

BIRDS OBSERVED AT GHUBRAH BOWL, SAYQ PLATEAU AND JABAL SHAMS, NORTHERN OMAN; 19 MARCH - 26 APRIL 2005 WITH COMMENT ON THEIR STATUS AND POPULATION

Note by Author: This report was prepared as a source document for a wider report on the birds of the region. It was prepared on the last day of the survey period (27 April) without access to a comprehensive reference library or time to give proper analysis of the data collected in the field. There was also not enough time to include all the scientific names of plants etc. Also there was insufficient time to develop conclusions or frame recommendations. In addition several continuity aspects need more attention. Comments on populations should be viewed as an estimates based on my own assessment of records obtained during the survey and may not be substantiated by later analysis or observations at different times of the year. All data collected will be provided to Sultan Qaboos University (SQU) within 2 months to assist the full analysis of the Jabal Akhdar environment study. This version includes a few minor changes and corrections to the report version given to SQU on 28 April.

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INTRODUCTION

Objectives of Study

The current study was part of a series of environment related studies of the Jabal Akhdar sponsored by the Sultan Qaboos University, Al Khoud, Sultanate of Oman. The present study aimed to establish the range, habitat, status and population of breeding species in the area, review the historical perspective and list migrant and visitor species noted during the survey.

This interim report is supported by the following original data:

- a. A spreadsheet of all observations made on a daily basis.
- b. A spreadsheet on individual Wood Pigeon records.
- c. A listing of all records added to the ABBA database resulting from the survey.
- d. Results of 28 (18 in the survey area) half hour transect censuses.
- e. Results of 38, 5 minute point counts.
- f. Miscellaneous records/observations collected during the survey.

Members

The author was present throughout the whole study. He was accompanied during the period 7-10 April on the Sayq Plateau by Salim M M al Saadi, Director of Biodiversity, Nature Conservation MRMEWR (Ministry of Regional Municipalities, Environment and Water Resources) and 20-22 April on Shams by Dr Jens Eriksen and Hanne Eriksen.

Itinerary

The Sayq plateau, Jabal Shams and the adjacent lowland areas were visited during the period 19-29 March mainly for orientation. The main study took place at Ghubrah Bowl, 31 March - 5 April; Sayq Plateau 6-20 April and Jabal Shams 20-24 April. An account of areas visited each day may be found at Appendix 1.

DEFINITION AND SUMMARY DESCRIPTION OF STUDY AREAS

During the study and in this report, the three study areas are defined by altitude and the highlands by latitude (see sketch map at Fig 1.), as follows:

Ghubrah Bowl: That area shown on Fig 1 up to 1800 m.

Sayq Plateau: All areas over 1800 m between 57° 30' E and 58° E.

Jabal Shams: All areas over 1800 m between 57° and 57° 30' E.

Ghubrah

A broad generally flat plain surrounded by a steep escarpment reaching at least 2000 m on all sides, including the Sayq plateau to the south, west and south east. The plain slopes markedly down from the south at about 1000m to about 600 m in the north. The plain is dissected by 3-4 deep wadis. Jabal Sahara is an isolated outcrop (1000 m) in the centre of the bowl, there are other smaller outcrops nearby. Drainage is mainly through the Wadi Sabt in the north west. The extreme north west corner, including the village of Feek drains through the Wadi Bani Hirras and the north east village of Wajmah drains north through another wadi. Plains vegetation is mostly acacia and tamarisk *Tamerix sp.*, with some *Maerua crassifolia* and *Lycium shawii* with many old large Elb or Sidr trees *Zizyphus spinachristi* are found in the wadis. A few *Moringa peregrina* trees occur on the rim of the bowl. On the escarpment the juniper *Juniperus* were found as low as 1650 m (in a sun sheltered area above Hadash in the south east bowl) where other trees more typical of the highlands were also found, including wild olive *Olea sp.*, Boot *Monothecca buxifolia*, Nimpt *Sageretia spiciflora* and *Zizyphus hajarensis*. Villages are accessible from the bowl on tracks and occur up to 1500 m. Villages actually on the escarpment tended to have small areas of cultivation irrigated by falaj, growing fruits such as pomegranate, grapes and limes, also dates and cereals (wheat and oats - apparently grown as fodder crops) and vegetables particularly onions and garlic. The lowest altitude cultivation was near Ghubrah village at about 600 m, where ground water was pumped from the wadi. Smaller villages and hamlets situated generally at the base of the escarpment do not have cultivation but raise goats. The two types of villages probably have different tribal origins.

Sayq Plateau

This region is mostly over 2000 m with max of about 2430 m. There are in fact two plateaus. One 1800 m to about 2100 m includes the main habitation and cultivated areas and includes the main village and administrative centre of Saih Ketanah. To the north there is another plateau over 2100 which reaches 2430. The latter is often referred to the 'juniper plateau' although juniper does not occur throughout this region and there are a mixture of other tree species on this plateau. Main drainage is southwards through the Wadi Bani Habib and Wadi Muaydin, however in the east the area near Menakir drains into the Wadi Halfayn system eastwards and in the west the Wadi al Hirri takes water from the Ruus area. In the north small wadis drain northwards into the Wadi Bani Khurus. One of the outstanding natural features of this area is the juniper area in the northern central region. Juniper occurs generally above about 2100 but in some of the more sheltered ravines and especially on the northern escarpment there are examples to be found from 1800 m. There is no juniper in the drier southern hills. Juniper is always found with wild olives *Olea sp.*, and Boot *Monothecca buxifolia*, which occur throughout the region. Other common and widespread trees and bushes are Nimpt *Sageretia spiciflora*, *Zizyphus hajarensis* and the *Dodonaea viscosa*. There is only one area of cultivation on the juniper plateau, which is a recently established farm of about 20 a. Acacia is widespread up to about 2200 m but is rare in the juniper areas. On the lower Sayq Plateau the main areas of cultivation where the principal village and local government centre is Saih Ketanah. The primary areas of cultivation are Al Ain, Sherega, Al Agar, Ghasha'a, Hail al Yemen and Bani Habib. (For details of the areas under cultivation in all three regions, see Appendix 6). Notable trees in these areas are large walnuts, almonds and apricots. The gardens produce a variety of fruits, nuts,

vegetables and cereals. (15 different crops were counted at al Ain). Other outlying areas of cultivation are at Menakir. Outlying villages in the hills are generally without cultivation and were mainly pastoral in nature, with flocks of sheep and goats; some cows are kept in biers. Camels are not kept in the mountains because, the author was told, the Boot *Monotheca buxifolia* is poisonous to it.

Jabal Shams

Unfortunately it was not possible for the survey to visit the summit area of Jabal Shams which rises to just over 3000 m and many other parts of that jabal. In the west the area slopes gently southwards to the Wadi Ghul and but a number of wadis collect water in the east. The jabal drops abruptly on the northern escarpment into the Wadi Bani Awf, Sahtan Bowl and Wadi Bani Khurus. The western part is deeply cut by the Wadi Nakre forming what is often referred to as the 'grand canyon'. It is known that in this summit area there are many very old and large juniper trees and that the wild olive and Boot trees are absent at about 3000 m. The survey was able to visit areas up 2400 m. Like Sayq in the areas above 2100 m juniper occurred and below this level acacia was predominate. Wild olive and Boot were present throughout the areas visited. Nimplt *Sageretia spiciflora*, *Zizyphus hajarensis*, *D. viscosa* were also common. Human habitation is limited to a few small hamlets mainly raising goats and sheep although there are two or three small areas of cultivation, where traditional irrigation methods using falaj are found. A variety of vegetables and fodder crops are grown. There is permanent Royal Oman Air Force post on the summit, and the escarpment overlooking the Wadi Nakre now has a small motel.

METHODS

General ornithological observations were made throughout the survey period, both on foot and from a vehicle. A range of formal censusing techniques were employed. Observations were made using mainly 10X40 binoculars and occasionally a 60X telescope. A GPS device was used for positioning, altitudes and occasionally for measuring distances.

Walking transects were mainly used in the two highland sites as vehicular observation was limited to the roads. Long walks (6 hours or more usually from about 0600 hrs 1200 hrs) were completed on 7 days (5 Sayq, 2 Shams) to the more remote locations and various smaller walks were done most days. Good point observations data was collected at the various camp sites on most days over a 4-5 hour period.

Half hour transect censuses were carried out on 18 mornings starting within a few minutes of sunrise. (Sunrise ranged between about 06.15 and 05.44 hrs during the period).

Five minute point counts were completed on 38 occasions. This technique was not regarded as a very effective method in view of the small numbers of birds present in most areas.

Breeding birds were recorded according to the breeding evidence code (BEC) published by the European Ornithological Atlas Committee as adapted by the Atlas of the Breeding Birds of Arabia (ABBA) project. See Appendix 2. The ABBA project uses a half degree square as its basis for spacial distribution. However for the purposes of this current survey a 5' (1/12 degree) grid square was used. This larger grid square enable the three regions to be divided up into workable units (See Fig 1) and also encouraged the author to get to many of the outlying districts.

Permission was obtained to use mist nets to catch and examine birds in the hand on those occasions when such a technique might be helpful, for example in the case of variety of migrants present in one confined area or to identify a particular bird. However a mist net was only put up on one occasion (of three birds caught one was a Arabian Partridge).

RESULTS

Breeding Birds

During the course of the survey a total of some 31 species were observed in the three regions which were thought likely to be breeding or at least were potential breeding species. Within the total, 24 species were found in the Ghubrah Bowl, at Sayq there were also 24 species and on Shams 26 species. (See Table 1) A small number of species were found in the mountains but not in Ghubrah Bowl and vice versa (See Appendix 4). Most breeding species were classified as breeding residents however some species are likely to be breeding visitors to the Jabal Akhdar for example Pallid Swift, Long-billed Pipit and Purple Sunbird and possibly others. In this respect a potential breeding bird means a species that is known to breed in the region or for which good evidence of 'probable' or 'confirmed' breeding was obtained during the survey. Of the total 21 were shown to be actually breeding or probably breeding during the survey. Others are likely to breed at others times of the year, particularly later in the summer. (Table 1)

In addition there were a number of species, probably of migratory status, that exhibited signs of early breeding season behaviour, for example some shrikes, warblers and chats. Details of these species are provided in the listing of migrants and visitors at Appendix 5.

The study area, compared to the similar mountainous areas in Arabia, has a rather restricted number of species breeding or resident and generally speaking these species are present in low numbers. Comments on status or commonality in this report obviously refer to the period of observation. It should be borne in mind that birds may well have a different status or be more or less common at other times of the year. A checklist of all breeding birds can be seen at Appendix 3, which gives an estimate of the breeding population, notes on habitat etc.

An estimate of the population (breeding pairs) of each species in each of the three regions can be seen at Appendix 4.

Table 1: Overview of Birds Breeding in Each Region

	Ghubrah	Sayq	Shams	Total
Total number of potential breeding birds recorded	24	24	26	31
Evidence gathered during the survey indicating probable or confirmed breeding (within the total)	12	16	9	21

Migrant and Visiting Species

As a general rule migrant species might turn up anywhere along their migration route during the period of movement. Others species that winter in Oman until March or even April, tend to be present in specific habitat during the winter months.

The period may have been exceptional poor for migrants throughout northern Oman . Certainly few migrants and visitors were recorded. The 22 species that were recorded are listed at Appendix 5. No particular migrant rich sites were identified during the survey.

A Note on Wood Pigeons

Wood Pigeon only breeds in Arabia in the mountains of northern Oman. The majority of the Omani

population is thought to breed in the area covered by the present report. In view of the rather scant information available on the Wood Pigeon in Oman this separate note is prepared from the several records obtained of the species during the survey, and include notes on breeding, behavioural and diet.

The observations gained indicate that the species occupies undisturbed, well wooded hillsides, valleys and open parklands, from about 2100 m upwards. They were found calling and presumably nesting from about 1700 m on the slopes of the Ghubrah Bowl and Sayq Plateau where there is a good tree cover. Their distribution in study area more or less follows the distribution of the juniper, but this is thought to be a coincidence rather than indicative that the species is dependent on juniper. It does eat juniper berries and nest and roosts in juniper trees but this is just one of a range of berry trees that it exploits in that same habitat. The juniper zone includes large numbers of the wild olive and Boot *Monothea buxifolia* and *Lycium shawii* all of which have been recorded as eaten by this pigeon.

The most notable point about the pigeon is that it is difficult to find and observe and this is because it is extremely shy and it tends to keep a very low profile within its chosen habitat. This is no doubt due to it being good to eat and has consequently been hunted for a very long time by the local people. The call for example is considerably softer than the call uttered by UK birds. (Most calls are given from cover during the first 2 hours after dawn and in the late afternoon but once heard an hour before dawn and also after sunset.) The wing clap display, which was seen on a number of occasions, includes a much shallower rise and fall profile and is only repeated once. On their escape flight when disturbed they leave a tree relatively quietly and fly low, making good use of trees and rocks for cover during their escape. On one occasion a male cooing and wing-clapping provoked two others to coo and wing-clap nearby.

This pigeon was eating the local berry *Nimpt Sageretia spiciflora* which was producing large numbers of deep purple berries from about the first week in April until about the 25 of the month, when most has gone. The berry is much favoured by several bird species (residents and migrants were taking it) and produces deep purple faeces. In the case of the pigeon, rocks under roosts sites were very heavily stained purple with these droppings. *Nimpt Sageretia spiciflora* is found from about 1800m upwards but mostly above 2000. (Nimpt is not to be confused with the fruit of *M. buxifolia* which also produces a deep purple berry but later in May- June). In early April (and in March 2002; pers obs) the Wood Pigeon was observed to visit lowland wadies in the Ghubrah Bowl, Wadi Bani Hiras and Wadi Muaydin, at about 5-600 m to feed on the fruit of the Elb tree *Zizyphus spinachristi* which are common there. They were not seen to take the fruit of the endemic *Zizyphus hajarensis* which is found from about 1800 m upwards, possibly because that fruit has a much larger and harder central stone than *Z. spinachristi*.

During the survey five Wood Pigeon nests were located (13-22 April) :

Host Tree	Height above ground	Construction and notes
Juniperus	5 m	Robustly built of twigs and rootlets and placed in a major fork from the trunk. Bird flushed off 2 eggs. The bird was present at the nest the next day but later deserted, despite no approach to the nest within 50 m. On one occasion the male and female appeared to change over incubation at the nest.
<i>Monothea buxifolia</i>	5 m	More robustly built than UK nests, placed in the crotch of an outer branch. Contents unknown as tree could not be climbed.. Birds cooing and wing clapping in the vicinity.
<i>Monothea buxifolia</i>	4 m	About 100 m from previous nest. Robustly built and placed in the spindly outer branches of the tree. Content unknown as tree could not be climbed. Birds cooing and wing clapping in the vicinity.
Olea	7 m	Nest fragile it was possible to see through the outer edge of the nest (as for UK birds) but appeared to be complete. Contents unknown as tree could not be climbed.. Birds cooing and wing clapping in the vicinity.
Olea	5 m	Robust nest. Bird sitting on nest but contents unknown as tree could not be climbed.

Environment/conservation Issues

No particular conservation concerns were noted in the Ghubrah Bowl.

In the two highlands regions a common concern was the pressure that tourists and day trippers are putting on the local environment, which by any standards, is very slow to regenerate. The many tracks now present in the hills, some officially graded others developed by usage have taken away a significant part of the environment available for plant regeneration and thus exploitation by wildlife. One particular problem noted as associated with tourist and trippers was the large amounts of wood consumed in camp fires, which appear to serve no practical purpose other than they are nice to sit round at night. For the most part fires were fed from dead wood collected off the ground but in a number of witnessed cases branches were broken from living trees, trees themselves were set alight and in one case an apparently dead tree was pulled over by a 4X4 vehicle to be used for firewood. People doing such things are probably not aware of the valuable part played by dead trees in the ecosystem of the forest both as a food source for invertebrates but as nesting and perching places for birds. Perhaps some form of ranger/warden service is needed in these important areas to ensure that tourists and day tripper do respect the environment.

Another problem common to both Sayq and Shams was the large numbers of feral donkeys present. These are clearly now in their 2nd or 3rd generation since originally being released from their status of beasts of burden. There were probably at least 300 donkeys present on the juniper plateau of Sayq alone. Apart for the danger they pose to driving in the area these animals are consuming a considerable volume of vegetation and are probably responsible for the over-grazed condition noted in several places.

By far the worst environmental crime is the destruction of large areas of the Sayq Juniper plateau through the removal of top soil for use the nearby government farm. This new farm of some 20 ha with little natural topsoil has been supplemented with topsoil taken wherever it could be found nearby. The topsoil removal gang of expatriates equipt with a 25 tonne excavator and 3 X 10 tonne trucks, were unsupervised and presumably ignorant of the importance of the area for scenic reasons and biodiversity. They appeared to wander around taking topsoil wherever they could find it. In no case did they tidy up exploratory holes and they often left ancient juniper and olive trees marooned on islands of soil with their broken roots exposed to the elements. (During one lunchtime the author witnessed this team extract 6 X 10 tonne loads of topsoil , yet the practice has been going on for weeks). The area they had destroyed was probably at least 5 times the area of the farm they were seeking soil for. A supplementary major problems caused by this team was that in their search for more topsoil they were opening up more and more parts of this fragile juniper plateau to tourists and trippers, with the dangers that the problems noted above would be extended over much greater areas. It is a scandal that this is happening to such an important and unique biotype. It is understood that the Omani Government has proposed the Juniper Plateau for recognition as a World Heritage Site by UNESCO. It seems totally incongruous that this proposal can be made when at the same time another arm of government is fast destroying this irreplaceable habitat.

Not a single juniper sapling was seen anywhere during the study, despite a search. No stock animals appear to eat the juniper so it may be that the juniper is in decline, possibly due to increasing aridity during a period of long term climate change in the region (several trees had clearly recently died on the lower altitude or drier fringe of their range)> It would seem some assistance is needed to ensure the next generation of juniper trees can become established.

Another potential negative impact on the highland environment is the possibility that the region will become popular for weekend homes and other developments. Already several large plots have been marked out for development. Close scrutiny and regulation of all developments in the area is needed

CONCLUSIONS

(Comparisons with previous research - Gallagher Report on Jabal Akhdar)
(Bird Population levels)
(Environmental pressures)

RECOMMENDATIONS

Donkeys - a problem that needs to be resolved

Rangers/Wardens may be needed to control the misbehaviour by visitors.

Soil extraction for agriculture must stop immediately.

Close scrutiny is needed of all development proposals on Sayq plateau to ensure the integrity of natural habitats and fauna.

APPENDICES

Appendix 1

ITINERARY AND PLACES VISITED

Date	Time	Location	ABBA Square and Sub Square
19 Mar 05	1600-1830	Sayq Plateau near rubbish dump	XB23; 33
20 Mar 05	0615-1815	Sayq Plateau: Ruus, Bani Habib, Dump	XB23; 33, 32, 25, 26
21 Mar 05	0615-1500	Sayq Plateau: Farm and Menakir	XB23; 26, 25, 27, 33
21 Mar 05	1600-1830	Wadi Muaydin*	XB23
22 Mar 05	0630-1500	Wadi Muaydin to Nizwa *	XB23
22 Mar 05	1500-1830	Jabal Shams	XA23; 21,
23 Mar 05	0615-1840	Jabal Shams	XA23; 21, 14, 15
24 Mar 05	0620-1430	Jabal Shams; walk 1900-2400 m	XA23; 21,
24 Mar 05	1430-1815	Jabal Ghul to near Sint *	XA23
25 Mar 05	0615-1830	W Jabal Ghul, J Misht, Ibri, Wadi Bani Ghafir *	XA23; WB23
26 Mar 05	0615-1830	W Bani Ghafir to Khaborough and Sohar farms *	XA23-WB25
27 Mar 05	0745-1045	Sohar Sun Farms (Not part of Survey)	WB25
28 Mar 05	0615-1800	Wadi Bani Awf, J Shams, Hamra,	XA23 23, 30
29 Mar 05	0630-1000	Eastern Jabal Shams and Hamra	XA23 23, 30
30 Mar 05	0745-2300	Al Khoud, airport, Qurm, Muscat **	
31 Mar 05	1130-1830	Al Khoud to Ghubrah, Wekan, Qoorah, Hegar, Hadash	XB23; 27, 28
1 Apr 05	0615-1830	Hadash, to 2000m, SE Ghubrah to J Sahra	XB23; 27, 28, 22
2 Apr 05	0615-1830	J Sahra, Ghubrah, Feek, W Bani Hiras	XB23; 22, 21, 15, 20,
3 Apr 05	0600-1830	W Bani Hiras, Feek, Wajmah, Central bowl	XB23; 20, 21, 15, 16
4 Apr 05	0615-1830	Central bowl, Amti, Hegar, Qoorah	XB23; 21, 27
5 Apr 05	0630-1300	Qoorah, Wekan escarpment, J Sahra	XB23; 27, 22
6 Apr 05	0600-1800	Rubbish dump, ail al Yemen, Menakir, west of farm	XB23; 33, 27, 26
7 Apr 05	0630-1800	West of farm, Suggarah, Sayq, Bani Habib	XB23; 26, 27, 32
8 Apr 05	0620-1825	Main village, Sherega, Menakir, Russ	XB23; 26, 27, 33, 34, 25,
9 Apr 05	0730-1830	Al Ain, Masirat ar Ruwajjah, Ahbut al Bayut.	XB23; 33, 32, 25
10 Apr 05	0605-1830	W Duwaykiyah, Saggarah track, back of farm, Ar Ruus	XB23; 33, 26, 25
11 Apr 05	0600-1800	Near Ruus and escarpment above Ruus, back of Royal Farm	XB23; 25, 19, 26
12 Apr 05	0600-1800	Juniper Plateau to Kaf Namawil, and near Greer	XB23; 26, 25
13 Apr 05	0600-1840	Cliff village and plateau (CVP) Ca. 23° 06N 57° 31E, Da'an al Pesaiten dam	XB23; 25, 26
14 Apr 05	1100-1800	Al Ain, W Bani Habib, + WP nest check	XB23; 32
15 Apr 05	0600-1830	WP Nest & Juniper plateau, Telecoms towers, Menakir	XB23; 26, 27, 33, 34
16 Apr 05	0600-1230	Hills and wadi above Menakir	XB23; 27
16 Apr 05	1515-1830	Tanuf-Qyoot track eastern Shams	XA23; 30
17 Apr 05	0550-1530	Eastern Shams tracks	XA23; 30, 23, 24
17 Apr 05	1530-1730	Tanuf to Birkat al Mawz *	XA23; XB23
18 Apr 05	0630-1645	Juniper plateau between farm and escarpment	XB23; 26
19 Apr 05	0550-1800	Saih Ketanah, Bani Habib, Al Ain, Ruus	XB23; 32, 25
20 Apr 05	0700-1100	Saih Ketanah, Juniper plateau	XB23; 26,
20 Apr 05	1400-1830	Shams	XA23; 21
21 Apr 05	615-1830	Shams & above Air force gate to 2200m	XA23; 21, 15
22 Apr 05	0553-1030	Above air force gate (nothing notable on plateau pm)	XA23; 15, 21
23 Apr 05	0535-1830	Shams Plateau (21), W Nakre (WN), Shams east (23)	XA23; 23
24 Apr 05	0603-1115	Shams east 23	XA23; 23
24 Apr 05	1600-1830	Jabal Salakh nr Adam until 0930 hrs, 25/4 **	XA21
25 Apr 05	1300-1830	Sayq: Al Ain, Bani Habib, Juniper plateau	XB23; 33, 32, 26
26 Apr 05	0545-0830	Sayq western juniper plateau	XB23; 26

* Not part of study area but immediately adjacent and therefore observations are relevant

** Not part of Survey

NB Some days are shown in two parts where effort was split between two or more areas.

Appendix 2

THE ABBA BREEDING EVIDENCE CODE

The ABBA project uses the following code to denote the observed breeding status of birds. This code can be seen on the printout of all the ABBA records which will support this report. On distribution maps the various codes translate into different sized blobs denoting possible, probable and confirmed breeding. The records coded 99 do not show on the maps and are used to record information on the database without impinging on maps, for example they could refer to data on habitat or pollution relevant to a species.

Present

XX Highly sedentary species observed at any time.

0 Species observed in the breeding season.

Possibly breeding

01 Species observed in the breeding season in possible nesting habitat.

02 Singing male(s) present (or breeding calls heard) in the breeding season.

Probably breeding

03 Pair observed in suitable nesting habitat in the breeding season.

04 Permanent territory presumed through registration of territorial behaviour (song etc) on at least two different days, a week or more apart, at the same place.

05 Display and courtship (includes copulation)

06 Visiting probable nest site.

07 Agitated behaviour or anxiety calls from adults(s).

08 Brood patch on adult examined in the hand, indicating probably incubating.

09 Building nest or excavating nest-hole.

Confirmed breeding

10 Distraction display or injury feigning.

11 Used nest or eggshell found.

12 Recently fledged young (nidicolous species) or downy young (nidifugous species).

13 Adult(s) entering or leaving nest site in circumstances indicating occupied nest including high nests or nest-holes, the contents of which cannot be seen or adults(s) seen sitting on the nest.

14 Adult(s) carrying food for young or faecal sac.

15 Nest containing eggs.

16 Nest with young seen or heard.

Appendix 3

CHECKLIST OF BREEDING BIRDS

A summary is given of the occurrence noted in each of the three regions covered by the survey. Breeding evidences above BEC 3 “Pair in suitable breeding habitat”, are given. Full details of all observations and breeding indications can be found in the datasets that accompany this report.

EGYPTIAN VULTURE *Neophron percnopterus*

Ghubrah Bowl: Only one seen 4 April

Sayq Plateau: Up to 6 seen together but not daily. Usually to be seen near the rubbish dump. Pair left a cliff site where there may have been a nest near Greer 12 April.

Jabal Shams: In small numbers (up to 5 seen on 5 occasions) , often hanging around the tourist areas.

LAPPET-FACED VULTURE *Torgos tracheliotus*

Sayq Plateau: One over telecom towers 15 April

Jabal Shams: Eleven, March probably at site of carcass, one at 2200 m, 21 April

SHORT-TOED EAGLE *Circaetus gallicus*

Sayq Plateau: One seen twice on the juniper plateau. (A displaying pair were seen nearby, 22 April by J & H Eriksen)

Jabal Shams: One eastern section, 29 March

BONELLI'S EAGLE *Hieraaetus fasciatus*

Sayq Plateau: One over Wadi Muaydin 21 March (not within the altitude range of Sayq but in an adjacent area).

Jabal Shams: One high over escarpment, 22 March

KESTREL *Falco tinnunculus*

Ghubrah Bowl: One near Jabal Sahra, 3 April

Sayq Plateau: One near Al Ain three times and another near Greer

Jabal Shams: One at 2200 m, 21 April

BARBARY FALCON *Falco pelegrinoides*

Jabal Shams: One falcon, probably this species mobbing Bonelli's Eagle 21 March. At another site a single agitated bird (mobbing Short-toed Eagle and Egyptian Vulture) was seen 29 March and 23 April escarpment overlooking Hat in the eastern sector.

ARABIAN PARTRIDGE *Alectoris melanocephala*

Sayq Plateau: Heard near Kaf Namawil and Greer

Jabal Shams: Rather scarce but heard calling commonly in eastern Shams, also in the west near the air force gate and the motel. A bird examined in the hand 23 April did not have a brood patch.

SAND PARTRIDGE *Ammoperdix heyi*

Ghubrah Bowl: Heard at Jabal Sahra and Wadi Bani Hiras

Sayq Plateau: Heard near Greer and Menakir.

Jabal Shams: One record, a calling bird 21 April near the air force gate at 1900 m.

GREY FRANCOLIN *Francolinus pondicerianus*

Ghubrah Bowl: Present in cultivated areas and wadis with good cover. Juvenile, 1 April.

Sayq Plateau: Widespread near cultivated areas, seen up to 2357 m on juniper plateau.

Jabal Shams: One record on Shams plateau at 1900 m

LICHTENSTEIN'S SANDGROUSE *Pterocles lichtensteinii*

Ghubrah Bowl: Heard at night and early morning near Jabal Sahara and Wadi Bani Hiras

Sayq Plateau: Heard on one occasion - not confirmed.

ROCK PIGEON *Columba livia*

Ghubrah Bowl: Rather scarce 2 feeding early morning in central bowl and 2 others on escarpment above Wekan

Sayq Plateau: Scarce up to 15 seen on 3 occasions. Pair at probably nest site 12 April. Feral pigeons and free flying loft pigeons are also present some villages.

Jabal Shams: Scarce, heard/seen at two sites only.

WOOD PIGEON *Columba palumbus*

Ghubrah Bowl: Heard on escarpment probably mostly above 1800 m, small groups, up to five together feeding in wadis on *Zizyphus spinachristi*.

Sayq Plateau: Shy and difficult to find but apparently quite numerous in the juniper areas. Eggs 13 April. (See separate note on this species).

Jabal Shams: One heard and later seen near the air force gate.

EURASIAN COLLARED DOVE *Streptopelia decaocto*

Ghubrah Bowl: 2 calling Wadi Bani Hiras, 3 April

PALM DOVE *Streptopelia senegalensis*

Ghubrah Bowl: Common and widespread in all habitats

Sayq Plateau: Widespread but no present boe about 2300 away from habitation and cultivation.

Jabal Shams: No where near as widespread and common as on Sayq, rather scarce except near culminations which are much less frequent on Shams.

BRUCE'S SCOPS OWL *Otus brucei*

Ghubrah Bowl: Widespread and probably common, Hadash, Jabal Sara, W Bani Hiras, central bowl area and Qoorah

Sayq Plateau: Only heard in a wadi near Ruus at about 2200 m.

Jabal Shams: One calling near village at 2200 m on 21/22 Aril.

LITTLE OWL *Athene noctua*

Jabal Shams: One calling eastern Shams, 23 April.

PALLID SWIFT *Apus pallidus*

Ghubrah Bowl: Heard or seen in the escarpment region, Hadash, Wekan, also Wajmah.

Sayq Plateau: Widespread especially near the escarpment. See approaching certain cliffs regularly as if breeding there, 13-15 April.

Jabal Shams: Up to 40 over escarpment 22 March, more widespread and bigger groups (50+) near the escarpment at especially dusk. Mainly loose feeding flocks. Collecting airborne nesting material 23 April.

LITTLE GREEN BEE-EATER *Merops orientalis*

Ghubrah Bowl: Scarce, pair near Wajmah and 1 Qoorah.

Sayq Plateau: Heard on one occasion, not confirmed.

BLACK-CROWNED FINCH LARK *Eremopterix nigriceps*

Ghubrah Bowl; One heard 1 April, not confirmed

DESERT LARK *Ammomanes deserti*

Ghubrah Bowl: Rather scarce encountered in ones and two on the escarpment rim or central bowl rock outcrops

Sayq Plateau: Strangely scarce, seen most days but only in ones and twos here and there, mostly in drier areas with less vegetation but also found in juniper areas. Eggs 10 April, food carrying at another site 20 April.

Jabal Shams: Small number in the drier localities

CRESTED LARK *Galerida cristata*

Ghubrah Bowl: One heard near Ghubrah 2 April.

PALE CRAG MARTIN *Ptyonoprogne fuligula*

Ghubrah Bowl: Scarce found in ones and twos near the escarpment rim especially in the south.

Sayq Plateau: Widespread in small numbers, a pair could usually be found at most precipice sites.

Collecting mud for nests 6 April and pair at probable nest site 12 April.

Jabal Shams: One or two to be seen at most cliff, rock outcrop habitats. Eggs 22 March.

LONG-BILLED PIPIT *Anthus similis*

Ghubrah Bowl: One record of 2 singing between 1600 and 1900 m on the escarpment above Wekan on 5 April. The species appears to take up highland territories from early April and it is possible not all birds had arrived in the area from winter quarters.

Sayq Plateau: Widespread to be seen at most sites especially near rock outcrops and on the juniper plateau. More numerous in late April than in late March indicating that birds move into the area to breed, probably wintering on the lowlands as indicated by general observations in Oman. Collecting nesting material 19 April.

Jabal Shams: Widespread in small number, more numerous in April than March.

YELLOW-VENTED BULBUL *Pycnonotus xanthopygos*

Ghubrah Bowl: Widespread in small numbers in all habitats. Eggs 2 April.

Sayq Plateau: Common and widespread present in all habitats often numerous.

Jabal Shams: Widespread at all habitats. Collecting nesting material 23 March. One examined in the hand 23 April had a well developed brood patch.

HUME'S WHEATEAR *Oenanthe alboniger*

Ghubrah Bowl: Uncommon, Single birds and pairs located on the escarpment. Food carrying 31 March.

Sayq Plateau: Widespread wherever there are cliffs or rock outcrops, less frequent in level habitats such as the juniper plateau or ar settlements. Food carrying 20 April.

Jabal Shams: Widespread in small numbers particularly near rock outcrops and cliffs.

GRACEFUL WARBLER (GRACEFUL PRINIA) *Prinia gracilis*

Ghubrah Bowl: Scarce and local recorded only at Feek and Wekan. Food carrying 2 April

Sayq Plateau: Local and small numbers, recorded only at Hail al Yemen and Al Ain cultivated areas. Eggs 19 April.

SCRUB WARBLER *Scotocerca inquieta*

Sayq Plateau: Scarce and local recorded in 6 widely spaced localities.

Jabal Shams: Scarce, noted at four localities

ARABIAN BABBLER *Turdoides squamiceps*

Ghubrah Bowl: Widespread in small numbers. Pair at a nest 1 April.

Sayq Plateau: Groups encountered in all areas but not particularly numerous anywhere. Food carrying on 8 April. First egg laid in an observed nest 20 April.

Jabal Shams: Noted at four well wooded localities.

PURPLE (INDIAN PURPLE) SUNBIRD *Nectarinia asiatica*

Ghubrah Bowl: Widespread in small numbers on the escarpment culminations especially but also in wadis. More or less absent on the acacia plains

Sayq Plateau: Much more numerous in late April than in late March, indicating that birds move up to the Sayq plateau to breed, probably in May and June. In late April could always be seen or heard in cultivation and occasionally in well vegetated wadis but absent from the juniper plateau and hillsides.

Jabal Shams: Individual noted at two cultivated areas at about 2200m.

WOODCHAT SHRIKE *Lanius senator*

Ghubrah Bowl: Single bird singing on the acacia plain near Jabal Sara , 2 April

GREAT GREY SHRIKE *Lanius excubitor*

Ghubrah Bowl: Singing in Wadi Bani Hiras and a pair at a nest on the central plain, 3 April.

BROWN-NECKED RAVEN *Corvus ruficollis*

Sayq Plateau: Scarce, not seen every day, individuals and pairs often visited camp sites and the rubbish dump. Jabal Shams: Singles or pairs seen on a few occasions usually around camp sites looking for scraps.

HOUSE SPARROW *Passer domesticus*

Ghubrah Bowl: Common around all settlement however small . Entering nests as if breeding 2 April.

Sayq Plateau: Present near all settlements but rarely away from this habitat. Collecting nesting material 7 April.

Jabal Shams: Rare, odd birds to be seen near settlements also at the air force guard post.

YELLOW-THROATED SPARROW *Petronia xanthocollis*

Ghubrah Bowl: A breeding summer visitor that was apparently just arriving, recorded at four sites on the plain and on the escarpment.

HOUSE BUNTING *Emberiza striolata*

Ghubrah Bowl: Small numbers singing on the escarpment above Hadash and Wekan.

Sayq Plateau: Local to rather dry hillside and cliffs with not much vegetation. Not seen every day.

Jabal Shams: Scarce only recorded at 4 sites which tend to be rather bare hillsides..

Appendix 4

SUMMARY OF ESTIMATED MINIMUM POPULATIONS (PAIRS) OF BREEDING BIRDS IN THE THREE REGIONS

See separate spreadsheets for each region for notes on basis of estimates

	Ghubrah	Sayq	Shams	Total
Egyptian Vulture	1-2	5-10	5-10	16
Lappet-faced Vulture	NR	<5	<5	10
Short-toed Eagle	NR	<i>1</i>	<i>1</i>	2
Bonelli's Eagle	NR	NR?	1-2	2
Kestrel	1-2	<5	1-2	6
Barbary Falcon	NR	NR	1-3	2
Grey Francolin	100-200	200	<10	350
Arabian Partridge	NR	<i>100</i>	<i>300</i>	400
Sand Partridge	50-100	30-50	<50	140
Lichtenstein's Sandgrouse	100-200?	NR?	NR	150
Rock Dove	10-50	300	100	400
Wood Pigeon	50-100	300	200	575
Eurasian Collared Dove	5-10	NR	NR	10
Palm Dove	1400	5000	1000	7000
Striated Scops Owl	140-280	<50	<50	260
Little Owl	NR	NR	10-30	15
Pallid Swift	500	1000	1000	2500
Little Green Bee-eater	<20	NR	NR	10
Desert Lark	1200	1000	800	3000
Pale Crag Martin	150	300	100	550
Long-billed Pipit	40	1000	1400	2500
Yellow-vented Bulbul	1400	8000	3000	12000
Hume's Wheatear	200	500	300	1000
Graceful Warbler	<40	30	NR	50
Scrub Warbler	NR	<i>100</i>	<i>100</i>	200
Arabian Babbler	140	500	100	700
Purple Sunbird	400	500	50	900
Great Grey Shrike	15	NR	NR	15
Brown-necked Raven	NR	<15	<10	10
House Sparrow	1500	3000	100	4500
Yellow-throated Sparrow	200	NR	NR	200
House Bunting	40	500	100	600

Bold figures denote those species only recorded in a single region

Italicised figures denote species only found in the highland regions

NR = Not recorded

Appendix 5

MIGRANTS AND VISITING SPECIES

Ring-tailed Harrier *Circus sp*

One over Shams late afternoon, 21 Apr.

Sparrow-hawk *Accipiter nisus*

One near Saih Ketanah (Sayq), 8 April. Probably a winter visitor.

Stone Curlew *Burhinus oedicnemus*

Two calling at night on the Juniper Plateau (Sayq), 12 April. Probably a winter visitor.

Green Sandpiper *Tringa ochropus*

One Menakir dam (Sayq), 6 April. Probably a winter visitor.

Swift *Apus apus*

One thought to be this species flying with Pallid Swifts *A. pallidus* near the telecommunications towers (Sayq), 15 April.

Alpine Swift *Apus melba*

One over Sayq, 21 March.

Blue-cheeked Bee-eater *Merops superciliosus*

Groups of up to 28 seen in Ghubrah Bowl 2, 3 and 4 April, heard over Menakir (Sayq) 16 April, and over eastern Jabal Shams 17 and 24 April (18 on the latter occasion).

Nightingale *Luscinia megarhynchos*

One in full song late afternoon at Bani Habib (Sayq), 25 April.

Northern Wheatear *Oenanthe oenanthe*

Singles near Menakir (Sayq), 21 March and in Ghubrah Bowl, 1 April.

White-throated Robin *Irania gutturalis*

One Jabal Shams, 22 April.

Rock Thrush *Monticola saxatilis*

One Jabal Shams, 21 April.

Reed Warbler *Acrocephalus scirpaceus*

An *acrocephalus* warbler, probably this species, was singing in Wadi Bani Hiras (Ghubrah), 3 April.

Upcher's Warbler *Hippolais languida*

Two Ghubrah, 2 April and another there, 3 April.

Blackcap *Sylvia atricapilla*

One singing Bani Habib (Sayq), 19 April.

Whitethroat *Sylvia communis*

One Jabal Shams, 22 April.

Desert Lesser Whitethroat *Sylvia minula*

This common winter visitor to northern Oman, mainly to acacia rich habitat, was recorded at Sayq, Ghubrah and Shams until 10 April, with up to three at a single site. It was singing at Ghubrah, 4 April and Duwakiyah (Sayq), 10 April.

Chiffchaff *Phylloscopus collybita*

One near the Sayq rubbish dump, 20 March. Possibly a winter visitor.

Plain Leaf Warbler *Phylloscopus neglectus*

Singles near the rubbish dump and Menakir (Sayq) 20 and 21 March respectively. A winter visitor.

Isabelline (Red-tailed) Shrike *Lanius isabellinus*

Individuals showing the characteristics of the race *phoenicuroides*, were in song/sub-song at the juniper plateau (Sayq) 18 April and on Jabal Shams 22 April.

Bay-backed Shrike *Lanius vittatus*

One bird thought to be this species on the juniper plateau (Sayq), 12 April.

Woodchat Shrike *Lanius senator*

One in song Ghubrah Bowl, 2 April.

Pale Rock Sparrow *Petronia brachydactyla*

Three Ghubrah Bowl, 4 April.

Appendix 6

LISTING OF MAIN AREAS OF CULTIVATION

Ghubrah Bowl

Village	Area of Cultivation (Ha)	Approximate Altitude
Ghubrah	10	600
Sigla	2	1000
Feek and Bani Hirras	8	700
Amti	3	1000
Hejar	5	1108
Wekan	5	1500
Qoorah	4	1368
Hadash	6	1495
Hamlet near Hadash	1	1134
Wajmah	1	773
Total	45	

Sayq Plateau

Al Ayn/Sherega	25	1900
Al Agar	10	1800
Ghasha'a	5	1600
Government Farm	20	2300
Hail al Yeman	10	2000
Seek	5	2000
Bani Habib	5	2000
Menakir	6	2000
Total	86	

Shams

Unknown village before turn off to tourist plateau	2	1800
Unnamed village above air force gate	3	2200
Al Marat village above air force gate	3	2200
Total	8	

