Information Sheet on Ramsar Wetlands (RIS) – 2009-2014 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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1. Name and address of the compiler of this form:

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DD MM YY

Designation date | Site Reference Number

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2. Date this sheet was completed/updated:

22 February 2013

3. Country:
United Arab Emirates (UAE)

4. Name of the Ramsar site:
The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Al Wathba Wetland Reserve محمية الوتبة

5. Designation of new Ramsar site or update of existing site: New

This RIS is for (tick one box only)**:**
a) Designation of a new Ramsar site √; or
b) Updated information on an existing Ramsar site ❑

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: √

or
If the site boundary has changed:
i) the boundary has been delineated more accurately ❑; or
ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

If the site area has changed:
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:
i**) a hard copy** (required for inclusion of site in the Ramsar List): ❑;

ii**) an electronic format** (e.g. a JPEG or ArcView image) ❑ ;

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ❑.

b) Describe briefly the type of boundary delineation applied:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The boundaries of the proposed Ramsar Site are the same as the existing Al Wathba Wetland Reserve, a protected area, designated by the Government of Abu Dhabi, United Arab Emirates (UAE). The area falls under the jurisdiction of the Emirate of Abu Dhabi and the boundaries of the area are demarcated clearly through fencing all along. On the south the site is bordered by Abu Dhabi-Al Ain truck road, a dual carriage highway and from the north by the Mafraq Waste Water Treatment Plant. The eastern side of the site has housing colonies for labourers. At a distance of about 5 km to the south east there is a farm for camel fodder which is also irrigated with treated wastewater. The other residential settlement is East Bani Yas 5km northeast from the site. The nearest major settlement is Abu Dhabi City itself which is 40km northwest of the site.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

WGS 84 24 o15' 40.7" N 54o 35' 07.5"E

9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

Al Wathba Wetland Reserve is a complex of natural and man-made surface water bodies located approximately 40km southeast of Abu Dhabi Island. The reserve lies north of the Musaffah - Al Ain Truck Road and is approximately 3.5km long and 1.5km wide (Appendix 1). The site is in the Emirate of Abu Dhabi in the United Arab Emirates.

10. Elevation: (in metres: average and/or maximum & minimum)
The maximum elevation is about 18 m above m.s.l

11. Area: (in hectares)
The total area of the site is 500 hectares

12. General overview of the site:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Al Wathba Wetland Reserve is one of the first protected areas in the Emirate of Abu Dhabi and supports a rich array of wildlife and some of the typical wetland species. A largely man-made wetland, the Reserve lies at the edge of a dune system intergrading into a sabkha. In the north and northwest are dune of 10-15 meter high, at the northern most end of it is the Mafraq Waste Water Treatment Plan (MWWTP). On the south is a man-made berm on which runs the Al Ain Truck road while on the east side of the boundary of the Reserve is an extensive labour camp while there are small establishments on the north-western boundary of the Reserve. Till date nearly 37 species of plants have been reported with four vegetation communities i.e. *Zygophyllum* dominated community on sand dunes, Anabasis dominated community; *Phragmites* reed beds at the source of fresh water and *Tamarix* dominated community at the edge of the reeds. A vegetation map of the area exists (Appendix 2. There are nearly 301 species of invertebrates 11 mammals and 14 reptile species which are found in the Reserve and are an indicator of the richness of this small wetland habitat. However, birds make the most interesting component of the Reserve with more than 250 species recorded so far (Appendix 3), including the critically endangered Social Lapwing (*Vanellus gregarious*) and the vulnerable Eastern Imperial Eagle (*Aquila heliaca*) and Greater Spotted Eagle (*Aquila clanga*). Nearly nine species of birds seen at Al Wathba are of special importance as they are listed as regionally important species (>1% of the regional population). These include the Greater Flamingo,

the Kentish Plover (*Charadrius alexandrinus*) the Black-winged Stilt (*Himantopus himantopus*). The Black-winged Stilt population at the Reserve is equal to about 1% for the Middle East. Al Wathba also supports breeding Avocets (*Recurvirostra avosetta*) and Red-wattled Lapwing (*Vanellus indicus*). One of the main attractions of the Reserve is the Greater Flamingo (*Phoenicopterus roseus)* and the Reserve was declared as a protected area after the first successful breeding of Greater Flamingos there in 1998. One of the other key species of Al Wathba is Brine Shrimp (*Artemia* spp.) which is the main food source for the flamingo and water management in the Reserve is directed to support the abundance of *Artemia* according to the natural cycle of the species which also has implications on the flamingo numbers in the Reserve.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1	2	3	4	5	6	7	8	9
☐	☒	☐	☒	☐	☒	☐	☐	☐

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 2: A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.

Common Name	Scientific name	IUCN	CMS	CITES
Greater Spotted Eagle	*Aquila clanga*	VU	I & II	II
Eastern Imperial Eagle	*Aquila heliaca*	VU	I & II	I & II
Houbara Bustard	*Chlamydotis undulate*	VU	I	I
Sociable Lapwing	*Vanellus gregarius*	CR	I & II	

VU- Vulnerable, CR - Critical

Criterion 4: A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.

Al Wathba Wetland Reserve has relatively rich diversity of habitat within a small area and supports important species of birds and other wildlife species. Al Wathba was the first site for Greater Flamingo *Phoenicopterus roseus* breeding in the UAE and species has continued to breed during 2011 and 2012 breeding seasons, making it the only site in the country for regular breeding of the species. The site also regularly supports one of the two largest breeding congregations of the Kentish Plover *Charadrius alexandrinus* and the only site in the country where Pied Avocet *Recurvirostra avosetta* regularly breeds.

Criterion 6: Criterion 6: A Wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbirds

The Black-winged Stilt *Himantopus himantopus* population at the Reserve is equal to about 1% for the Middle East population and hence the site is also important for the species. The Black-winged Stilt numbers at the Reserve averages 183 birds (3-yr average). High counts of 745 birds were recorded on 28 December 2010 and 592 on 9 January 2011, while in 2012, maximum numbers recorded were 264. The UAE population represents a significant proportion of the regional population of the species.

Year	Black winged Stilt count at the Site (winter)	1% according to WPE 5th edition (2012)
2010	745	460
2011	592	
2012	264	

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):
Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

The proposed site lies within two terrestrial ecoregions of the world among the WWF's Global 200 Ecoregions, the Southwestern Asia (Palearctic PA 1303) and the Arabian Peninsula (AT1306). The Southwestern Asia ecoregion contains most of Saudi Arabia, extending into Oman, United Arab Emirates, Yemen, Egypt, Iraq, Jordan and Syria. Located on the Arabian Peninsula, the Arabian Desert and East Sahero-Arabian Xeric Shrublands

b) biogeographic regionalisation scheme (include reference citation):

WWF Global Ecoregions

16. Physical features of the site:
Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

The climate of Al Wathba Wetland Reserve is similar to the climatic conditions of Abu Dhabi, which is hot and highly humid part of the summer, from April-June its very hot and dry while from July-September it remains, hot and humid. The mean annual temperature for the study area is 28°C. The coolest month is January and the warmest is August. The temperature increases steadily from January onwards when the minimum temperature is around 7° C and in June it reaches a maximum of around 48°C. The mean relative humidity for each month from January through December is 67.5%, 63.5%, 60%, 52%, 49.5%, 53.5%, 54.1%, 54.5%, 56.9%, 60.5%, 63.4%, and 67.5% with the minimum occurring in May and the maximum in December and January. Rainfall is quite erratic in this part of the globe and there is no set pattern or season for the rains. The monthly average precipitation increases from zero up to 8.8 mm/year. The rainfall is usually accompanied by northern winds that can create abnormally high tides.

The water is usually saline with mean salinity of 109 ppt and an average temperature of 28°C. The mean pH is 8.1 at 25°C while dissolved O_2 levels are 6.06mg/l.

A soil survey information specific to the site is available; however a geotechnical survey was conducted by Foundation Engineering for Rendell Palmer & Tritton adjacent to the reserve as part of the widening of the Musaffah – Al Ain Truck Road. The soil texture is light brown fine sand. The soil salinity varies from very slightly alkaline at 0-20 cm depth (pH 7.84) and moderately alkaline at 20-50 cm depth and beyond (pH 8.28-8.30). Due to inflows of saline groundwater and also due to evaporation, the water in the middle and lower lakes is saline and salinity in the lower lake of as much as 200,000 mg/l.

Al Wathba Wetland Reserve consists of rolling topography with some hilly areas and depressions. The treated wastewater from Al Mafraq treatment plant is collected in the depressions forming the surface water lakes. A topographic survey has been conducted by Parsons International Limited for a small area in the central part of the wetland reserve. The ground elevations in the surveyed area are in a range from 15-18 meter above mean sea level (amsl).

The geology of Al Wathba Wetland Reserve consists of shallow silt, fine sand and gravel (Abdelfattah & Mehraribi 2005). The surficial sand and gravel deposits are extensive across the reserve as well as the surrounding areas. These deposits in combination with salt flats are known as "sabkha". Marine transgression began in this area about 7,000 years ago and reached an apparent high about 1 m above its present level somewhat prior to 4,000 years. Since then progradation of intertidal and supratidal sediments has taken place, this began 3,750 years ago. Arid conditions over the sabkha have produced large amounts of gypsum and anhydrite and lesser amounts of dolomite, mangnesite, celestite and halite (Evans et al., 1969). Unlithified recent carbonate sediments and Pleistocene eolian quartzose sands overlie Miocene sedimentary rocks. Sabkha have been described in the geologic literature as being associated with the flat topographic areas near the coast that have certain mineralogical characteristics related to diagenetic reactions occurring there. The mineralogical characteristics include mainly algal and dolomitic crusts underlain by a layer of secondary anhydrite. Halite crusts also occur extensively on the surface, but theseare relatively thin crusts that redissolve after winter rain events. This mineralogical sequence, typical of the coastal sabkha, exists only in the top meter of the framework of the unconsolidated, well sorted, eolian silica and carbonate sand that has an average thickness over the region of about 10m. The sand is Quaternary in age, and was deposited during the last low sea-level stand when the Arabian Gulf was dry and winds carried sands from the exposed Gulf floor southeastward onto the current land area of the Abu Dhabi Emirate (Glennie, 1998).

The hydrogeology of the Reserve area and surrounding area has been determined primarily based on the investigation conducted at the Reserve area during in 2003 (Dawoud et al. 2003) and water well records and relevant regional geologic/hydrogeologic information from the surrounding area. The aquifer system in Al Wathba Wetland Reserve area consists of a two layer system. The upper layer is an unconfined aquifer system which is the main aquifer system within the study area. This layer consists of quaternary unconsolidated sediments comprising fine to medium sands with some intercalation of clayey and silty thin layers. The thickness of this layer ranges from 10 to 14 meters. The second layer is a dolomite limestone and can be considered also as an aquifer system with limited groundwater potential (Dawoud et al. 2003). Groundwater flow in the Reserve and surrounding areas has been determined based on information from the onsite groundwater monitoring for the drilled four observation wells and on a general understanding of regional groundwater flow. The groundwater Flow direction is from east to the west (Dawoud et al. 2003). Groundwater level elevations are higher than the lake level and the calculated flow from the shallow groundwater to the lake is about 3962 m^3/day. The calculated evaporation from the water surface in the lake is about 7332 m^3/day, calculated using a manual evaporation pan permanently installed in the reserve area.

Al Wathba Wetland Reserve exists only because it is supplied with tertiary treated fresh water from the adjacent Mafraq Sewage Treatment Plant (MSTP) and also with saline irrigation run-off water from the nearby Al Wathba camel race track fodder fields. The requirement for water, in order to counteract the effects of evapo-transpiration, varies from 8,000 m^3 of water per day in the winter up to 22,000 m^3 per day in the summer. The precise amount will vary and will be determined more by the precise management requirements than by the need to maintain a constant level. For instance, during winter some areas may require deep water suitable for diving ducks. While in the summer, it is permissible, even desirable, to allow levels to drop and expose bottom sediments. However, in the winter/spring it is important to maintain levels at a fairly constant level such that the sand banks in the flamingo nesting grounds are kept moist but not flooded.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).
The climate of the surrounding areas is similar to Al Wathba Wetland Reserve and rest of Abu Dhabi, which is hot and highly humid. Immediately to the south-east of the Reserve is a large labour camp housing several thousand workers. The East Bani Yas residential settlement is approximately 5 km from the Reserve, while the main Abu Dhabi city is 40 km northwest of the proposed Ramsar site. Most of the physical features of the surrounding areas are similar to what has been described in section 16.

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18. Hydrological values:
Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.
The water in the Reserve is not in use for any human needs, however the main function and use of the water is to provide suitable habitats for waterbirds and other life-forms which are dependent on the water. The wetland also serves to recharge the ground water and also helps in collection of storm water and run-off water from surrounding areas. The aquifer recharge in Al Wathba Wetland Reserve is solely from seepage from the surface water lakes (an area of about 132 hectares) and probably occurs from the boundary flux from the drainage water of the camel fodder farm to the east of the study area. Most of the recharge likely occurs in the top deposits along the normally dry washes of the top unsaturated zone. Recharge to the aquifer system from precipitation is considered minimal because precipitation or runoff does not adequately meet evapotranspiration and soil-moisture requirements. There is no direct abstraction from the study area and surrounding areas. Natural discharge occurs from the ground-water system in Al Wathba into the Arabian Gulf as subsurface underflow.

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19. Wetland Types

a) presence:
Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:
List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

Tp -- **Permanent freshwater marshes/pools and ponds (below 8 ha),** marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season
Q – Permanent Saline/Brackish water
Sp – Permanent Marshes and pools
8.-- Wastewater treatment areas.

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20. General ecological features:
Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The Al Wathba Wetland Reserve, although man-made is an important wetland area within a largely hyper arid environment. Presence of a range of water from hypersaline to brackish to fresh and of varying depths, provides range of habitat to different species of birds. With more than 250 species of birds, some of them nationally and regionally important, the Reserve is an important area for the conservation of birds. It's the only site where Greater Flamingos have bred more than once and successfully in the last two years.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.3*

Of the 37 species of plants recorded in the proposed site (Brown et al 2005), the three dominant species in the reserve are *Cyperus conglomeratus, Haloxylon salicornicum*, and *Zygophyllum qatarense*. The parasitic plants, *Cistanche tubulosa* and *Cynomorium coccineum*, are a common sight after rain in the winter. The sand sheets and low dunes support the majority of plant communities, and these are the *Cyperus conglomeratus* community, *Haloxylon salicornicum-Cyperus conglomeratus* community, *Zygophyllum qatarense* community and *Haloxylon persicum* community. The marshy areas and standing water is dominated by *Phragmites australis* community. Furthermore, some moister areas, such as in depressions, are dominated by the *Aeluropus lagopoides* community. The *Haloxylon persicum* community in Al Wathba is of biogeographical importance as this is the most eastern distribution of the species in the Arabian Peninsula.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

With more than 250 species of birds recorded from the area, birds remain the single most important elements of the wetland biodiversity. The first ever breeding of flamingos in 1998-1999, leading to the establishment of the area as a protected area was an important conservation landmark. The Greater Flamingo remains the flagship species and one of the most important species at the site. Regular breeding in 2011 (Khan et al. 2011) and 2012 continues to highlight the importance of the Reserve for the Greater Flamingos. The Reserve also hosts one of the biggest concentrations of breeding Kentish Plovers and is also a site where Avocets breed. The Savis' Pygmy Shrew is recorded only from few sites in the country including Al Wathba.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The site is not used for any social and commercial activities and hence there are no socio-economic values relevant to the site. However, once fully developed and after the creation of a visitor centre, the site is likely to serve as an important tourist destination and potential revenue generator. Till this is done, it will continue to serve as a site for education and awareness and an important destination for bird watching.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box ❑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:
a) within the Ramsar site:

The land is owned by the Government of Abu Dhabi Emirate and the local tribes and their families.

b) in the surrounding area:
The surrounding areas are owned by different entities, with three units in the north are privately owned land is owned by the ruler of Abu Dhabi Emirate. There are few industrial units present in the vicinity of Al Wathba Wetland Reserve. Bin Hafeez Establishment, a privately owned company is located in the southwest of the Reserve and is for asphalt production. Al Wathba & Al-Mafraq Concrete Block Factory is also located in the vicinity of the Reserve, close to the Abu Dhabi-Al Ain Truck Road. Al Wathba camel race track and fodder farms are approximately 5km southeast of the site, just off the Al Ain – Musaffah truck road.

25. Current land (including water) use:
a) within the Ramsar site:
See 23 above.
Within the proposed Ramsar site, there is no water use and no external activities are allowed into the area. Regular school trips are organised within the Reserve as part of the educational awareness for school children. Visits by amateur and professional birders are also allowed on a regular basis.

b) in the surroundings/catchment:
The areas around the site are used for multiple purposes. As explained in earlier sections, there are nurseries, brick factory and in the northwest of the Reserve, in the North the area is used by the Mafraq Waste Water Treatment Plant. In the east the land has been used for the development of a housing colony.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:
a) within the Ramsar site:

The site is well protected and is free from any kind of exploitations. Being a fenced area, the area is secured from any external pressure. No cases of any poaching activities have been reported from the area in the past. Management activities as laid out in the management plan of the Reserve remain an inherent weakness. The Reserve is dependent on the treated freshwater supply from the neighbouring MSTP and hence regular supply and maintenance of the ecological characteristics of the area is dependent on the uninterrupted supply of water from the treatment plant.

The proposed site from three sides is bounded by developments which have some existing and potential impacts on the Reserve. Presence of a nursery on the northern side poses potential of introducing alien species into the Reserve whereas large number of people living in the labour camps on the south-eastern side has potential implications on safety and security of the Reserve. Residential and commercial establishments in the immediate surroundings also shelter Feral cats (*Felis cattus*) and dogs (*Canis canis*) which are regularly spotted in the Reserve due to inadequately maintained fences. The feral dogs and cats are big threat to the ground nesting bird species and also a source of harassment for the flagship and breeding flamingos.

1) Low flying aircrafts

The proposed site is across a major airbase and regular and low level flights of jets become a source of disturbance, especially to the breeding colony of the Greater Flamingo.

b) in the surrounding area:

Recent increase in development activities around the Reserve, especially establishment of a large labor camp immediately south-east of the Reserve is a key management issue and a regular source of disturbance.

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27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

Al Wathba Wetland Reserve is officially protected and was designated as a protected area in 1998.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

The proposed Ramsar site meets the IUCN categorisation of Habitat/Species Management Area: protected area managed mainly for conservation through management intervention (Category IV).

Ia ❑;Ib ❑; II ❑; III ❑; IV ■ ; V ❑; VI ❑

c) Does an officially approved management plan exist; and is it being implemented?

Yes, a management plan exists and is being implemented partially, if not fully. The management plan needs revision and update to incorporate existing activities both within and outside the reserve. The process for which has begun and its expected by the middle of 2013 a revised and updated management plan would be in place and implemented.

d) Describe any other current management practices:

The current management practices include maintenance of water level, maintenance of fence, control measures for dogs and foxes and regular patrolling within the Reserve.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

The area is fenced and hence relatively well protected, however some other management issues are still pending, and this includes updating the old management plan, better management of reeds, replacement of part of the fencing and improvement in the irrigation network to maintain tree line along the fence. Control of pest such as dog is an issue and a more active pest control measure is needed, beside better water management regime.

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29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

At the moment EAD undertakes regular monitoring and research work on different components of the wetlands biodiversity. A monitoring programme is in place for the water quality and Artemia (Dhaheri, 2004, Saji & Dhaheri 2011). Monitoring of birds (Javed & Khan 2003, Khan et al 2011) has been undertaken regularly along with monitoring of reptiles, insects, mammals and plants. As part of the EAD biodiversity monitoring comprehensive vegetation and soil maps for the site have been prepared.

Research and monitoring of Greater Flamingo has been undertaken since 2005 when 4 flamingos were satellite tagged for the first time in the Arabian Peninsula to track their movement and migration (Javed et al, 2006, Javed et al. 2006a and 2006 b, Javed & Khan 2007). Collaborative work on the breeding ecology of the Kentish Plover has been undertaken in the past at the proposed site and results have been widely published (Rashidi et al. 2010; Kosztolanyi et al. 2009).

A two room research laboratory is being set up at Reserve and another space is available as an office and storage for the field staff. A two-room care-taker staff accommodation with two permanent on-site staff is present at the facility 24/7. A quad bike, a 4x4 pickup and small fiber boat for collecting water samples from the lake is present to facilitate research and monitoring work in the Reserve.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

A visitor centre development plan and concept design has been made and the Government of Abu Dhabi has already allocated substantial funds to construct a modern visitor center. At the moment Environment Agency-Abu Dhabi (EAD) regularly undertakes education and awareness programme in the area by taking schools on regular nature trips as part of the sustainable school programme being run by the EAD. A well maintained bird hide exists within the Reserve providing birders and visitors to observe birds from close quarters without disturbing them.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

At the moment the area is not open to general public for recreation and tourism, however nature lovers, schools and bird watchers regularly visit the area and are allowed free access to the reserve. Bird watchers groups go to the site once or twice each month and others are allowed on the basis of requests received from time to time.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The proposed Ramsar site is within the territorial jurisdiction of the Emirate of Abu Dhabi and is managed by the Environment Agency-Abu Dhabi, a government entity of the Government of Abu Dhabi. The site is protected by local and other Federal Laws such as Law # 23 and 24 are applicable for the protection of site.

33. Management authority:

Provide the name and address of the local office(s) of the agency (ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

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Website: www.ead.ae

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

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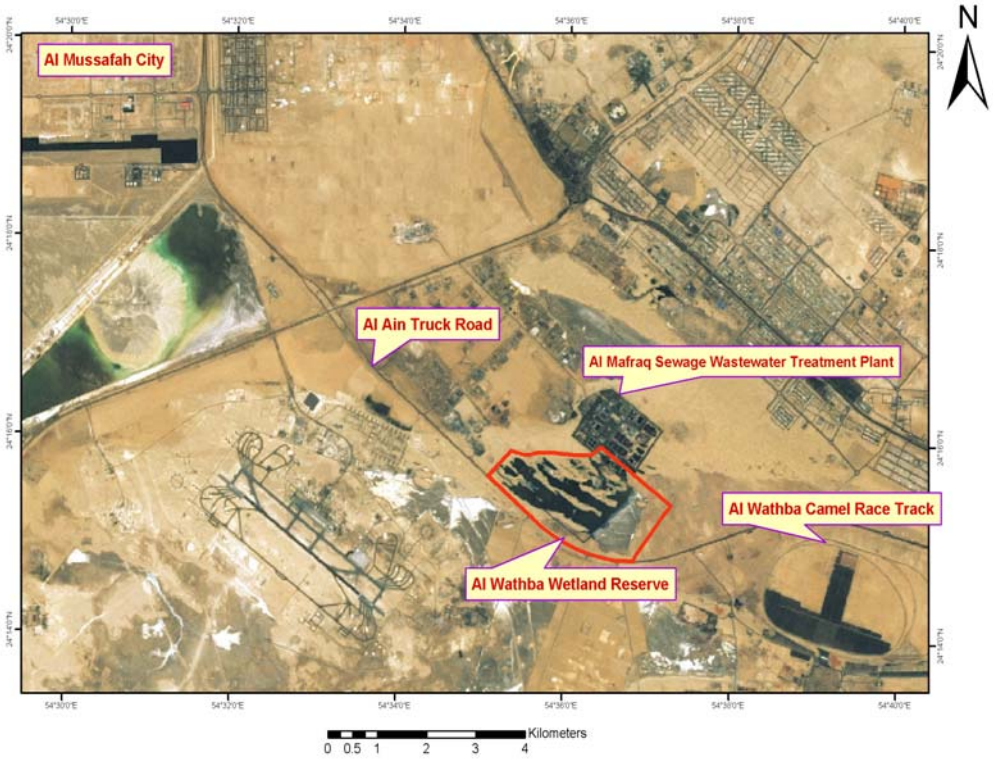
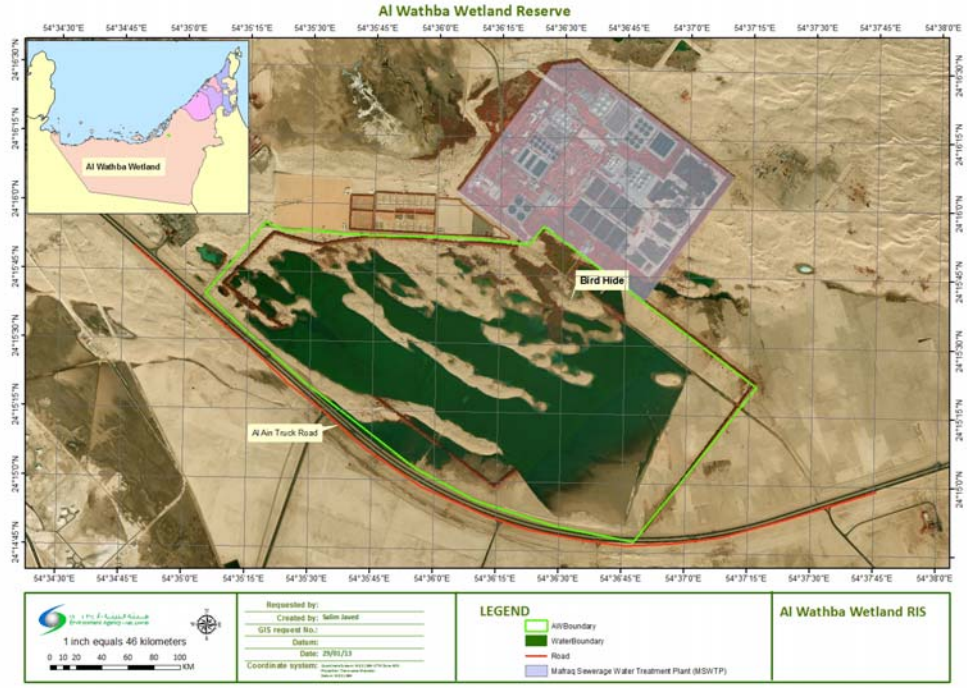
Appendix 1

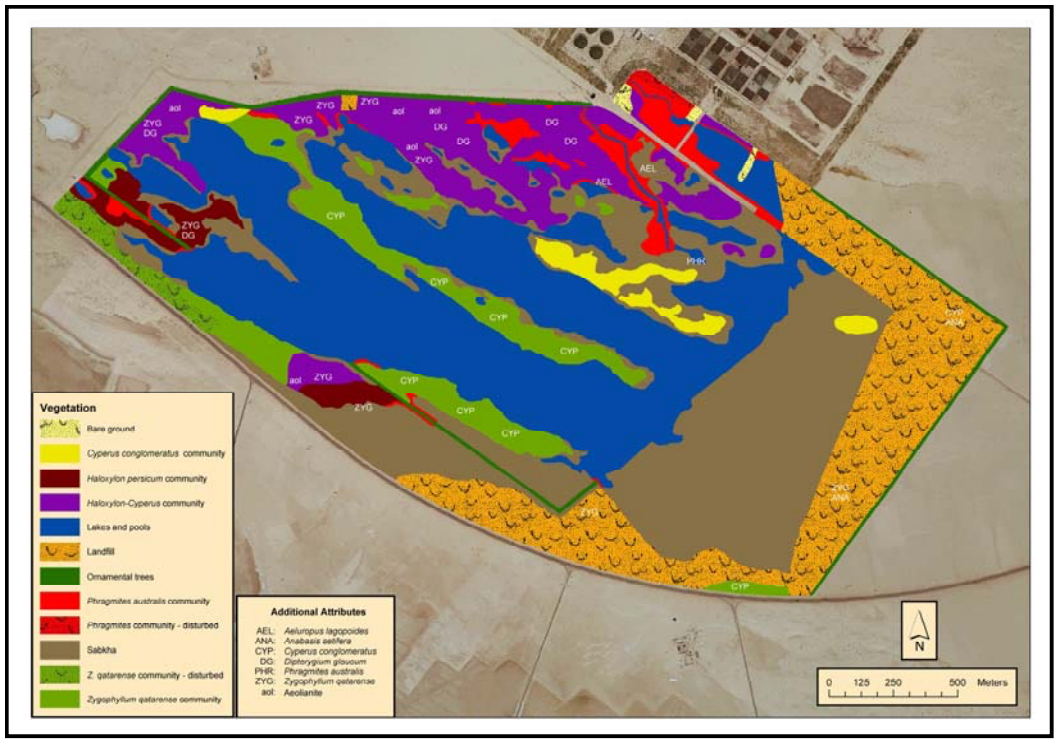
Satellite Image showing location of Al Wathba Wetland Reserve





Appendix 2

Vegetation Map of Al Wathba Wetland Reserve



Appendix 3

List of bird species recorded in Al Wathba and their conservation status

SN	Common Name	Scientific name	UAE Redlist (Federal List)*	Hornby & Aspinall 2008	IUCN	CMS
1	Greater White-fronted Goose	*Anser albifrons*	App. II			II
2	Eastern Greylag Goose	*Anser anser*	App. II			II
3	Egyptian Goose	*Alopochen aegyptiaca*	App. III			
4	Ruddy Shelduck	*Tadorna ferruginea*	App. II			II
5	Common Shelduck	*Tadorna tadorna*	App. II			II
6	Cotton Pygmy Goose	*Nettapus coromandelianus*	App. III			
7	Gadwall	*Anas strepera*	App. II			II
8	Eurasian Wigeon	*Anas penelope*	App. II			II
9	Mallard	*Anas platyrhynchos*	App. II			II
10	Northern Shoveler	*Anas clypeata*	App. II			II
11	Northern Pintail	*Anas acuta*	App. II			II
12	Garganey	*Anas querquedula*	App. II			
13	Eurasian Teal	*Anas crecca*	App. II			II
14	Red-crested Pochard	*Netta rufina*	App. II			II
15	Common Pochard	*Aythya ferina*	App. II			II
16	Tufted Duck	*Aythya fuligula*	App. II			II
17	Grey Francolin	*Francolinus pondicerianus*	App. II			
18	Common Quail	*Coturnix coturnix*	App. II			II
19	Little Grebe	*Tachybaptus ruficollis*	App. III			
20	Black-necked Grebe	*Podiceps nigricollis*	App. II			
21	Greater Flamingo	*Phoenicopterus roseus*	App. III			II
22	Lesser Flamingo	*Phoeniconaias minor*	App. III			II
23	Continental Cormorant	*Phalacrocorax carbo*	App. II			
24	Little Bittern	*Ixobrychus minutus*	App. II			II
25	Grey Heron	*Ardea cinerea*	App. II			
26	Purple Heron	*Ardea purpurea*	App. II			
27	Great Egret	*Ardea alba*	App. II			
28	Little Egret	*Egretta garzetta*	App. III			
29	Cattle Egret	*Bubulcus ibis*	App. III			
30	Squacco Heron	*Ardeola ralloides*	App. II			
31	Striated Heron	*Butorides striata*	App. II			
32	Western Reef Heron	*Egretta gularis*	App. II			
33	Black-crowned Night Heron	*Nycticorax nycticorax*	App. II			
34	Glossy Ibis	*Plegadis falcinellus*	App. II			II

35	Eurasian Spoonbill	*Platalea leucorodia*	App. II			II
36	Crested Honey Buzzard	*Pernis ptilorhyncus*	App. II			
37	Black-winged Kite	*Elanus caeruleus*	App. II			
38	Black-eared Kite	*Milvus migrans*	App. II			
39	Western Marsh Harrier	*Harrier Circus aeruginosus*	App. II			
40	Pallid Harrier	*Circus macrourus*	App. III			
41	Montagu's Harrier	*Circus pygargus*	App. II			
42	Eurasian Sparrowhawk	*Accipiter nisus*	App. II			
43	Long-legged Buzzard	*Buteo rufinus*	App. II			
44	Lesser Spotted Eagle	*Aquila pomarina*	App. II			
45	Greater Spotted Eagle	*Aquila clanga*	App. III		VU	
46	Steppe Eagle	*Aquila nipalensis*	App. II			
47	Eastern Imperial Eagle	*Aquila heliaca*	App. III		VU	
48	Bonelli's Eagle	*Aquila fasciatus*	App. II			
49	Booted Eagle	*Aquila pennata*	App. II			
50	Lesser Kestrel	*Falco naumanni*	App. III			
51	Common Kestrel	*Falco tinnunculus*	App. II			
52	Amur Falcon	*Falco amurensis*	App. II			
53	Merlin	*Falco columbarius*	App. II			
54	Eurasian Hobby	*Falco subbuteo*	App. II			
56	Corncrake	*Crex crex*	App. III			II
57	Water Rail	*Rallus aquaticus*	App. II			
58	Little Crake	*Porzana parva*	App. II			II
59	Baillon's Crake	*Porzana pusilla*	App. II			II
60	Spotted Crake	*Porzana porzana*	App. II			II
61	Common Moorhen	*Gallinula chloropus*	App. III			
62	Eurasian Coot	*Fulica atra*	App. II			
63	Eurasian Stone-curlew	*Burhinus oedicnemus*	App. II			
64	Northern Lapwing	*Vanellus vanellus*	App. II			II
65	Spur-winged Lapwing	*Vanellus spinosus*	App. II			
66	Red-wattled Lapwing	*Vanellus indicus*	App. III			II
67	Sociable Lapwing	*Vanellus gregarius*	App. II		CR	I
68	White-tailed Lapwing	*Vanellus leucurus*	App. II			II
69	Grey Plover	*Pluvialis squatarola*	App. II			II
70	Pacific Golden Plover	*Plover Pluvialis*	App. II			II
71	Lesser Sand Plover	*Charadrius mongolus*	App. II			II
72	Greater Sand Plover	*Charadrius leschenaultii*	App. II			II
73	Caspian Plover	*Charadrius asiaticus*	App. II			II
74	Kittlitz's Plover	*Charadrius pecuarius*	App. II			
75	Kentish Plover	*Charadrius alexandrinus*	App. II	RI		II

76	Little Ringed Plover	*Charadrius dubius*	App. II			II
77	Eurasian Dotterel	*Charadrius morinellus*	App. II			II
78	Black-winged Stilt	*Himantopus himantopus*	App. II	NT		II
79	Pied Avocet	*Recurvirostra avosetta*	App. II			II
80	Terek Sandpiper	*Xenus cinereus*	App. II			II
81	Common Sandpiper	*Actitis hypoleucos*	App. II			II
82	Green Sandpiper	*Tringa ochropus*	App. II			II
83	Spotted Redshank	*Tringa erythropus*	App. II			II
84	Common Greenshank	*Tringa nebularia*	App. II			II
85	Marsh Sandpiper	*Tringa stagnatilis*	App. II			II
86	Common Redshank	*Tringa totanus*	App. II			II
87	Whimbrel	*Numenius phaeopus*	App. II			II
88	Eurasian Curlew	*Numenius arquata*	App. II			II
89	Black-tailed Godwit	*Limosa limosa*	App. II			II
90	Bar-tailed Godwit	*Limosa lapponica*	App. II			II
91	Ruddy Turnstone	*Arenaria interpres*	App. II			II
92	Sanderling	*Calidris alba*	App. II			II
93	Little Stint	*Calidris minuta*	App. II			II
94	Temminck's Stint	*Calidris temminckii*	App. II			II
95	Long-toed Stint	*Calidris subminuta*	App. II			II
96	Dunlin	*Calidris alpina*	App. II			II
97	Curlew Sandpiper	*Calidris ferruginea*	App. II			II
98	Broad-billed Sandpiper	*Limicola falcinellus*	App. II	NT		II
99	Ruff	*Philomachus pugnax*	App. II			II
100	Jack Snipe	*Lymnocryptes minimus*	App. II			II
101	Great Snipe	*Gallinago media*	App. II			II
102	Pin-tailed Snipe	*Gallinago stenura*	App. II			II
103	Wilson's Phalarope	*Phalaropus tricolor*	App. II			
104	Red-necked Phalarope	*Phalaropus lobatus*	App. II			II
105	Grey Phalarope	*Phalaropus fulicaria*	App. II			
106	Collared Pratincole	*Glareola pratincola*	App. II			II
107	Black-winged Pratincole	*Glareola nordmanni*	App. II			II
108	Slender-billed Gull	*Chroicocephalus genei*	App. II			II
109	Common Black-headed Gull	*Chroicocephalus ridibundus*	App. II			
110	Little Gull	*Hydrocoloeus minutus*	App. III			
111	Mediterranean Gull	*Larus melanocephalus*	App. III			
112	Sooty Gull	*Larus hemprichii*	App. II	RR		
113	Great Black-headed Gull	*Larus ichthyaetus*	App. II			
114	Russian Common Gull	*Larus canus*	App. II			
115	Caspian Gull	*Larus cachinnans*	App. II			

116	Lesser Black-backed Gull	*Larus fuscus*	App. II			
117	Little Tern	*Sternula albifrons*	App. II			II
118	Saunders's Tern	*Sternula saundersi*	App. II	RR		II
119	Gull-billed Tern	*Gelochelidon nilotica*	App. II			
120	Caspian Tern	*Hydroprogne caspia*	App. II			
121	Black Tern	*Chlidonias niger*	App. II			
122	White-winged Tern	*Chlidonias leucopterus*	App. II			II
123	Whiskered Tern	*Chlidonias hybrida*	App. II			
124	Common Tern	*Sterna hirundo*	App. II			
125	Arctic Tern	*Sterna paradisaea*	App. II			
126	White-cheeked Tern	*Sterna repressa*	App. II	NT		II
127	Sandwich Tern	*Sterna sandvicensis*	App. II			II
128	Lesser Crested Tern	*Sterna bengalensis*	App. II	NT		II
130	Rock Dove	*Columba livia*	App. II			
131	Laughing Dove	*Spilopelia senegalensis*	App. II			
132	Namaqua Dove	*Oena capensis*	App. II			
133	Rose-ringed Parakeet	*Psittacula krameri*	App. II			
134	Common Cuckoo	*Cuculus canorus*	App. II			
135	Barn Owl	*Tyto alba*	App. II			
136	Pallid Scops Owl	*Otus brucei*	App. II			
137	Long-eared Owl	*Asio otus*	App. II			
138	European Nightjar	*Caprimulgus europaeus*	App. II			
139	Egyptian Nightjar	*Caprimulgus aegyptius*	App. II			
140	Common Swift	*Apus apus*	App. II			
141	Pallid Swift	*Apus pallidus*	App. II			
142	Common Kingfisher	*Alcedo atthis*	App. II			
143	Green Bee-eater	*Merops orientalis*	App. II			
144	Blue-cheeked Bee-eater	*Merops persicus*	App. II			
145	European Bee-eater	*Merops apiaster*	App. II			II
146	European Roller	*Coracias garrulus*	App. II			II
147	Indian Roller	*Coracias benghalensis*	App. II			
148	Eurasian Hoopoe	*Upupa epops*	App. II			
149	Eurasian Wryneck	*Jynx torquilla*	App. II			
150	Red-backed Shrike	*Lanius collurio*	App. II			
151	Daurian Shrike	*Lanius isabellinus*	App. II			
152	Turkestan Shrike	*Lanius phoenicuroides*	App. II			
153	Southern Grey Shrike	*Lanius meridionalis*	App. II			
154	Lesser Grey Shrike	*Lanius minor*	App. II			
155	Masked Shrike	*Lanius nubicus*	App. II			
156	Eastern Woodchat Shrike	*Lanius senator*	App. II			

157	Eurasian Golden Oriole	*Oriolus oriolus*	App. II			
158	House Crow	*Corvus splendens*	App. II			
159	Brown-necked Raven	*Corvus ruficollis*	App. II			
160	Greater Hoopoe-Lark	*Alaemon alaudipes*	App. II			
161	Black-crowned Sparrow-Lark	*Eremopterix nigriceps*	App. II			
162	Desert Lark	*Ammomanes deserti*	App. II			
163	Bimaculated Lark	*Melanocorypha bimaculata*	App. II			
164	Greater Short-toed Lark	*Calandrella brachydactyla*	App. II			
165	Lesser Short-toed Lark	*Calandrella rufescens*	App. II			
166	Crested Lark	*Galerida cristata*	App. II			
167	Eurasian Skylark	*Alauda arvensis*	App. II			
168	Grey-throated Martin	*Riparia paludicola*	App. II			
169	Sand Martin	*Riparia riparia*	App. II			
170	Pale Martin	*Riparia diluta*	App. II			
171	Pale Crag Martin	*Ptyonoprogne obsoleta*	App. II			
172	Barn Swallow	*Hirundo rustica*	App. II			
173	Red-rumped Swallow	*Cecropis daurica*	App. II			
174	Streak-throated Swallow	*Petrochelidon fluvicola*	App. II			
175	Common House Martin	*Delichon urbicum*	App. II			
176	Red-vented Bulbul	*Pycnonotus cafer*	App. II			
177	White-eared Bulbul	*Pycnonotus leucotis*	App. II			
178	Scrub Warbler	*Scotocerca inquieta*	App. II			
179	Willow Warbler	*Phylloscopus trochilus*	App. II			
180	Common Chiffchaff	*Phylloscopus collybita*	App. II			
181	Plain Leaf Warbler	*Phylloscopus neglectus*	App. II	RR		
182	Yellow-browed Warbler	*Phylloscopus inornatus*	App. II			
183	Green Warbler	*Phylloscopus nitidus*	App. II			
184	Eastern Olivaceous Warbler	*Iduna pallida*	App. II			
185	Upcher's Warbler	*Hippolais languida*	App. II	RR		
186	Moustached Warbler	*Acrocephalus melanopogon*	App. II			
187	Sedge Warbler	*Acrocephalus schoenobaenus*	App. II			
188	Caspian Reed Warbler	*Acrocephalus scirpaceus*	App. II			
189	Marsh Warbler	*Acrocephalus palustris*	App. II			
190	Great Reed Warbler	*Acrocephalus arundinaceus*	App. II			
191	Indian Reed Warbler	*A. stentoreus*	App. II			
192	Graceful Prinia	*Prinia gracilis*	App. II			
193	Eurasian Blackcap	*Sylvia atricapilla*	App. II			
194	Barred Warbler	*Sylvia nisoria*	App. II			
195	Desert Whitethroat	*Sylvia minula*	App. II	RR		
196	Eastern Orphean Warbler	*Sylvia crassirostris*	App. II			

197	Asian Desert Warbler	*Sylvia nana*	App. II			
198	Lesser Whitethroat	*Sylvia curruca*	App. II			
199	Menetries's Warbler	*Sylvia mystacea*	App. II	RR		
200	Arabian Babbler	*Turdoides squamiceps*	App. III	RT		
201	Spotted Flycatcher	*Muscicapa striata*	App. II			
202	Rufous-tailed Scrub Robin	*Cercotrichas galactotes*	App. II			
203	White-throated Robin	*Irania gutturalis*	App. II	RR		
204	Thrush Nightingale	*Luscinia luscinia*	App. II			
205	Common Nightingale	*Luscinia megarhynchos*	App. II			
206	Bluethroat	*Luscinia svecica*	App. II			
207	Red-breasted Flycatcher	*Ficedula parva*	App. II			
208	Common Redstart	*Phoenicurus phoenicurus*	App. II			
209	Black Redstart	*Phoenicurus ochruros*	App. II			
210	Rufous-tailed Rock Thrush	*Monticola saxatilis*	App. II			
211	Blue Rock Thrush	*Monticola solitarius*	App. II			
212	Whinchat	*Saxicola rubetra*	App. II			
213	European Stonechat	*Saxicola rubicola*	App. II			
214	Siberian Stonechat	*Saxicola maurus*	App. II			
215	Northern Wheatear	*Oenanthe oenanthe*	App. II			
216	Pied Wheatear	*Oenanthe pleschanka*	App. II			
217	Eastern Black-eared Wheatear	*Oenanthe hispanica*	App. II			
218	Red-tailed Wheatear	*Oenanthe chrysopygia*	App. II			
219	Desert Wheatear	*Oenanthe deserti*	App. II			
220	Isabelline Wheatear	*Oenanthe isabellina*	App. II			
221	Eurasian Blackbird	*Turdus merula*	App. II			
222	Song Thrush	*Turdus philomelos*	App. II			
223	Common Myna	*Acridotheres tristis*	App. II			
224	Brahminy Starling	*Sturnia pagodarum*	App. II			
225	Rose-coloured Starling	*Pastor roseus*	App. II			
226	Common Starling	*Sturnus vulgaris*	App. II			
227	Violet-backed Starling	*Cinnyricinclus leucogaster*	App. II			
228	Purple Sunbird	*Cinnyris asiaticus*	App. II			
229	Western Yellow Wagtail	*Motacilla flava*	App. II			
230	Citrine Wagtail	*Motacilla citreola*	App. II			
231	White Wagtail	*Motacilla alba*	App. II			
232	Richard's Pipit	*Anthus richardi*	App. II			
233	Blyth's Pipit	*Anthus godlewskii*	App. II			
234	Tawny Pipit	*Anthus campestris*	App. II			
235	Meadow Pipit	*Anthus pratensis*	App. II			
236	Tree Pipit	*Anthus trivialis*	App. II			

237	Red-throated Pipit	*Anthus cervinus*	App. II			
238	Water Pipit	*Anthus spinoletta*	App. II			
239	Buff-bellied Pipit	*Anthus rubescens*	App. II			
240	Ortolan Bunting	*Emberiza hortulana*	App. II			
241	Black-headed Bunting	*Emberiza melanocephala*	App. II			
242	Corn Bunting	*Emberiza calandra*	App. II			
243	Brambling	*Fringilla montifringilla*	App. II			
244	Common Rosefinch	*Carpodacus erythrinus*	App. II			
245	House Sparrow	*Passer domesticus*	App. II			
246	Yellow-throated Sparrow	*Gymnoris xanthocollis*	App. II			
247	Pale Rockfinch	*Carpospiza brachydactyla*	App. III	RR		
248	Streaked Weaver	*Ploceus manyar*	App. II			
249	Indian Silverbill	*Lonchura malabarica*	App. II			

**Based on UAE Federal Law 24 of 1999 amended by Federal Law 11 of 2006*

RR: Restricted Range; RT – Regionally Threatened; NT – Near-Threatened; VU – Vulnerable; EN – Endangered; CR- Critical

Appendix 4

List of reptiles recorded in Al Wathba Wetland Reserve and their conservation status

Common Name	Scientific name	UAE Redlist (Federal List)*	IUCN Redlist
Arabian Ground Gecko	*Bunopus tuberculatus*		LC
Arabian Sand gecko	*Stenodactylus arabicus*		
Desert Monitor	*Varanus griseus*	App. II	
Dune Sand gecko	*Stenodactylus doriae*		
Gulf Sand gecko	*Stenodactylus khobarensis*		
Hook-nosed Thread Snake	*Leptotyphlops m. macrorhynchus*		
Iranian Sand Skink	*Scincus scincus conirostris*		
Jayakar's Sand Boa	*Eryx jayakari*		
Red Sea Gecko	*Hemidactylus robustus*		
Spotted toad-headed agama	*Phrynocephalus maculatus*		
Arabian toad-headed agama	*Phrynocephalus arabicus*		LC
Spiny-tailed lizard	*Uromastyx aegyptia microlepis*	App. II	
Schmidt's fringe-toed lizard	*Acanthodactylus schmidti*		
Sand skink	*Scincus mitranus*		

LC – Least Concern

**Based on UAE Federal Law 24 of 1999 amended by Federal Law 11 of 2006*

Appendix 5

List of mammals recorded in Al Wathba Wetland Reserve and their conservation status

Common Name	Scientific name	UAE Redlist (Federal List)	IUCN Redlist
House Mouse	*Mus musculus*		LC
Brown Rat	*Rattus norvegicus*		LC
Baluchistan Gerbil	*Gerbillus nanus*		LC
Cheesman's Gerbil	*Gerbillus cheesmani*		LC
Red Fox	*Vulpes vulpes*		LC
Feral Cat	*Felis cattus*		LC
Feral Dog	*Canis canis*		LC
Cape Hare	*Lepus capensis*	App. I	LC
Pigmy Shrew	*Suncus etruscus*		LC
Egyptian Fruit Bat	*Rousettus aegyptiacus*		LC
Desert Hedge Hog	*Paraechinus aethiopicus*	App. II	LC

LC – Least Concern

**Based on UAE Federal Law 24 of 1999 amended by Federal Law 11 of 2006*

Appendix 6
List of Invertebrates of Al Wathba Wetland Reserve

Common Name	Scientific name	EAD List
Firebrat	*Thrermobia domestica*	X
Mayfly	*Cloeon saharense*	X
Vagrant Emperor	*Anax ephippiger*	X
Blue-banded Ishnura	*Ischnura evansi*	X
Carmine Darter	*Crocothemis erythraea*	X
Scarlet Darter	*Crocothemis chaldaeorum*	X
Purple Darter	*Diplacodes lefebvrei*	X
Oasis Skimmer	*Orthetrum sabina*	X
Globe Skimmer	*Pantala flavescens*	X
Purple Blushed Darter	*Trithemis annulata*	X
Grasshopper	*Acortylus longipes*	X
Grass pest	*Aiolopus simulatrix simulatrix*	X
Grass pest	*Aiolopus thalassinus*	X
Grasshopper	*Heteracris annulosas*	X
Grasshopper	*Hyalorrhipis canescens*	X
Grasshopper	*Heteracris cyclopternacris*	X
Migratory Locust	*Locusta migratoria*	X
Grasshopper	*Ocdaleus obtusangulus ?*	X
Gangling Grasshopper	*Truxalis procera*	X
Leafrolling Grasshopper	*Glomeremus* sp.	X
House Cricket	*Acheta domestica*	X
European Mole cricket	*Gryllotalpa gryllotalpa*	X
Grasshopper	*Chrotogonus homalodemus homalodemus*	X
Bushhopper	*Pyrgomorpha bispinosa*	X
Grasshopper	*Tenuitarsaus angustus*	X
Groundhoppers	*Lezina* sp.	X
Grave Hopper (Groundhopper)	*Paratettix ocellatus*	X
Bush Crickets	*Ruspolia nitidula*	X
Long-tailed Earwig	*Labidura riparia*	X
Web-spinners	*Haploembia sp.*	X
Oriental Cockroach	*Blatta orientalis*	X
German Cockroach	*Blatella germanica*	X
Praying Mantids	*Mantis religiosa*	X
Common cyclops Termite	*Psammotermes hybostoma*	X
Book-lice	*Lachesilla pedicularia*	X
Book-lice	*Liposcelis decolor*	X
Book-lice	*Ectopsocus richardsi*	X
Racer Bug (terrestrial)	*Mirperus mucronatus*	X
Minute Pirate Bugs	*Orius albidipennis*	X
Water Boatmen	*Sigara (Sigara) assimilis*	X

Water Boatmen	*Sigara (Vermicorix) lateralis*	X
Burrower Bug	*Amaurocoris aspericollis*	X
Burrower Bug	*Macroscytus brunneus*	X
Bleached Ground bug	*Dieuches schmitzi*	X
Seed Bugs	*Holocranum saturejae*	X
Seed Bugs	*Nysius ericae*	X
Leaf Bug	*Eurystylus bellevoyei*	X
Leaf Bug	*Tuponia concinna*	X
Stink Bug	*Chroantha ornatula*	X
Stink Bug	*Nezara viridula*	X
Scentless Plant Bugs	*Leptoceraea* SP?	X
Whitefly	*Bemisia tabaci*	X
Mealy Plum Aphid	*Aphis gossypii*	X
Oleander Aphid	*Aphis nerii*	X
Aphid	*Hyalopterus pruni*	X
Plant Bug	*Hysteroneura setariae*	X
Leaf Hopper	*Scaphoideus* sp.	X
Leafhopper	*Opsius versicolor*	X
Soft Scales	*Coccus hesperidum*	X
Cixiid Bug	*Pentastiridius suezensis*	X
Plant Hopper	*Toya propinqua*	X
Mealy Bugs	*Pseudococcus sp.*	X
Jumping Plant lice	*Diaphorina sp* ?	X
Thrips	*Haplothrips heliotropii*	X
Thrips	*Eremiothrips antilope*	X
Thrips	*Florithrips traegardhi*	X
Lacewing	*Chrysopa phlebia*	X
Green Lacewing	*Chrysoperla carnea*	X
Dusty-wings	*Coniopteryx (Xeroconiopteryx)*	X
Dusty-wings	*Coniopteryx (Xeroconiopteryx)*	X
Brown Lacewing	*Wesmaelius saudiarabicus*	X
Mantisfly	*Mantispa nana?*	X
Antlion	*Creoleon elegans*	X
Antlion	*Geyria pallida*	X
Antlion	*Quinemurus cinereus*	X
Ant-like Beetle	*Endomia lefebvrei*	X
Small Dung Beetle	*Rhyssemus granosus*	X
Tiger Beetle	*Lophyra histrio*	X
Bombardier beetle	*Pheropsophus africanus*	X
Ladybird	*Hyperaspis viciguerra*	X
Weevil	*Amblyrhinus cylindricollis*	X
Weevil	*Lixus (Prionolixus)*	X
Weevil	*Hypophyes aphyllae*	X

Weevil	*Myllocerus sp?*	X
Weevil	*Nanophyes sp?*	X
Red palm weevil	*Rhynchophorus ferrugineus*	X
Carpet Beetle	*Anthrenus flavipes*	X
Scarab Beetles	*Podalgus cuniculus arabicus*	X
Scarab Beetles	*Dynamopus semenovi*	X
Fawn Diving Beetle	*Eretes sticticus*	X
Click Beetle	*Craspedostethus dilutus*	X
Click Beetle	*Dicronychus ferruginosus*	X
Click Beetle	*Lacon* sp.	X
Click Beetle	*Lanelater parvus*	X
Crawling Water Beetle	*Haliplus lineatocollis*	X
Oil or Blister Beetle	*Probosca (Proboxantha) maindroni*	X
Oil or Blister Beetle	*Mylabris bipunctata?*	X
Oil or Blister Beetle	*Mylabris brunnipes*	X
Melolonthid Beetle	*Autoserica insanbilis*	X
Sap Beetles	*Carpopilus (Carpophilus) hemipterus*	X
Sap Beetles	*Nitidula eremita*	X
Darkling Beetle	*Apentanodes arabicus arabicus*	X
Darkling Beetle	*Alphitobius laevigatus*	X
Darkling Beetle	*Blaps kollari*	X
Darkling Beetle	*Clitobius oblongiusculus*	X
Giant Sand Swimmer	*Erodius octocostatus*	X
Sand Swimmer	*Erodius* sp.	X
Darkling Beetle	*Gonocephalum soricinum*	X
Darkling Beetle	*Microdera marginata deserticola*	X
Darkling Beetle	*Opatroides hispida*	X
Darkling Beetle	*Opatroides vicinus*	X
Darkling Beetle	*Paraplatyope popovi*	X
Darkling Beetle	*Prochoma bucculenta*	X
Darkling Beetle	*Prochoma clypealis*	X
Darkling Beetle	*Tentyrina palmeri*	X
Darkling Beetle	*Thriptera kraatzi*	X
Darkling Beetle	*Trachyderma philistina*	X
Darkling Beetle	*Trichosphaena arabica*	X
Leafminer Fly	*Ophiomyza sp*	X
Fly	*Amygdalops*	X
Robberfly	*Apoclea femoralis*	X
Robberfly	*Apoclea inarticulata*	X
Beefly	*Anastoechus*	X
Oriental latrine fly	*Chrysomya megacephala*	X
False Green bottle	*Chrysomya albiceps*	X
Winter Green bottle (Blow-fly)	*Lucilia sericata*	X

Green bottlefly	*Rhyncomya desertica*	X
Grass Fly	*Epimadiza nigrescens*	X
Grass Fly	*Metopostigma sabulona*	X
Grass Fly	*Tricimba humeralis*	X
Biting Midge	*Culicoides iberiensis*	X
Biting Midge	*Culicoides* sp.	X
Silver Flies	*Leucopis (Leucopis) argentata*	X
Non Biting Midge	*Chironomus calipterus*	X
Green Midge	*Chironomus dorsalis*	X
Non Biting Midge	*Tanytarsus formosanus*	X
Non Biting Midge	*Cladotanytarsus pseudomancus*	X
Southern House Mosquito	*Culex quinquefasciatus*	X
Salt Marsh Mosquito	*Ochlerotatus caspius*	X
Curtonotid Fly	*Curtonotum simile*	X
Long- Legged Fly	*Dolichopus sp*	X
Long- Legged Fly	*Paraclius sp*	X
Fruit fly	*Scaptomyza (Parascaptomyza) pallida*	X
Dance Flies	*Hilara sp?*	X
Shorefly	*Psilops sp*	X
Shorefly	*Ephydra flavipes*	X
Lonchaeid flies or lance flies	*Lamprolonchaea metatarsata*	X
Milichid Flies	*Leptometopa rufifrons*	X
Housefly	*Musca domestica domestica*	X
Housefly	*Musca domestica calleva*	X
Housefly	*Musca crassirostris*	X
Housefly	*Musca sorbens*	X
Tiny fly	*Leylaiya mimnermia*	X
Pictured-wing Fly	*Melieria omissa*	X
Humpbacked Fly	*Megaselia scalaris*	X
Humpbacked Fly	*Megaselia agarici*	X
Humpbacked Fly	*Megaselia halterata*	X
Humpbacked Fly	*Dohrniphora binga*	X
Humpbacked Fly	*Dohrniphora cornuta*	X
Sandfly	*Phlebotomus* sp.	X
Mothfly	*Clogmia albipunctata*	X
Flesh flies	*Sarcophaga hirtipes*	X
Scavenger Fly	*Scatopsidae*	X
Dung Flies	*Conisternum sp*	X
Windowfly	*Scenopinidae*	X
Fungus Gnats	*Sciara sp.*	X
Black Flies	*Simuliidae*	X
Soldier Fly	*Stratiomyidae*	X
Shiny Dronefly	*Eristalinus aeneus*	X

Hoverfly	*Eristalinus* sp.	X
Hoverfly	*Eumerus* sp.	X
Hoverfly	*Eupodes corollae* (?)	X
Grey Gadfly	*Tabanus mordax*	X
Horsefly	*Tabanus* sp.	X
Tachnid Fly	*Chaetogena acuminata*	X
Tachnid Fly	*Peribaea orbata*	X
Tachnid Fly	*Phytomyptera lacteipennis*	X
Tethnid Flies	*Tethinidae*	X
True fruit flies	*Dacus (Didacus) semisphaereus*	X
True fruit flies	*Trupanea pulcherrima*	X
True fruit flies	*Trupanea stellata*	X
Stilto Flies	*Therevidae*	X
Crane Flies	*Tipulidae*	X
Looper Moth	*Atomorpha hedemanni*	X
Pink Carpet	*Hemidromodes sabulifera triforma*	X
Looper Moth	*Idaea sordida sordida*	X
Looper Moth	*Microloxia ruficornis*	X
Looper Moth	*Scopula aadelpharia*	X
Leafminer moth	*Gracillaria auroguttella*	X
Acacia Lappet	*Streblote siva*	X
Grass Jewel	*Freyeria trochylus trochylus*	X
Little Tiger Blue	*Tarucus balkanicus*	X
Mediterranean Tiger Blue	*Tarucus rosaceus*	X
Noctuid Moth	*Eublemma rushi*	X
Noctuid Moth	*Eublema leucota*	X
Noctuid Moth	*Heteropalpia robusta omana*	X
Noctuid Moth	*Anumeta eberti zaza*	X
Noctuid Moth	*Armada gallagheri*	X
Brown White Spot (Moth)	*Gnamptonyx innexa*	X
Brown Spotted Lesser	*Spodoptera cilium*	X
Lesser Leafworm	*Spodoptera exgua*	X
Army Worm	*Mythimna citronatata*	X
Crimson Speckled Footman	*Utetheisa pulchella*	X
Painted Lady	*Vanessa cardui*	X
Blue-spotted Arab	*Colotis phisadia phisadia*	X
Diamondback Moth	*Plutella xylostella*	X
Bag-worm moth	*Amicta mauretanica arabica*	X
Plume moth	*Agdistis tenera*	X
Plume moth	*Agdistis olei*	X
Pyralid moth	*Euchromius ocellea*	X
Pyralid moth	*Euchromius cambridgei*	X
Grey Slipper Moth	*Lamoria anella*	X

Pyralid moth	*Neorastia albicostella*	X
Beet Web Worm	*Spoladea recurvalis*	X
Pyralid moth	*Rungsina mimicralis*	X
Flower Bee	*Amegilla (Micramegilla) byssina*	X
Grey flower Bee	*Anthophora extricata*	X
Dwarf Honey Bee	*Apis (Micrapis) florea*	X
Honey Bee	*Apis (Apis) mellifera*	X
Carpenter Bees	*Xylocopa (Ctenoxylocopa) fenestra*	X
Bethylid wasps	*Lytepyris* sp	X
Bethylid wasps	*Pseudisobrachium* sp	X
Bethylid wasps	*Metrionotus carbonarius*	X
Bethylid wasps	*Sulcomesitius richardsi*	X
Ruby-tailed Wasp	*Chrysis ehrenbergi*	X
Yellow faced-Bee	*Chalicodoma* sp.	X
Digger Wasp	*Bembecinus asiaticus*	X
Digger Wasp	*Bembix dahlbomi*	X
Digger Wasp	*Bembix freygessneri*	X
Digger Wasp	*Bembix* sp 1	X
Digger Wasp	*Bembix* sp 2	X
Digger Wasp	*Cerceris histrionica*	X
Digger Wasp	*Diodonuts hyalipennis*	X
Digger Wasp	*Diodonuts* sp?	X
Digger Wasp	*Didineis crassicornis*	X
Digger Wasp	*Dryudella sp?*	X
Digger Wasp	*Eremiasphecium arabicum*	X
Digger Wasp	*Harpactus laevi aegyptiacus*	X
Digger Wasp	*Lindenius aegyptius*	X
Digger Wasp	*Liris* sp ?	X
Digger Wasp	*Miscophus ctenopus*	X
Digger Wasp	*Miscophus mimeticus*	X
Ichneumonid wasp	*Nitelia sp?*	X
Digger Wasp	*Palarus laetus*	X
Digger Wasp	*Philanthus coarctatus*	X
Digger Wasp	*Philanthus triangulum*	X
Digger Wasp	*Tachysphex brevipennis*	X
Digger Wasp	*Tachysphex consocius*	X
Wasp	*Tachysphex cheops*	X
Wasp	*Tachysphex panzeri*	X
Ensign Wasp	*Evania appendigaster*	X
Ant	*Anoplolepis longitarsis*	X
Carpenter Ant	*Camponotus jizani*	X
Desert Giant Ant	*Camponotus xerxes*	X
Desert Giant Ant	*Camponotus thoracicus*	X

Desert Giant Ant	*Camponotus acvapimensis*	X
Ant	*Cardiocondyla bicoronata*	X
Ant	*Cardiocondyla emeryi*	X
Ant	*Cardiocondyla gallagheri*	X
Desert Runner	*Cataglyphis arenarius*	X
Desert Runner	*Cataglyphis lividus*	X
Desert Runner	*Cataglyphis minimus*	X
Desert Runner	*Cataglyphis ruber*	X
Desert Runner	*Cataglyphis viaticus*	X
Desert Runner	*Cataglyphis cana*	X
Acrobat Ant	*Crematogaster antaris*	X
Acrobat Ant	*Crematogaster senegalensis*	X
Ant	*Lepisiota nigra*	X
Red and Black Ant	*Monomorium areniphilum*	X
Red and Black Ant	*Monomorium chobauti*	X
Red and Black Ant	*Monomorium destructor*	X
Red and Black Ant	*Monomorium qarahe*	X
Samsun Ant	*Pachycondyla sennaarensis*	X
Ant	*Plagiolepis exigua*	X
Ant	*Polyrhachis lacteipennis*	X
Parasitic wasp	*Gasteruption* sp?	X
Ichneumonid wasp	*Temelucha sp*	X
Leafcutter & mason bees	*Megachile sp.*	X
Velvet Ants	*Tricholabiodes sp?*	X
Spider Hunting Wasp	*Micromeriella hyalina hyalina*	X
Spider Hunting Wasp	*Pompilidae*	X
Wasp	*Sycorcytes* sp?	X
Beetle Wasp	*Campsomeriella thoracica*	X
Wasp	*Sphex fumicatus*	X
Wasp	*Sphex pruinosus*	X
Bradynabaenid wasp	*Iswara latifrons*	X
Mud Dauber Wasp	*Seliphron madraspatnum*	X
Arabian Paper Wasp	*Polistes wattii*	X
Oriental wasp	*Vespa orentalis orentialis*	X
Arachnids of Al Wathba Wetland		
Common Name	*Scientific Name*	EAD List
Yellow Desert Scorpion	*Vachonious globimanus*	X
Black fat tail	*Androctonus crassicauda*	X
Sac Spider	*Clubionidae (Sac Spiders)*	X
Small Crab Spider	*Thomisidae*	X
Jumping Spider	*Salticidae spec1*	X
Jumping Spider	*Salticidae spec2*	X

Jumping Spider	*Salticidae spec3*	X
Jumping Spider	*Thyene imperialis*	X
Jumping Spider	*Plexippus paykulli*	X
Jumping Spider	*Heliophanillus fulgens*	X
Jumping Spider	*Langona pallida*	X
Minute Jumping Spider	*Oonopidae*	X
Wolf spider	*Lycosidae spec1*	X
Wolf spiders	*Lycosidae Spec2*	X
Wolf spiders	*Lycosidae Spec3*	X
Wolf spider	*Lycosidae Spec4*	X
Wolf spider	*Lycosidae Spec5*	X
Wolf spider	*Lycosidae Spec6*	X
Sac Spider	*Clubionidae*	X
Ground Spider	*Gnaphocidae*	X
Orb Weaver	*Araneidae*	X
Camel Spider	*Galeodes arabs arabs*	X
Red velvet mite	*Trombidiidae*	X
Harvest mite	*Dinothrombium sp.*	X
Aquatic Invertebrates of Al Wathba Lake		
Brine Shrimp	*Artemia sp.*	X
Water Flea	*Cyclops sp.*	X
Seed Shrimp	*Ostracoda*	X

Appendix 7
List of Plants of Al Wathba Wetland Reserve

Common Name	Scientific Name	EAD List
Aeluropus	*Aeluropus lagopoides*	x
Anabasis	*Anabasis setifera*	x
Desert Hyacinth	*Cistanche tubulosa*	x
Bindweed	*Convolvulus cephalopodus*	x
Cornulaca	*Cornulaca arabica*	x
Bermuda Grass	*Cynodon dactylon*	x
Red Thumb	*Cynomorium coccineum*	x
Cyperus	*Cyperus conglomeratus*	x
	Dipterygium glaucum	x
Pink Mustard	*Erucaria hispanica*	x
Saxual	*Haloxylon persicum*	x
	Haloxylon salicornicum	x
Heliotrope	*Heliotropium bacciferum*	x
	Heliotropium digynum	x
Indigofera	*Indigofera intricata*	x
Lotus	*Lotus garcinii*	x
Turgid Panic Grass	*Panicum turgidum*	x
Bristle Grass	*Pennisetum divisum*	x
Date Palm	*Phoenix dactylifera*	x
Common Reed	*Phragmites australis*	x
Mesquite	*Prosopis juliflora*	x
Foetid Saltwort	*Salsola imbricata*	x
Tooth Brush Bush	*Salvadora persica*	x
Sesuvium	*Sesuvium verrucosum*	x
Drop Seed Grass	*Sporobolus spicatus*	x
Plumose Triple-Awned Grass	*Stipagrostis plumosa*	x
Tamarisk	*Tamarix* cf. *ramosissima*	x
Tribulus	*Tribulus arabicus*	x
Christ Thorn	*Ziziphus spinachristi*	x
Bean Caper	*Zygophyllum qatarense*	x
Zygophyllum	*Zygophyllum simplex*	x
Casuarina	*Casuarina equisetifolia* (planted)	x
Dammas	*Conocarpus erectus* (planted)	x
Eucalyptus	*Eucalyptus* sp. (planted)	x