnivora	Jungle cat	<i>Felis chaus</i>	LC
Carnivora	African lion	<i>Panthera leo</i>	VU
Carnivora	Brown bear	<i>Ursus arctose</i>	LC
Artiodactyla	Dormedary camel	<i>Camelus dromedarius</i>	
Primates	Indian and African monkeys	Unknown	
Crocodylia	Crocodile	<i>Crocodylus</i> sp.	

Dohuk Governorate:

Order	Common Name	Latin Name	Conservation Status
Rodentia	Persian squirrel	<i>Sciurus anomalus</i>	LC
Artiodactyla	Goitered gazelle (jaziry ghazal)	<i>Gazella subgutturosa</i>	VU
Carnivora	Striped Hyena	<i>Hyaena hyaena</i>	NT
Carnivora	African lion	<i>Panthera leo</i>	VU
Carnivora	Brown bear	<i>Ursus arctose</i>	LC
Carnivora	Gray wolf	<i>Canis lupus</i>	LC
Carnivora	Domestic dog	<i>Canis lupus familiaris</i>	
Erinaceomorpha	Indian crested porcupine	<i>Hystrix indica</i>	LC
Lagomorpha	Domestic rabbit	<i>Oryctolagus cuniculus</i>	
Primates	Indian and African monkeys	Unknown	
Crocodylia	Crocodile	<i>Crocodylus</i> sp.	
	Python snake	Unknown	

List of mammals and other fauna seen in local animal markets in 2010

Sulaimani Governorate:

Order	Common Name	Latin Name	Conservation Status
Lagomorpha	Domestic rabbit	<i>Oryctolagus cuniculus</i>	
Carnivora	Fox cub	<i>Vulpes vulpes</i>	LC
Erinaceomorpha	Eastern European hedgehog	<i>Erinaceus concolor</i>	LC
Rodentia	Persian squirrel	<i>Sciurus anomalus</i>	LC

Erbil Governorate:

Order	Common Name	Latin Name	Conservation Status
Primates	Monkey	Unknown	
Rodentia	Persian squirrel	<i>Sciurus anomalus</i>	LC

Annex D: Images from the survey work

Some key bird species seen in the surveys of 2010



African Darter *Anhinga rufa* in Hawizeh (HZ)



Eastern Imperial Eagle *Aquila heliaca* in Hammar (HA)



Mesopotamian Crow *Corvus capellanus* in the Central Marshes (CM)



Dalmatian Pelicans *Pelecanus crispus* in Fao (SA)



White Pelicans *Pelecanus onocrotalus* in Hammar (HA)



African Sacred Ibis *Threskiornis aethiopicus* in Hammar (HA)



Desert Finch *Rhodospiza obsoletus* in Teeb Oasis (MN1)



Dead Sea Sparrows *Passer moabiticus* in Zichri (CM5)



Cream-colored Coarser *Cursorius cursor* in Dalmaj (ME10,11,12)



Steppe Buzzard *Buteo buteo*



Montagu's Harrier *Circus*



Peregrine Falcon *Falco*

Nature Iraq & Iraqi Ministry of Environment Report

vulpinus - at Qadissiya or Haditha Dam (AN7)



pygargus - at Tharthar Lake & Dhebaeji Field (SD2)



peregrines brooki – carried by Omar Fadhil, breeding race in Iraq



Eurasian Hoopoe *Upupa epops* - at Tharthar Lake, Western Edge (AN9)



Greater Hoopoe-Lark *Alaemon alaudipes* - at Tharthar Lake, Western Edge (AN9)



Little Bittern *Ixobrychus minutus* - an adult male carrying a Barbus sp. at Anah & Rawa (AN3)



Desert Wheatear *Oenanthe deserti* at Tharthar Lake & Dhebaeji Field (SD2)



Tawny Pipit *Anthus campestris* adult photographed at Haditha Wetlands & Baghdad (AN2)



Trumpeter Finch *Bucanetes githagineus* pair were observed in the foothills near Himreen Lake (near DY1)



Red-throated Pipit *Anthus cervinus* – group of migrants observed at Jallet Abu Ageel (SD5)



Red-backed Shrike *Lanius collurio* – adult male observed at Mahzam (AN3)



Woodchat Shrike *Lanius senator* – an adult male observed at Mahzam (AN3)





Corncrake *Crex crex* - a migrant adult bird photographed at Tharthar Lake, Western Edge (AN9)



European Roller *Coracias garrulous* – Breeding Adult at Jallet Albu Ageel (SD5)



Egyptian Vulture *Neophron percnopterus* – pair was observed at Huweija Marshes & Beagi (KK1)



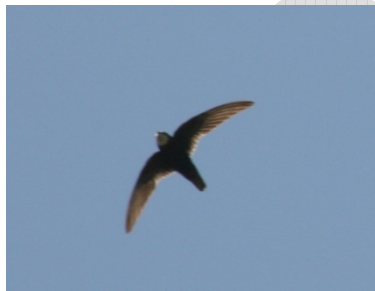
Lesser Kestrel *Falco naumanni* – A resting adult male at Hawijat Albu Dheab and Al Ramadi Marshes (AN8)



Eastern Imperial Eagle *Aquila heliaca* – Juvenile migrant at Tharthar Lake, Western Edge (AN9)



Kurdistan Wheatear *Oenanthe xanthopyrmyna* – at foothills near Himreen lake (DY1)



Apus affinis - at Dukan (S2)



Buteo b. vulpinus – at Hazarmerd (S34)



Chroicocephalus ridibundus – at Dukan (S2)



Sitta tephronota – at Chami Razan (S10)



Falco naumanni – at Homer Qawm and Shadala Valley (S24)

A variety of vertebrates species have been observed during winter and summer surveys in Iraq 2010



Spur-thighed tortoise *Testudo graeca* - at Haji Omran Mountain (E1)



Rüppell's Fox *Vulpes rueppelli* - from Wadi Al-W'eir (NJ1)



Mudskippers *Periophthalmus* sp - in Khor Az Zubayr (KZ5), South KBA



Female wild boar *Sus scrofa* and piglets - in the Central marshes (CM sites)



Spiny-tailed Lizard *Uromastix aegyptius* – carried by Omar Fadhil at Tharthar Lake, Western Edge



Nupta Agama *Agama nupta* – During courtship near the burrow – Jallet Albu Ageel (SD5)

(AN9)



Indian Grey Mongoose *Herpestes edwardsii* –at Jadriyah and Umm Al Khanazeer Island (BG1)



Long-eared Hedgehog *Hemiechinus auritus* – A fresh specimen was collected in Jadriyah and Umm Al Khanazeer Island (BG1)



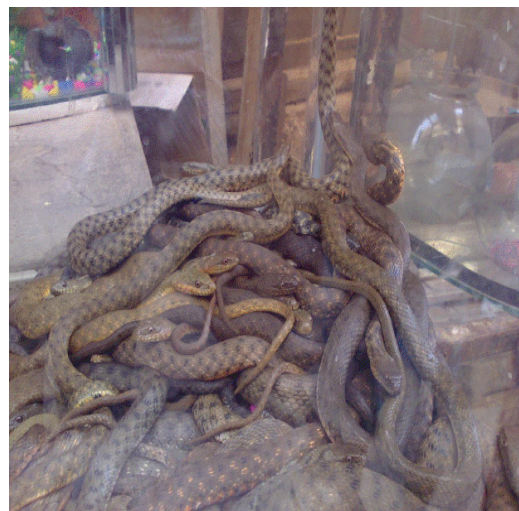
Golden Jackal *Canis aureus* – Photographed near the Tigris bank at Abu Dalaf & Shari Depression (SD4)



Goitered Gazelle *Gazella subgutturosa* – At Al-Massad Reserve, Rutba (AN12)



Persian squirrel *Sciurus anomalus* - in Erbil Animal



Tessellated Water Snake *Natrix t. tessellate* - total

Nature Iraq & Iraqi Ministry of Environment Report

Market

count of 400 individuals. Al-Gazel local market in Baghdad collected the animals mainly from the wetlands of Kut governorate.



Papilio machaon – Hazarmerd (S34)



Neurergus crocatus – Doli Smaquly (D5A)



Trapelus ruderatus - at Peramagroon (S6)



Macrovipera lebetina - at Parazan (S26)



Laudakia nupta - at Peramagroon (S6)

Common and Important Plant Species seen in the KBA 2010 Surveys in southern and Northern Iraq



Astragalus spinosus at South Suwibaat (TQ1)



Convolvulus cephalopodus at Lehais (BR4)



Peganum harmala, at Teeb oasis (MN1)



Rhazya stricta at Wadi Al W'eir (NJ1)



Nymphoides indica at Abu Zirib (CM16)



Salix babylonica, a rare plant found at Dukan (S2)



Quercus macranthera, a rare plant found at Assos Mt, South face (S32B)



Quercus infectoria at Ser Amadia (D2A)



Tulipa kurdica at Sakran Mt (E14)



Iris germanica, rare, Awesar (S4B)



Iris barnumae, rare and endemic to the region at Hagi Omran (E1)



Fritillaria imperialis at Sakran Mt-Choman Reserve (E14)



Himantoglossum hircinum subsp. *Hircinum* at Ser Amadia (D2A)



Hesperis kurdica, regional endemic, Assos Mt. South face (S32B)



Anacamptis pyramidalis, very rare in Iraq, Ser Amadia (D2A)



Himantoglossum hircinum subsp. *affine*, regional endemic, Ser Amadia (D2A)



Cephalanthera kurdica, regional endemic, at Awesar (S4B)



Ajuga tridactylites, rare, at Ser Amadia (D2A)



Hesperis straussii, rare, Assos Mt. South face (S32B)



Dionysia odora, rare, regional endemic, Peramagroon, (S6)



Cicer bijugum, very rare in Iraq,
Mosul Lake (D10)



Michauxia nuda, rare, Doli
Smaquly (E5A)



Gladiolus atroviolaceae, rare near
the upper margin of the sub
alpine and moist steppe zone, but
occasional in the forest zone,
Homer Qawm and Shadala Valley
(S24)

DRAFT

Nature Iraq & Iraqi Ministry of Environment Report

Annex E: The 2010 KBA sites with their ecoregion, area, the KBA, IBA & IPA Criteria that they may meet and their percentage area of their respective ecoregion, as well as EVP prioritization

(note: shaded criteria information indicates specific criteria that were not assessed)

Governate	Site Name	Site Code	Area (ha)	KBA (non-bird)					IBA							IPA			% of Ecoregion	0.2 KBA (non-bird)	0.2 IBA	0.1 IBA Potential	0.2 HVR	0.15 PA	0.05 TEC	0.1 HT	1 EVP	1 EVP Avg.		
				V	Ia	Ib	Ic	Id	Ie	A1	A2	A3	A4i	A4 ii	A4 iii	A4 iv	A	B											C	
Zagros Mountains Forest Steppe (PA0446)																														
Dohuk	Dure	D16	2732															*	*	0.09%			0.1	0.2					0.3	0.3
Dohuk	Chamanke	D18	166															*	*	0.01%			0.1	0.2					0.3	0.3
Dohuk	Ser Amadia	D2A	2582							*								*	*	0.08%		0.2		0.2					0.4	0.4
Dohuk	Garagu	D5	107															*	*	0.004%			0.1	0.2					0.3	0.3
Erbil	Haji Omran Mountain	E1	3310															*	*	0.11%			0.1	0.2		0.1			0.4	0.4
Erbil	Bahraka	E11	3000																*	0.10%									0	0
Erbil	Sakran Mt-Choman Reserve	E14	5740															*	*	0.19%	0.2		0.1	0.2		0.1			0.6	0.6
Erbil	Bradost Mountain	E18	1246	*						*		*						*	*	0.04%	0.2	0.2		0.2					0.6	0.6
Erbil	Doli (Valley) Smaquly	E5A	7027							*		*						*	*	0.23%		0.2		0.2					0.4	0.4
Erbil	Barzan	E8	4708	*								*						*	*	0.15%	0.2		0.1	0.2	0.15				0.65	0.65
Sulaimani	Darbandikhan Lake and Surrounded Area	S1	43861	*								*								1.44%	0.2		0.1						0.3	0.3
Sulaimani	Chami Razan	S10	4906							*		*						*	*	0.16%		0.2		0.2					0.4	0.4
Sulaimani	Qara Dagħ	S11	31105	*						*		*						*	*	1.02%	0.2	0.2		0.2					0.6	0.6
Sulaimani	Dukan Lake and Surrounding Area	S2	47281							*		*	*					*	*	1.55%		0.2		0.2					0.4	0.4
Sulaimani	Maidan Area	S22	57448									*								1.89%			0.1						0.1	0.1
Sulaimani	De Lezha	S23	8110							*		*						*	*	0.27%		0.2		0.2					0.4	0.4
Sulaimani	Homer Qawm and Shadala Valley (w Peramagroon Mt)	S24	10028	*						*		*						*	*	0.33%	0.2	0.2		0.2					0.6	0.6
Sulaimani	Parazan	S26	2287	*						*		*						*	*	0.08%	0.2	0.2		0.2					0.6	0.6
Sulaimani	Qadr Karam	S30	?									*											0.1						0.1	0.1

Nature Iraq & Iraqi Ministry of Environment Report

Governate	Site Name	Site Code	Area (ha)	KBA (non-bird)					IBA							IPA			% of Ecoregion	KBA (non-bird)	IBA	IBA Potential	HVR	PA	TEC	HT	EVP	EVP Avg.			
				V	Ia	Ib	Ic	Id	Ie	A1	A2	A3	A4i	A4 ii	A4 iii	A4 iv	A	B											C		
Sulaimani	Assos Mountain	S32A & B	12010	*								*						*	*	0.39%	0.2		0.1	0.2				0.5	0.5		
Sulaimani	Gmo Mountain	S33	667									*						*	*	0.02%			0.1	0.2				0.3	0.3		
Sulaimani	Hazarmerd	S34	608								*	*						*	*	0.02%	0.2						0.2	0.2			
Sulaimani	Ahmed Awa	S4A	646								*	*						*	*	0.02%	0.2				0.1	0.1	0.4	0.4			
Sulaimani	Awesar	S4B	84									*						*	*	0.00%			0.1	0.2	0.1		0.4	0.4			
Sulaimani	Peramagroon (w Homer Qawm & Shadala Valley)	S6	10028	*							*	*						*	*	0.33%	0.2	0.2		0.2			0.6	0.6			
Sulaimani	Sargalu	S7	3028								*	*						*	*	0.10%	0.2						0.2	0.2			
Middle East Steppe (PA0812)																															
Dohuk	Mosul lake	D10	48128								*	*						*	*	1.27%		0.2		0.2		0.1		0.5	0.5		
Erbil	AltunKopri	E3	1575								*	*	*					*	*	0.04%		0.2						0.2	0.2		
Tigris-Euphrates alluvial salt marsh (PA0906)																															
Basrah	Kteibaan	BR2	2978																	0.10%				-		0.05		0.05	0.05		
Basrah & Thi Qar	Baghdadiya, South (part of Central marshes)	CM1	131780	*							*	*	*	*	*			*	*	4.37%	0.2	0.2			0.15			0.55	0.475		
	Fuhood, North (part of Central marshes)	CM10											*												0.1	-	0.15				0.25
	Abu Zirig (part of Central marshes)	CM16		*								*	*	*					*		*		0.2	0.2		0.2	0.15				0.75
	Zichri (part of Central marshes)	CM5										*	*	*	*									0.2		-	0.15				0.35
ThiQar	Teena, Northern (part of West Hammar)	HA1	136326									*	*							4.52%		0.2					0.1	0.3	0.23		
ThiQar	Buhaira Al Hilwa (part of West Hammar)	HA3																	*									0			
ThiQar	Umm At-	HA4									*	*	*										0.2		-					0.2	

Nature Iraq & Iraqi Ministry of Environment Report

Governate	Site Name	Site Code	Area (ha)	KBA (non-bird)					IBA							IPA			% of Ecoregion	KBA (non-bird)	IBA	IBA Potential	HVR	PA	TEC	HT	EVP	EVP Avg.												
				V	Ia	Ib	Ic	Id	Ie	A1	A2	A3	A4i	A4 ii	A4 iii	A4 iv	A	B											C											
Wasit	Jazman (Zurbatia)	WT1	155095								*																				1.19%		0.2				0.05		0.25	0.25
Persian Gulf desert and semi-desert (PA1323)																																								
Basrah	Jabal Senam	BR1	2918																*	*											2.62%				0.2		0.05		0.25	0.25
South Iran Nubo-Sindian desert and semi-desert (PA1328)																																								
Basrah	Khor Az Zubayr Canal-100 meters east (part of Khor Az Zubayr)	KZ3	31854																												3.72%							0.1	0.1	0.15
	Khor Az Zubayr (part of Khor Az Zubayr)	KZ4																		*																	0.1	0.1		
	Khor Az Zubayr, west (part of Khor Az Zubayr)	KZ5																																				0.1	0.1	
	Umm Qasr Port (part of Khor Az Zubayr)	KZ6																		*	*															0.2		0.1	0.3	
Missan	Teeb oasis (with Zubaidaat - MN2)	MN1	28578								*	*	*																		3.34%		0.2				0.05		0.25	0.325
Missan	Zubaidaat (with Teeb oasis -MN1)	MN2										*							*	*														0.15	0.2		0.05		0.4	
Basrah	Ras Al-Beesha (Fao)	SA4	16909									*								*											1.98%			0.15		0.05		0.2	0.2	

Nature Iraq & Iraqi Ministry of Environment Report